

Strategic Agility, Knowledge Management and Organisational Performance in a Post-Pandemic Era: A Mediation Analysis

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Abstract

Strategic agility initiatives and knowledge management procedures have become a critical strategic challenge for attaining the necessary organizational performance in many developing nations. This study examined the mediating effects of knowledge management on the relationship between strategic agility and organisational performance in the upstream oil and gas industry of Nigeria. A survey research design and a purposive sampling technique were used. The instrument used was valid and reliable since the AVE > 0.5 and Cronbach Alpha > 0.70 as well as composite reliability values that ranged from 0.803, 0.804 and 0.843. In the upstream oil and gas sector 40 companies were selected in Lagos State and three copies of the questionnaire were given to the finance managers, the oil exploration and production managers and the planning and budget managers of each firm, which summed up to 120 respondents. 112 copies of the questionnaire were duly completed and retrieved from the respondents, giving a response rate of 93.33%. For data analysis, Smart Partial Least Square (PLS) 3.0 was used via Structural Equation Modelling. Findings revealed that knowledge management has a significant effect on organisational performance and that knowledge management has no significant mediating effect on the effect between strategic agility and



organisational performance while knowledge management and strategic agility showed a significant effect on organisational performance. Finding also established that knowledge management has no mediating effect on the relationship between strategic agility and organisational performance of upstream oil and gas companies in Lagos State, Nigeria. The study recommended that managers of upstream oil and gas companies should endeavour to embrace strategic agility and knowledge management to achieve greater business performance. Limitations of the study were highlighted and areas for further research were outlined.

Keywords: Knowledge Management, Oil and Gas Industry, Organisational Performance, Strategic Agility, Upstream Oil & Gas Sector

Paper type: Research paper

JEL Classification codes: JEL M10, M31, L25, O44

Introduction

For professionals, scholars, and managers of upstream companies in the oil and gas sector, achieving targeted financial and non-financial performance indicators has been an uphill task. This is due to the instability of market forces and the unpredictability and global dynamic nature of the sector. The performance of upstream oil and gas companies does swing back and forth and is highly volatile in nature. Therefore, effectively adopting and implementing strategic agility initiatives and engaging knowledge management processes becomes a major strategic issue for achieving desired financial and non-financial performance indicators (Zulkifli, Balqiah, & Hamsal, 2020). Globally, International Energy Agency (2020) pointed out that the oil and gas sector will continue to face new challenges in achieving desired performance as a result of dynamic shifts in the market and transformational processes relating to environmental, social, and economic issues that characterized the sector.

Businesses in the upstream oil sector remain in search of effective knowledge management and agile measures in order to respond rapidly to changes on the inside and outside the upstream oil sector, meet the knowledge demands of constantly evolving business customers, enhance long-term organizational success, and seek local and global leadership. However, achieving desired performance among upstream operators in the oil and gas industry has been a tough task to them due to the high level of technologically driven and unpredictable forces that surround the sector. Organisations in the upstream oil sector, whether they are in developed, emerging and developing economies, cannot achieve targeted performance without the adoption and implementation of sound strategic agility initiatives (Arokodare, 2021b) and engagement of knowledge management practices and processes (Ceptureanu *et al.*, 2018). Strategic agility focused on the ability of companies to identify changes in complex and fast-paced environments and to rapidly respond to these changes by capturing business opportunities ahead of competitors (Arokodare, 2020). Knowledge management enhances the



ability of the firm to recognise, create, and optimize organizational information (Ceptureanu *et al.*, 2018); it is a key driver of organisational performance and a critical tool for organisational survival, competitiveness and profitability (Omotayo, 2015).

This indicated that both strategic agility and knowledge management conceptually support and enhance organizational performance. In spite of this conceptual support, most organisations in the upstream oil and gas sector in Nigeria still face the problem of poor strategic agility and knowledge management, ineffective and unstable fiscal system, oil sector institutional failure, lack of human capital development, and poor technological capacity, all of which negatively affect financial and non-financial performance of the upstream oil and gas companies in Nigeria (PricewaterhouseCoopers, 2019). Furthermore, Anyanechi *et al.* (2020) pointed out that performance measures of the Nigerian upstream oil and gas sector were negatively hit by the global COVID-19 pandemic which caused demand shock in the market place and a consequent sharp decline in crude oil prices. This situation, which was aggravated by inappropriate adoption and inefficient engagement of strategic agility initiatives and knowledge management processes, led to a decline in the overall performance of the upstream oil and gas companies in Nigeria. However, not much research has been done on the significance, relative importance, or interaction impact of strategic agility and organisational performance with the mediating effect of knowledge management in the upstream oil and gas sector within and outside Nigeria contexts. Thus, this study aimed to achieve the following objectives:

1. Investigate the effect of strategic agility on organisational performance;
2. Assess the relationship between strategic agility and knowledge management;
3. Examine the effect of knowledge management on organisational performance; and
4. Investigate the mediating effects of knowledge management on the relationship between strategic agility and organisational performance.

