



Why do Chinese multinationals in South Africa get benefits from digital business strategy?



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Dates:

Received: 20 Dec. 2023
Accepted: 04 Apr. 2024
Published: 15 May 2024

How to cite this article:

Rong, K. & Liu, R., 2024, 'Why do Chinese multinationals in South Africa get benefits from digital business strategy?', *South African Journal of Economic and Management Sciences* 27(1), a5473. <https://doi.org/10.4102/sajems.v27i1.5473>

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Background: Chinese multinational enterprises (MNEs) are obsessed with implementing digital business strategy in global competition, but there is limited knowledge about how and when the MNEs can achieve performance.

Aim: This study aims to clarify the influence of digital business strategy on MNEs' performance in South Africa, and whether this impact is mediated by exploratory and exploitative learning and moderated by organisational memory level and dispersion.

Setting: Senior executives from the MNEs participated in the year-long survey. Before the survey, the participants were communicated and agreed, and the survey was completed by email.

Method: Two-stage data from 314 MNEs in South Africa were obtained. Hierarchical regression analysis and Hayes Process Macros were used.

Results: The results show that digital business strategy positively influenced performance, and the relationship was mediated by exploratory and exploitative learning. Organisational memory level and dispersion had an inverted U-shaped moderating effect on the relationship between digital business strategy and exploratory and exploitative learning.

Conclusion: This study provides the first insight into the relationship between digital business strategy and MNEs' performance in South Africa. It reveals the mediating mechanism and boundary conditions of this relationship, making an important contribution to the literature concerning digital business strategy.

Contribution: This study encourages MNEs in South Africa to implement digital business strategies according to local conditions. What's more, exploratory and exploitative learning is a strategic process that cannot be ignored, and moderate organisational memory can help these MNEs benefit from digital business strategy better.

Keywords: digital business strategy; organisational learning; organisational memory; Chinese MNEs; performance; South Africa.

Introduction

Contemporary advancements in digital technology usher in innovative business models and opportunities, but they amplify uncertainties and competition within the global market (Bresciani et al. 2021; Rachinger et al. 2019; Rosenbaum et al. 2022). Given this milieu, it is imperative for Chinese multinational enterprises (MNEs) to devise robust business strategies that resonate with the evolving international market dynamics (Nkwei, Rambe & Simba 2023). These corporations are transitioning beyond traditional business paradigms, increasingly adopting digital business strategies to bolster performance (Bharadwaj et al. 2013). A digital business strategy is characterised as a coherent set of strategic initiatives and actions wherein firms harness digital technologies to achieve business objectives, fortify competitiveness and drive value creation (Mithas, Tafti & Mitchell 2013). This is particularly salient in the context of South Africa, an emblematic emerging market. Here, it is crucial for MNEs to assimilate and implement digital business strategies as a conduit for performance augmentation. However, these MNEs, inclusive of Chinese firms, frequently encounter challenges in tailoring their digital solutions to the indigenous context (Mazé & Chailan 2021). Specifically, South Africa's unique regulatory ecosystem necessitates MNEs to exhibit agility, especially in domains encompassing data protection, digital communication and cybersecurity (Bwabo, Zhiqiang & Mingxing 2023; Gaglio, Kraemer-Mbula & Lorenz 2022). Given the growing affinity of Chinese MNEs in South Africa towards digital business strategies, a pivotal inquiry emerges: Under which conditions and through which mechanisms can a digital business strategy truly enhance performance?

Current literature on the influence of digitalisation on performance appears fragmented and lacks precision. Firstly, there is a discernible gap in the discourse concerning the strategic implications of digitalisation. Much of the extant research predominantly concentrates on the technical nuances (Barrett et al. 2015; Kitsios & Kamariotou 2021; Opazo-Basáez, Vendrell-Herrero & Bustinza 2022; Sjödin et al. 2020). Empirical evidence suggests that digital technology is instrumental in business model innovation, exerting positive effects on both performance and customer satisfaction (Blichfeldt & Faullant 2021). Scholars have also illuminated the transformative impact of digital technology on the manufacturing sector (Blichfeldt & Faullant 2021; Chen et al. 2021; Zahra & Covin 1993). While these studies enrich our comprehension of the role of digital technology in performance enhancement, there seems to be an oversight of non-technological elements, particularly strategic considerations. Secondly, the literature is noticeably scant regarding the contingent effects steered by digital business strategies. Most discussions about digital business strategy remain tethered to theoretical frameworks or specific case studies, largely homing in on the mechanisms through which such strategies bolster performance (Pagani 2013; Wang et al. 2020). The scrutiny of contextual determinants remains, regrettably, underexplored. For instance, Chi et al. (2018) presented a framework delineating the value creation and apportionment processes of digital business strategy within a digital milieu. Although such research offers profound insights into the efficacy of digital business strategies, it often sidesteps inquiries into the circumstances under which these strategies might falter or prove ineffectual.