Literature review

Strategic agility

Strategic agility (SA) is the capacity to continuously and adequately alter and adapt the strategy direction of the core business in response to changing conditions (Murungi, 2015), a market-creating innovation, that is, the creation of new markets with new products that reach new customers (Denning, 2016), and the continuous adjustment and readjustment of an organization's strategic direction with the goal of developing innovative ways to create value (Weber & Tarba, 2014). SA has also been characterised as change management proficiency (Dove, 2001); a competency that enables an organisation to successfully apply knowledge and efficiently accommodate the eight dimensions of change (Doz & Kosonen, 2008b). Therefore, SA is a dynamic skill developed from knowledge-generating tactics that aid organisations in adapting more effectively to change management (Venkatraman & Henderson, 2011). This is accomplished by combining the organisational dynamic capabilities of strategy sensitivity, response-ability, and collective



capabilities (Mavengere, 2013) in the organisational process in a way that maintains the organisation's flexibility without sacrificing efficiency and speed (Junin *et al.*, 2015). It promotes a "dynamic, aggressively change-embracing, and growth-oriented entrepreneurial mindset about strategic direction, decision making, and judgement under uncertain circumstances" (Lu & Ramamurthy, 2011). A firm that is agile is defined by swift decision-making, exceptional performance, continuous improvement, accountability and credibility, empowerment, effective and strategic management of human resources, decentralisation, and timely access to the appropriate information (Nafei, 2016). A strategically agile business must not only be able to notice changes in the environment, but also be able to quickly utilise the opportunities created by such changes in order to outpace its competitors on the market by adopting innovation, creativity, and speed in market-creating ideas. Consequently, SA is a company's capacity to respond rapidly and strategically to emerging signals and shifting conditions in its business environment in order to ensure its business survival and achieve superior returns relative to its competition.

Knowledge management

Knowledge, a theoretical or practical understanding of a subject, is one of the widely recognized crucial competitive assets of an organization (Gao *et al.*, 2018). It is the concept, skill, experience and vision that provide a framework for creating, evaluating and using the information (Soltani & Navimipour, 2016). In the new global marketplace,

organisations need to recognize knowledge as both a valuable resource and a strategic asset because it is a critical factor affecting the competitiveness of the organization. For this reason, organisations need to develop mechanisms to tap into employees' collective intelligence and skills to create a greater organizational knowledge base (Bollinger & Smith, 2001). In contemporary business environment, rapid changes in technologies and other business requirements like products, services, and regulatory laws justify the need to facilitate appropriate knowledge creation and sharing, a necessity in every firm (Akpa *et al.*, 2020).

There are two sorts of knowledge: tacit and explicit. Tacit knowledge is a person's personal and context-specific knowledge that remains in his or her thinking, actions, and perceptions, whereas explicit knowledge is information or knowledge that is presented in a concrete form (Magnier-Watanabe & Benton, 2017; Yee *et al.*, 2020). Knowledge management (KM) is the process of finding and using an organization's collective information to help the organisation compete (Barao *et al.*, 2017); and capturing, sharing, developing, and utilising the knowledge effectively (Navimipour & Charband, 2016). Knowledge Management (KM) is the deliberate and methodical coordination of a business's people, technology, processes, and organisation in order to provide value through reuse and innovation. This is accomplished through the encouragement of knowledge creation, sharing, and application, as well as the incorporation of key lessons learned and best practises into corporate memory to foster ongoing organisational learning (Dalkir, 2017). Literature is replete with multiple conceptualisations of KM's



dimensions, as there is no consensus among scholars and researchers in this area (Raudelien & Kordab (2019)). Though scholars agreed that KM is multifaceted and multidimensional, with many frameworks (Farooq, 2018). Different dimensions of KM are enunciated in Kianto et al (2016), Alavi and Leidner, (2001), Farook (2018), and Garcia-Fernabdez (2015).

Though there is also no consensus on the outcomes of KM, empirical research has however examined the relationship between KM and such outcomes as: financial and operational performance (Abusweilem & Abualoush, 2019), operational, quality and innovation performance (Al Ahbabi et al., 2019), KM dimensions as antecedents of organisational performance (Ha, Lo, & Wang, 2016), and performance (Wang, Ahmed, & Rafiq, 2008; Wang, Hult, Ketchen, & Ahmed, 2009, and Edvardson & Oskarsson, 2011).

Organisational performance

The notion of organisational performance (OP) is fundamental to businesses because the primary objective of all business organisations is profit-making (Olanipekun *et al.*, 2015), and the concept was defined by Syafarudin (2016) as the outcome or achievement influenced by the company's operations in utilising its own resources. Triraharjo et al. (2019) defined performance as the capacity of an organisation to acquire and process human, financial, and physical resources effectively to accomplish organisational objectives. The performance of business organisations is a multidimensional concept requiring numerous financial and non-financial performance

measurements. Financial performance is the achievement of economic objectives reflected in the results of financial and market indicators (Hernaus *et al.*, 2012) profit margins, return on assets, return on equity, growth, costs, return on investment, and sales growth (Alrowwad *et al.*, 2017). Non-financial performance measures, on the other hand, are non-financial characteristics of the business, such as product quality, customer satisfaction, on-time delivery, efficiency, productivity, market share, employee satisfaction, strategic objective attainment, workforce development and improvement (Richard *et al.*, 2008). In this study, both financial and non-financial performance indicators were utilised to evaluate organisational performance (OP) because they are considered to be complementary to one another and provide a comprehensive review (Arokodare, 2020; Chow & Van der Stede, 2006; Santos & Brito, 2012).

Review of empirical literature

Strategic agility and organisational performance

Strategically agile organisations can rapidly alter their market emphasis, product mix, key resources, and business models (fast strategy) in order to capitalise on new possibilities and adapt to shifting business conditions. These companies can outmanoeuvre slower-to-adapt competitors. Many studies have proven the favourable effect of strategic agility (SA) on organisational performance (OP), some with direct influence and others with some contingency factors. This suggests that SA may improve the performance of a company. Battour, Barahma, and Al-



Awlaqi (2021) empirically confirmed that SA has a significant positive mediating effect on the relationship between human resource management strategies and sustainable competitive advantage in large and medium-sized businesses; Arokodare (2021a) found a positive and statistically significant correlation between SA and performance of oil and gas marketing enterprises in Lagos State, Nigeria; Ogunleye *et al.* (2021) discovered that all aspects of SA independently have a substantial impact on SME's performance while Atieno and Senaji (2017) investigated the SA concept and its impact on OP in Kenyan state businesses and found that there was a strong and positive connection between SA and OP, that all components of OP had a positive and significant association with SA, and that there was a positive and significant relationship between the individual components of SA and OP. Lungu (2019) analysed how SA functions within the IT industry and confirmed that SA makes a significant contribution to the performance of a company: that in the IT industry, SA adds value to the business and the development of IT applications results in increased business agility. This finding was consistent with the findings of Queiroz *et al.* (2018). Gerald *et al.* (2020) found that strategic foresight, a crucial dimension of SA, had a statistically positive association with competitive advantage, and Arokodare (2021b) empirically discovered that all SA measures (with the exception of external response orientation) had a positive and statistically significant effect on the overall firm performance of selected oil and gas marketing firms in Lagos State, Nigeria.

On the other hand, Djaja and Arief (2015) found that SA had a negative impact on

firm profitability; Mensah and Acquah (2015) found that the presence of certain SA enablers are not significant to the performance of insurance brokerage firms; and Kiss (2011) demonstrated that both perspectives of agility (strategic and operational) may not lead the firm to outstanding results because they cannot guarantee competitiveness. Likewise, Nurjaman *et al.* (2021) revealed that when competitive strategy was made to moderate the relationship between SA and firm performance, SA recorded a negative effect on OP. Furthermore, some extant studies revealed the effect of SA on OP but with some antecedents. These contingency factors include environmental turbulence (Arokodare, 2021a; Clauss *et al.*, 2018; Reed, 2020); competitive strategy (Nurjaman *et al.*, 2021); innovation capability (AITawary & Al-Hawary, 2021); IT capability and strategic foresight (Arokodare *et al.*, 2020); development of IT applications (Lungu, 2019); organizational culture (Arokodare *et al.*, 2019); and IT application orchestration capability (Queiroz, *et al.*, 2018).

Based on the literature reviewed, the divergent findings and the paucity of studies in the upstream sector of the oil and gas industry, this study hypothesized that:

H₀₁: Strategic agility has no significant effect on organisational performance.

Strategic agility and knowledge management

Literature has conceptualized agility and knowledge management as key factors that could work together to lead to increased operational performance for organisations (Carvalho *et al.*, 2019). KM is a key enabler of SA (Rafi *et al.*, 2021).



To improve the ability of an organization to adapt to rapid changes in the business environment, such organization must engage in knowledge management processes. Such engagement will also increase the organisation's chances of survival. Likewise, the ability of the firm to sense and respond to the dynamics of the environment increases the capability of the firm to build dynamic capabilities like strategic agility (Ashrafi *et al.*, 2006). Knowledge is an intangible resource which can be utilized to achieve organisational objectives (Ong & Tan, 2021). It is regarded as one of the strategic assets of the organization which can be used to manage organisational crises (Bishwas & Sushil, 2014). To exploit opportunities and neutralize threats in order to achieve sustainable competitive advantage, firms must engage their resources and capabilities of which knowledge is a crucial resource (Lim, Thi, & Cheng, 2016). Knowledge does not generate a value until and unless an enterprise applies it to introduce a change into the environment and when the value of such a change is positive, it is called innovation (Dove, 2002).

Therefore, organisations that are able to capture and deploy the knowledge in their firms more efficiently will attain a more superior performance than their competitors. In the same way, organisations will also need to develop dynamic capabilities which are regarded as essential elements for firms' growth, success, survival and competitiveness (Lim *et al.*, 2016) as value created by resources and capabilities tends to become outdated over time. Strategic agility is one of such dynamic capabilities (Di Minin *et al.*, 2016; Hemmati *et al.*, 2016; Nyamrunda & Freeman, 2021; Teece *et al.*, 2016). Specifically, Rafi *et al.* (2021)

developed and empirically tested an integrated framework of a capability-capacity-performance relationship and suggested that KM capabilities (knowledge infrastructure and knowledge processing) enabled businesses to develop organizational agility, a firm capacity, which in turn enhanced performance.

Based on the foregoing, the study hypothesized that:

H₀₂: *There is no significant relationship between strategic agility and knowledge management.*

Knowledge management and organisational performance

An organisation's knowledge base is usually considered as the main factor conditioning various performance levels of the organization (Yadav & Singh, 2013). Knowledge resources is one of the most important strategic assets for the organization generally referred to as intangible assets. Intangible assets, knowledge assets and intellectual capitals are non-physical sources of value (claims to future benefits) generated by innovation (discovery), unique organizational designs, or human resource practices (Madhani, 2012). Literature have identified intangible assets as very critical to an organization in achieving competitive advantage, which in turn leads to superior firm performance (Bouraghda & Dris, 2015; Cater & Cater, 2009; Dutta, 2008). Nassimi *et al.* (2013) outlined the business benefits of KM as an intangible asset, to include: acquisition and sharing of knowledge, training and business learning, optimal relationship with customers, and creating of competitive advantage. KM boosts the efficiency of an organisation's decision-making ability; it is a key driver of OP and



a critical tool for organisational survival, competitiveness, and profitability (Omotayo, 2015). Though the contribution of KM to OP is well supported in literature, the impact on financial performance is usually indirect (Andreeva & Kianto, 2012). Literature is rich in empirical findings in support of the link between KM (either as a single factor or a multidimensional construct) and such business outcomes as innovation (Andreeva & Kianto, 2011); business creativity (Lee & Choi, 2003); competitive advantage (Chuang, 2004) and product leadership, customer intimacy and operational excellence (Zack *et al.*, 2009).