In this study, we introduce moderating variables – organisational memory level (OML) and dispersion – derived from the organisational learning theory posited by Argyris and Schön (1978). The aim is to elucidate how varying degrees influence the impact of digital business strategy on performance. Organisational memory encompasses the accumulated experience, knowledge, skills and information within an organisation. This accumulation is instrumental in organisational decision-making, innovation and performance (Walsh & Ungson 1991). However, in the realm of digital business strategy execution, the importance of innovation and flexibility cannot be overstated (Bharadwaj et al. 2013; Stein 1995). Therefore, excessive reliance on organisational memory can trap an organisation in rigid paradigms, undermining the potential value derived from a digital business strategy (Cross & Baird 2000). Conversely, a scant organisational memory might render a digital business strategy ineffective, as the formulation of new strategies often draws from historical strategic experiences (Abel 2008). Furthermore, this study integrates the concepts of exploratory and exploitative learning (Schildt, Maula & Keil 2005) to offer insights into the nuanced relationship between digital business strategies and firm's performance, particularly across varying levels of organisational memory. Exploratory learning emphasises the pursuit and discovery of novel knowledge, fostering product

and service innovation. In contrast, exploitative learning is geared towards harnessing extant knowledge and technology to enhance product and service offerings. Given the data-centric and technologically advanced essence of digital business strategies, firms are positioned to gain superior market insights through such strategic learning.

This research augments the prevailing literature in several significant theoretical dimensions. Firstly, it transcends mere technical considerations, critically evaluating the influence of digital business strategies on MNEs operating in South Africa through a strategic lens. This approach furnishes a nuanced comprehension of the manner in which digital business strategies bolster the performance of these MNEs within a digitised milieu (Barrett et al. 2015; Kitsios & Kamariotou 2021; Opazo-Basáez et al. 2022). Secondly, the study endeavours to elucidate the conditions under which digital business strategies either enhance or fail to ameliorate the performance of these MNEs. It achieves this by incorporating the moderating variables of organisational memory magnitude and its dispersion (Chi et al. 2018; Pagani 2013; Ukko et al. 2019; Wang et al. 2020). Thirdly, our research embarks on the task of enriching and evolving the organisational learning theory from the vantage point of digital business strategy. Drawing on organisational learning theory, the research delineates the distinct impacts of digital business strategies on both exploratory and exploitative learning, contingent upon varying degrees of organisational memory and its distribution. By weaving the organisational learning theory into the tapestry of digital research discourse, this investigation significantly enhances and evolves existing theoretical frameworks (Fiol & Lyles 1985). Undoubtedly, this research also extends pivotal practical insights for MNEs in South Africa, guiding them in leveraging digital business strategies to bolster performance and sidestep potential digital pitfalls.

Hypotheses development

Digital business strategy and firm's performance

Based on the existing research, a digital business strategy is defined as an organisational strategy devised and enacted by harnessing digital resources to attain a competitive advantage (Bharadwaj et al. 2013; Mithas et al. 2013). Initially, MNEs' digital business strategy aids in enhancing performance by furnishing firms with real-time data on customer behaviour (Lamberton & Stephen 2016), market trajectories and competitive landscapes, coupled with a holistic comprehension of these factors, further bolstering knowledge acquisition and interpretation. Employing data mining techniques (Bhattacharyya et al. 2011), MNEs can distil the copious amounts of data produced in the digital realm. Such knowledge acquisition permits firms to discern budding customer inclinations, foresee market transitions and pinpoint shortcomings in their offerings. The digital business strategy further buttresses knowledge interpretation, enabling firms to analyse and decipher the harvested data (Tirunillai & Tellis 2014). Utilising data visualisation tools

and artificial intelligence (Tarafdar, Beath & Ross 2019), firms can identify concealed patterns and correlations in data, resulting in profound insights (Wedel & Kannan 2016). This refined understanding of customer requirements and market dynamics empowers firms to recognise avenues for innovation and devise tailored solutions catering to dynamic customer expectations. Furthermore, a digital business strategy frequently entails direct customer engagement in the innovation procedure, bolstering the efficiency of knowledge application in product development and delivery (Setia, Venkatesh & Joglekar 2013). By assimilating digital conduits and platforms, such as mobile applications and social media platforms, MNEs can interact with clientele instantaneously, leading to refinements in product design and enhancement (Bolton et al. 2018; Parise, Guinan & Kafka 2016). Therefore, the digital business strategy helps MNEs operating in South Africa to fully understand consumer demand, explore new product markets, obtain excess profits and promote enterprise performance. Specifically, the performance of MNEs in the local market includes financial performance (sales and profitability), market performance (market share and customer retention rate), operational performance (product service quality) and innovation performance (developing new products or services). Thus, we propose the hypothesis:

H1: Digital business strategy has a positive impact on the performance of MNEs operating in South Africa.