Specifically, Ali and Anwar (2021) investigated the impact of KM dimensions and KM as a mediator in carpet manufacturing production in Iraq and found that all KM elements had a clear and important positive relationship with increased production and all the KM concepts with a mediator had an indirect positive relationship with increased cement production. Abualoush *et al.* (2018) assessed the inter-relationship among KM infrastructure, KM process, intellectual capital and OP and found that KM processes impacted positively and significantly intellectual capital and OP. Chen (2016) indicated the importance of KM on the operational performance in the tourism sector, and Tan and Wong (2015) revealed that knowledge resources, KM processes and KM factors have significant and direct effects on manufacturing performance. Tubigi and Alshawi (2015) found that in the airline industry, knowledge usage was the most influential aspect of KM and had the highest impact on OP with knowledge transfer being a common KM process employed by organisations.

Based on the foregoing review, the study hypothesized that:

H₀₃: *There is no significant relationship between knowledge management and organisational performance*

Knowledge management as a mediating variable

Literature has variously revealed that both capabilities of SA and KM have influence on diverse organisational outcomes including overall organisational performance. Specifically, strategic agility literature has indicated that SA has a direct and indirect influence on organisational performance: overall firm performance (Arokodare, 2021b); competitive strategies and innovation (Sajuyigbe *et al.*, 2021); and performance of SMEs (Ogunleye *et al.*, 2021). Similarly, KM has been observed empirically to influence various elements of organisational performance: increased production (Ali & Anwar, 2021); job satisfaction and innovation (Akpa *et al.*, 2020); organisational growth, cost reduction and intangible benefits (Ali *et al.*, 2019); intellectual capital and organisational performance (Abualoush *et al.*, 2018); and organisational performance both financial and non-financial (Tubigi & Alshawi, 2015). Specifically, the influence of SA on OP can be enhanced by a more robust KM processes as SA is a strong management tool that can be used by the firm to engender success and survival during unpredictable and hyper-competitive business environment.

Some empirical studies have come in support of the significance of the direct impact of KM on SA and of the significance of KM to enhance the positive relationship between SA and OP.



In an empirical investigation of the relationship between agility, KM practices and firm performance among electrical and electronics manufacturing firms in Malaysia, Ong and Tan (2021) found that KM practices mediate the relationship between agility and firm performance and that the theoretical conceptualization of agility as co-dependent on KM was also supported. El Shanty and El Shareef (2020) sought to identify the role of KM processes in improving the SA in non-governmental organisations and found that KM processes have a statistically significant impact on SA and explained 84% of the variance in the dependent variable. Khaddam (2020) examined the impact of personnel creativity on SA and the results indicated that KM mediated the relationship between personnel creativity and SA; Tooranloo and Saghafi (2019) found that KM application has positive effect on agility through using competitive intelligence and strategic thinking; while Tooranloo and Saghafi (2018) in a case study of the ceramic and tile industry, found that applying KM has positive and meaningful effect on agility. Panda and Rath (2018) revealed that IT and KM capabilities were enablers of agility while KM capability was more effective on agility than IT capability. Pereira et al. (2019) in an empirical analysis of the impact of dynamic capabilities of emerging market multinationals on their firm technological performance revealed that higher investments in dynamic capabilities allowed the emerging multinational enterprises to be more agile and gained competencies through KM and thereby sustained competitiveness in the leading European countries.

Based on the above review and the varied findings, the researchers hypothesized as follows:

H₀₄: *Knowledge management has no mediating effect on the relationships between strategic agility and organisational performance*

Theoretical foundation

This research was hinged on the Knowledge-Based theory of the firm. The knowledge-based view (KBV) considers knowledge to be the firm's most strategically crucial resource that does not depreciate with other productive elements and may offer rising economic return (Curado, 2006; Panda & Rath, 2018). This theory presupposes from the resource-based view (RBV) theory, which described the kind and features of the resources contained in a corporation's resource base that are strictly relevant and allow a firm to attain competitive advantage (Nagano, 2020). Knowledge as a resource is often embedded in business culture, workforce, document processes, rules, and systems, hence the KBV hypothesis is mostly dynamic and intangible in character (Wiranttanapornkul, 2012). The difference between these two theories (RBV and KBV) is that while the RBV considers resources that work effectively based on specific personalized knowledge to be the firm's source of competitive advantage, the KBV considers knowledge to be the rare, inimitable, scarce, and non-substitutable resources that do enable firms to achieve competitive advantage (Namada, 2018; Therious *et al*, 2009). The KBV theory may also give answers for one of the weaknesses of RBV theory, which is that it focuses less on the declining values of assets in a firm's resource base (Grant,



2015). In this instance, KBV theory may offer knowledge in its intangible form as a resource that satisfies all of the RBV concept's qualities and does not deteriorate in value (Curado, 2006; Ibidunni, 2020).

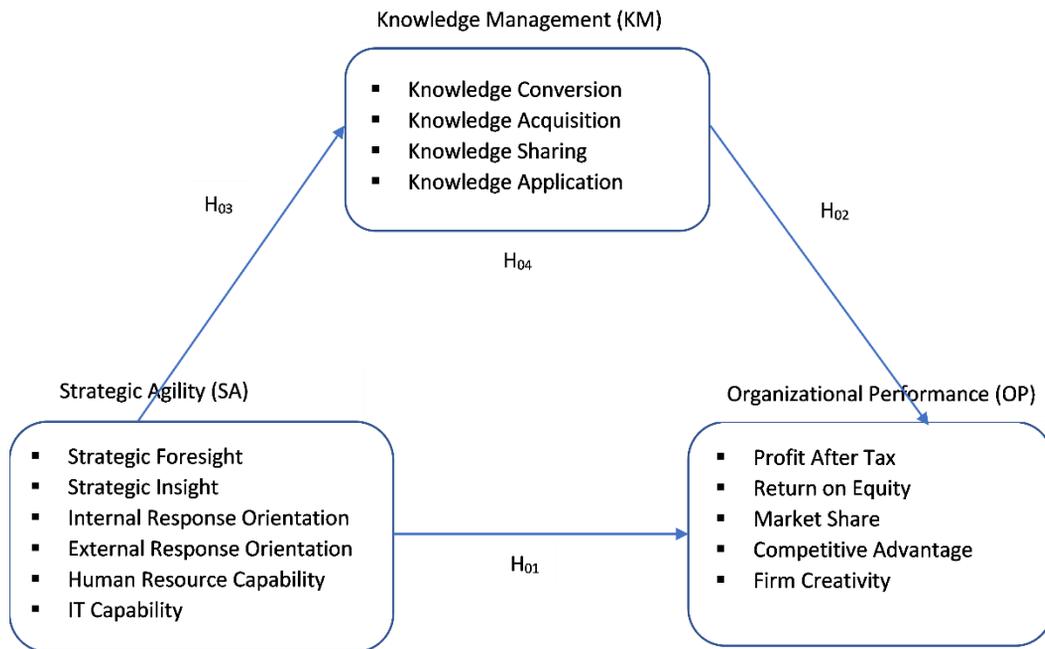
The KBV theory believes knowledge to be the firm's most strategically valuable asset (Grant, 2015; Sen, 2019). This becomes even more important because of the more quickly changing market circumstances brought about by globalization, deregulation, and technological advances, which all need the constant acquisition and transfer of knowledge inside commercial businesses (Omotayo, 2015). Therefore, the KBV theory acknowledges the significance of knowledge in businesses, recognizing that it is embedded and transmitted through multiple entities, such as organisational culture and identity, policies, routines, documents, systems, and employees, and is essential for every organization to achieve competitive advantage (Azam, Khilji, & Khan, 2016). Specifically, Tabe-Khoshnood and Nematizadeh (2017) defined strategic agility as a concept consisting of two components: responsiveness and knowledge management. Knowledge is regarded as an important tool for change management, a strategic management resource that

initiates competitive advantage in the firm by adding value to system operations, information processes, and business data (Grant, 2015).

Literature acknowledges that knowledge is an important company asset (Sen, 2019). Knowledge is explicitly classed as intangible firm assets (Cater & Cater, 2009) and regarded as value creation driver in contemporary competitive situations (Madhani, 2012). For a company to have a lasting competitive advantage, the skills to manage this important business asset (KM capabilities) must be established before additional unique capabilities can be developed. Thus, a company's KM procedures are essential and must be utilized to develop additional strategic or dynamic competencies such as SA (Curado, 2006).

Conceptual model

Below is the conceptual model proposed by the study following the literature review and the theoretical framework. The model shows that SA has a direct impact on OP and also has an indirect effect on OP through the instrumentality of the mediating role of KM on the relationship between SA and OP.



Source: Literature Review (2022)

Figure 1 Researchers’ conceptual model

Methodology

Research instrument

The study targeted upstream oil and gas companies in Lagos State, Nigeria, using a cross-sectional survey research design. The use of this design was predicated on the works of Arokodare (2021b), Olubiyi, Adeoye, Jubril, Adeyemi, & Eyanuku, (2023), Olubiyi, Egwakhe, and Akinlabi (2019), Olubiyi, Egwakhe, Amos, and Ajayi (2019), Olubiyi (2019), Olubiyi, Lawal, and Adeoye, (2022), Olubiyi, (2022a), Olubiyi, (2022b), Olubiyi, Jubril, Sojину, and Ngari, (2022), and Uwem, Oyedele, and Olubiyi, (2021). The questionnaire was created to collect the

information necessary for analysing the independent, dependent, and mediating variables, respectively. There are 6 (six) things for Strategic Agility, 7 (seven) items for Organisational Performance, and 8 (eight) items for Knowledge Management. Each variable question regarding the independent, dependent, and mediating factors was formatted using a modified 6-point Likert scale with Very High (VH) = 6, High (H) =5, Moderately High (MH) = 4, Moderately Low (ML) = 3, and Low (L) = 1. This study uses Smart Partial Least Square (PLS) 3.0 with the Structural Equation Model. Some items, including SA4 and KM7, were omitted from the factor loading, thus the measurement model adequately measures



the research variables. We believe that PLS-SEM is acceptable since the study measures second-order components (Hair, Ringle & Sarstedt, 2011). The scope of the study was oil and gas upstream firms operating in Lagos State, Nigeria. There were fifty-one (51) upstream oil and gas businesses operating in Nigeria and registered with the Department of Petroleum Resources as of December 31, 2020. (DPR). Forty (40, or more than 70%) of these businesses have their headquarters in Lagos State, Nigeria (DPR Report, 2021). This study's sample consisted of forty (40) enterprises operating in Lagos. A statistical sample is a subset of a population that is believed to roughly represent all the features of the population (Olubiya, Egwakhe, & Akinlabi, 2019). Due to the tiny population and sample size, a total enumeration method was utilised. Using a technique called purposive sampling, the study selected three respondents from each upstream oil and gas company: the Finance Manager, the Oil Exploration and Production Manager, and the Planning and Budget Manager. These respondents were chosen because they were the most qualified and experienced to provide accurate and pertinent information about the capabilities of their organisations in

the areas of strategic agility and knowledge management processes, as well as the performance of The respondents properly completed and returned 112 copies of the questionnaire. All completed copies of the questionnaire were deemed acceptable for further processing, yielding a response rate of 93.33 per cent; however, eight copies (6.67 per cent) were not returned and were not included in the subsequent analysis. The study then conducted a statistical analysis utilising the hierarchical regression method of Structural Equation Modelling.

Data analyses

This study employed a quantitative methodology. Using Partial Least Squares (PLS) and Smart PLS 3.0, the structural equation model was estimated. The overall model in PLS is composed of two models: the inner model and the outer model. The outer model consists of the relationships between the numerous latent variables and their indicators, which are used to evaluate construct validity and reliability, whereas the inner or structural model consists of the relationships between the latent variables.

Table 1 Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Knowledge Management	0.778	0.779	0.843	0.573
Performance	0.783	0.730	0.803	0.515
Strategic Agility	0.790	0.794	0.804	0.558

Source: Researchers' computation from PLS 3.0 (2023)



The average variance extracted (AVE) centered on convergent validity. The AVE, typically used to assess convergent validity, indicates how much of the indicators' variance can be explained by the latent variable. An AVE larger than 0.5 has been suggested to provide empirical evidence for convergent validity. Thus, all AVE values in Table 1 were above 0.5 (0.573, 0.515 and 0.558) indicating that there exists convergent validity. Similarly, composite reliability (CR) evaluates convergence validity. In addition, composite reliability values reflect the level to which the construct indicators reveal the latent variable, and

they should be greater than 0.70. Thus, in this study, all the composite reliability values ranged from 0.803, 0.804 and 0.843, as shown in Table 1, indicating good construct reliability. From Table 1, the construct reliability of the data collected was ascertained using the internal consistency method through the Cronbach's alpha co-efficient and the result of the test carried out suggested that the instrument used for evaluation was highly reliable based on the 0.70 benchmark. Therefore, Cronbach Alpha in Table 1 greater than 0.70 (Hair, Ringle & Sarstedt, 2011; Serbetar & Sedlar, 2016).

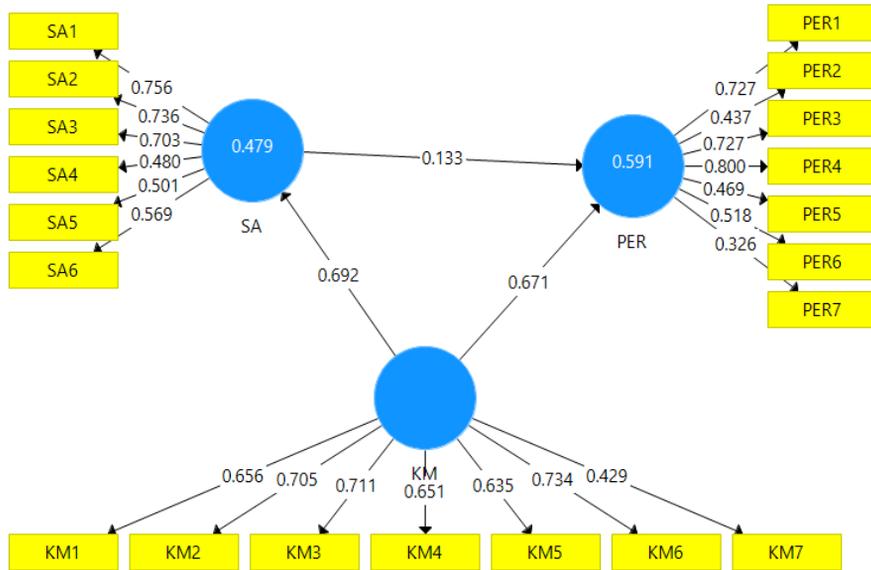
Table 2 Discriminant Validity - Fornell-Larcker Criterion

	Knowledge Management	Performance	Strategic Agility
Knowledge Management	0.688		
Performance	0.745	0.718	
Strategic Agility	0.698	0.550	0.677

Source: Researchers' computation from PLS 3.0(2023)

From Table 2, Fornell-Larcker Criterion to determine discriminant validity by observing the Fornell-Larcker Criterion. Fornell-Larcker Criterion suggests that all variables are distinctively different at a 0.90 cut-off point (Henseler, Ringle, & Sarstedt, 2015). As depicted in Table 2, the Fornell-Larcker Criterion values for all variables are in the range from 0.550

to 0.745 and this indicates that all variables are distinctively different at values below 0.90, stated by Fornell-Larcker Criterion. Importantly, the result of Fornell-Larcker Criterion infers that the variables are distinctively different from one another, which also confirms the discriminant validity.



DELETE: SA4, PER2, PER5, PER7 AND KM

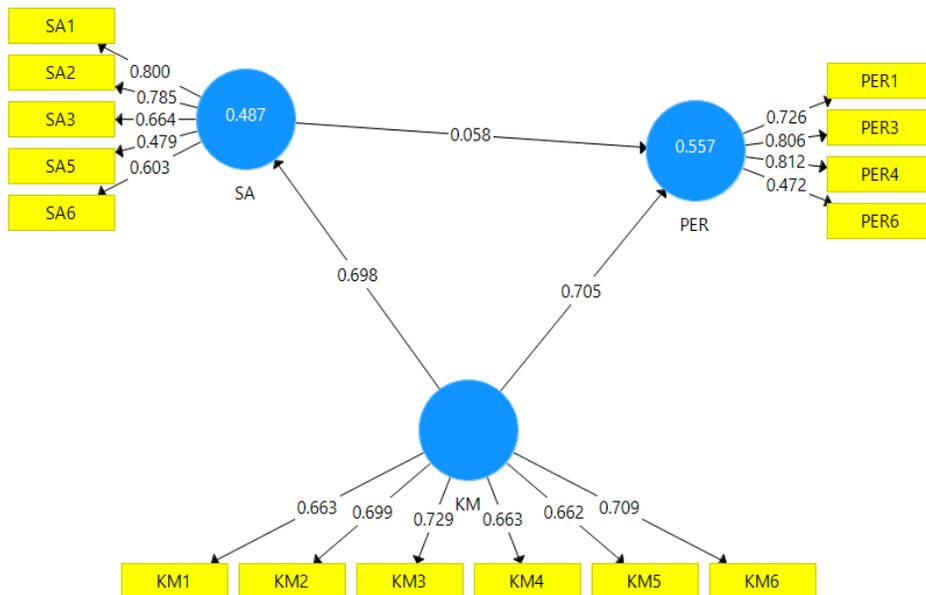




Table 3 Total Effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STDEV))	P Values
Knowledge Management -> Performance	0.705	0.712	0.107	6.575	0.000
Knowledge Management -> Strategic Agility	0.698	0.707	0.059	11.929	0.000
Strategic Agility -> Performance	0.058	0.055	0.125	0.462	0.644

Source: Researchers' computation from PLS 3.0(2023)

From Table 3, it is shown that knowledge management has significant effect on performance of upstream oil and gas companies in Lagos State, Nigeria. The result further shown that knowledge management has no significant mediating effect on the effect between strategic

agility and performance of upstream oil and gas companies in Lagos State, Nigeria since the $p < 0.05$. Also, the link effect between knowledge management and strategic agility shown significant effect; as the p-value less than 5%.

Table 4 Specific Direct Effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STDEV))	P Values
Knowledge Management -> Strategic Agility -> Performance	0.040	0.038	0.089	0.451	0.653

Source: Researchers' computation from PLS 3.0 (2023)

Depicted from Table 4, the specific indirect effects shown that there exists no mediating effect of knowledge management on the effect between strategic agility and performance of upstream oil and gas industry in Lagos State, Nigeria, since the $p > 5\%$. Thus, the

null hypothesis was accepted that there is no significant mediating effect of knowledge management on the effect between strategic agility and performance of upstream oil and gas industry in Lagos State, Nigeria.

Table 5 f-Square (f^2 for Effect Size)

	Knowledge Management	Performance	Strategic Agility	R Square	R Square Adjusted
Knowledge Management		0.574	0.951	0.557	0.549
Performance				0.487	0.483
Strategic Agility		0.004			

Source: Researchers' computation from PLS 3.0(2023)



Table 5, depicted that the Adj.R² is 0.557 which accounted that latent variables such as strategic agility account for 55.7% changes in firm performance of upstream oil and gas companies in Lagos State while the mediating effect of knowledge management and strategic agility (KM*SA) as exogenous variables shown that Adj.R² is 0.483 (48.3%) which explained that mediation between knowledge management and strategic agility account for 48.3% changes in firm performance among upstream oil and gas companies in Lagos State, Nigeria. This insinuated that mediation between knowledge management and strategic agility affect performance of upstream oil and gas companies in Lagos State, Nigeria but not significant. Thus, upstream oil and gas companies in Nigeria should embrace both knowledge management and

strategic agility drive in their day-to-day activities and decision making so as to gain overall performance.

Furthermore, to test for degree of strength of an effect, there exist threshold to test the effect size or degree of strength of an effect thus $f^2 < 0.020$ - no substantial effect $0.020 \leq f^2 < 0.150$ - weak effect size $0.150 \leq f^2 < 0.350$ - medium effect size $f^2 \geq 0.350$ - large effect size. For this study, the effect size in Table 5 depicted that knowledge management has a large effect size on firm performance while strategic agility has no substantial effect on firm performance. Thus, this study rejected the null hypothesis that; strategic agility has no significant moderating effect on the link effect between absorptive capacity and performance of upstream oil and gas companies in Lagos State, Nigeria.

Table 6 Latent Variable Correlation

	Knowledge Management	Performance	Strategic Agility	VIF
Knowledge Management	1.000	0.745	0.698	1.490
Performance	0.745	1.000	0.550	1.951
Strategic Agility	0.698	0.550	1.000	1.036

Source: Researchers' computation from PLS 3.0(2023)

Table 6 shows the results of a pairwise correlation analysis to see if there are any links between study variables with correlation coefficients more than 0.8, which is widely used as a benchmark to discover a multi-collinearity problem. All of the correlation coefficients in the model

are significantly lower than 0.8, indicating that there is no significant multicollinearity problem in the model. The Variance Inflation Factor (VIF) also supported that there exists no multicollinearity problem in the model since the VIF is less than 5.0.

Table 7 Model Fitness

	Saturated Model	Estimated Model
SRMR	0.115	0.115
d_ULS	1.590	1.590
d_G	0.588	0.588
Chi-Square	368.719	368.719
NFI	0.550	0.550

Source: Researchers' computation from PLS 3.0 (2023)

To get empirical evidence for the suggested theory, analysts should evaluate the estimated model's overall fit using the bootstrap-based test of overall model fit and the SRMR as a measure of approximation fit. If a researcher did not examine the model fit, he or she would not acquire any signal if an essential effect in the model was omitted improperly. Besides, the SRMR in this study was below the preliminary suggested threshold of 0.080, indicating an acceptable model fit. This result suggests that the proposed model is well suited for confirming and explaining the link effect model of how strategic agility with the mediation of knowledge management SA*KM explain firm performance in the oil and gas upstream sectors in Lagos State, Nigeria, since the SRMR is less than the threshold of 0.08, then the study concluded that the model for this study is well fitted.

Discussion of findings

The study established that strategic agility significantly enhanced organisational performance. This finding is in consonance with the findings of past studies which also established a significant relationship between strategic agility and such organisational outcomes

as performance (Arokodare, 2021a), competitive advantage (Arokodare, 2021b; Gerard *et al.*, 2020), organisational performance (Atieno & Senaji, 2017), the performance of IT industry (Lungu, 2019), the performance of SMEs (Ogunleye *et al.*, 2021), and firm performance (Queiroz *et al.*, 2018). The study finding is however against the earlier findings of Djaja and Arief (2015), Mensah and Acquah (2015) and Kiss (2011). While Djaja and Arief (2015) found a negative of strategic agility on firm profitability, Mensah and Acquah (2015) found that the presence of certain strategic enablers was not significant to the performance of insurance brokerage firms. Likewise, this study also confirmed that knowledge management significantly improved organisational performance of the upstream oil and gas companies in line with the findings of earlier studies like Ali and Anwar (2021), Andreeva and Kianto (2012), Chen (2016), Nassimi *et al.* (2013), Omotayo (2015), Tan and Wong (2015) and Tubigi and Alshawi (2015). On the mediation effects, the study revealed that knowledge management had no mediation effect on the effects of strategic agility on organisational performance of the upstream oil and gas companies. This was confirmed by Adj.R² of the mediating effect of knowledge management and strategic agility of 0.483



which was less than the direct effect of strategic agility on organisational performance of 0.557. This means that the mediation between knowledge management and strategic agility did affect organisational performance of the upstream oil and gas companies but was not significant. This can be explained by the nature of the oil and gas industry, especially the upstream sector where technology is always top-notch and information and knowledge storage, availability, and application are taken as standard requirements in their operations. What will make a significant difference in the performance of operators in the sector will be the speed, the competence, the responsiveness, and the flexibility with which the organisations utilize the knowledge and information available to them to achieve superior performance.

Theoretical and managerial implications

The current research has both empirical and theoretical implications. Mainly because the study literature reviews strengthen the ability to develop the theoretical framework that serves as the foundation for the current study. Further, this study was anchored on knowledge-based theory and this broadened the view by hypothesizing that Knowledge management has no mediating effect on the relationships between strategic agility and organisational performance. Insufficient studies explain the role of knowledge management practices in enhancing the accomplishment of organizational performance (Almukhlifi, Deng, & Kam, 2019). So, this study used knowledge management practices as a mediator between strategic agility and organizational performance to

provide the theoretical importance of these variables in making business successful post-pandemic. The anchored theory established how knowledge served as the foundation for uncommon assets and was the most strategically important resource because it does not depreciate, unlike other productive elements. Knowledge can also provide increasing economic returns as well as an enhanced targeted business performance of selected upstream oil and gas companies in Nigeria. Also, the anchored theory for the study exposed managers of upstream oil and gas companies to business environmental shocks (factors) such as rapidly changing market conditions resulting from globalization, economic policies, legal and regulatory changes, and technology improvements and how to cope with such unpredictable business environmental factors which may hinder the overall performance of the upstream oil and gas companies in Nigeria. In this perceptive, socio-technical systems theory strengthens the mediating role of knowledge management practices. The knowledge-based view (KBV) which anchored the study suggests that knowledge is a firm's most strategic and crucial resource that does not depreciate with other productive elements. Therefore, this provides a theoretical foundation linking strategic agility, knowledge management and organisational performance in a post-pandemic era because this theory gives strong engagement and understanding to make successful improvements within an organization (Alqudah & Muradkhanli, 2021; Gao, Su, & Yu, 2021; Toshkov, Carroll, & Yesilkagit, 2022). Furthermore, this study used knowledge management practice as a mediator because knowledge management



practices connect strategic agility, and business resources and also support collaboration with business components (Toshkov *et al.*, 2022). The managerial implication of this study is that it will enhance the future and vision of policymaking and strategic agility within organizations in Nigeria.

Conclusion and recommendations

The study hypothesized and empirically tested a conceptual model of the relationship between firms' SA and OP being mediated through KM processes in upstream oil and gas companies. While considerable research work has been done on the direct effect of SA on OP, this study revealed that SA would be more useful and effective in enhancing OP provided that the strategic sensitivity and strategic response capabilities of the firms are properly integrated into their KM processes to the extent that knowledge is shared within and across the organisations at fast speed. The study, therefore, recommended that: managers of these upstream oil and gas companies should endeavour to embrace strategic agility and knowledge management to achieve greater business performance. In addition, this study further suggests that managers and business owners should make use of strategic agility and knowledge management in their daily business activities and in their business decisions to achieve proper and appropriate business performance.

Limitations and future research directions

The study had some limitations. First, the scope of the study was restricted to companies operating in the upstream sector of the oil and gas industry resident in Lagos State, Nigeria. This scope excluded the downstream and the service sectors of the industry. This limited the generalizability of the findings to the oil and gas industry. Second, both the independent and the intervening (mediating) variables (SA and KM respectively) were considered in their unidimensional state. This limited the research findings to this level of consideration without examining the dimensions of these two variables. Thirdly, the study employed a cross-sectional survey research design which necessitated the collection of data on the variables at a point in time.

Likewise, the study opened certain areas for future research. First, some studies could be carried out in other sectors of the oil and gas industry to engender generalizability and comparison of the findings. Second, the effects of the dimensions of SA and KM on OP and the behaviours of the dimensions of KM as mediating variables should also be investigated for more comprehensive and useful results. The degree of influence of each dimension on the relationship between the variables will be clearer and explain the possibility of the dimensions not moving in the same direction or with the same strength. Thirdly, a longitudinal study of the research variables will also determine a causal relationship between them and make for a better understanding of the strength and direction of the relationship between the variables.



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