Mediating effect of exploratory and exploitative learning

Exploratory learning underscores the acquisition of new knowledge, the exploration of unfamiliar terrains and the quest to unearth novel solutions (Schildt et al. 2005). Digital business strategies, by nature, champion this learning mode. The use of digital tools, such as data analytics, artificial intelligence and cloud computing enables companies to collect, process and interpret vast amounts of data (Bharadwaj et al. 2013). In the South African context, this data can provide insights into local consumer behaviours, emerging market trends, cultural nuances and socio-economic variables that influence purchasing decisions. By harnessing these digital tools, MNEs can uncover hidden patterns, anticipate market shifts and gain a deeper understanding of the South African consumer base (Mithas et al. 2013). This exploratory learning process, founded on digital analysis, empowers companies to iterate, innovate and introduce products or services tailored to the local market's unique demands (Nijssen et al. 2012). The South African digital landscape is home to a plethora of startups and tech innovators. For MNEs, partnerships with these local digital entities can be a goldmine for exploratory learning (Blichfeldt & Faullant 2021). By collaborating with local tech firms, MNEs can gain access to grassroots-level insights, innovative digital solutions tailored for the local market and a deeper understanding of the nuances of South African digital consumers. This is often regarded as a part of digital business strategy, and also a conduit for knowledge exchange, mutual growth and co-innovation (Raymond et al. 2020). Thus, we propose the hypothesis:

H2a: Digital business strategy has a positive impact on the exploratory learning of MNEs operating in South Africa, thus promoting performance.

Exploitative learning stresses the deepening and extension of pre-existing knowledge (Brady & Davies 2004; Chen et al. 2021). One of the cornerstones of exploitative learning is the organisation's ability to manage, disseminate and capitalise on its collective knowledge (Atuahene-Gima & Murray 2007). Digital platforms, intranets and collaborative tools not only facilitate knowledge sharing but also ensure that the accumulated wisdom of the organisation is readily accessible (Bharadwaj et al. 2013). For MNEs in South Africa, this means that best practices developed in one branch can be seamlessly transferred and adapted to another. The lessons learned from past challenges can be disseminated organisation-wide, ensuring that errors are not repeated and successes are built upon. This systematic refinement and leveraging of organisational knowledge undoubtedly lead to improved performance. Exploitative learning also extends to the realm of partnerships (Eriksson, Leiringer & Szentos 2017). Many MNEs in South Africa have already forged ties with local tech firms, startups and service providers. A focused digital business strategy looks at deepening these relationships, extracting more value from collaborations and building upon shared histories for mutual benefit (Mithas et al. 2013). By deepening collaborations, companies can integrate more seamlessly into the local digital ecosystem, benefit from shared resources and co-create solutions that leverage the strengths of both entities, leading to enhanced performance metrics. Thus, we propose the hypothesis:

H2b: Digital business strategy has a positive impact on the exploitative learning of MNEs operating in South Africa, thus promoting performance.

Moderating role of the organisational memory

On the one hand, the ability to absorb the knowledge of the environment into the firm through learning depends on the existing knowledge reserve (Moorman & Miner 1997). The low level of organisational memory implies that the firm lacks the basic conditions to support the implementation of a digital business strategy. As the firm has not learned from past success and failure cases, the implementation effect of digital business strategy is limited. In the case where the knowledge base is not sufficient enough to inspire new ideas and solutions, there is little possibility of exploring and creating new knowledge (March 1991), and the opportunities for exploratory learning are relatively few. On the other hand, when organisational memory is too deep, negative effects may occur. Too much historical information and experience can lead firms to rely too much on patterns and methods that have worked well in the past, and firms would opt to reinforce previous beneficial experiences, which prevents firms from going beyond the inherent scope of knowledge. However, firms with a moderate level of organisational memory have enough knowledge and historical experience, while not relying on enough path dependence. In this case, the development and implementation of digital business strategy provides valuable

guidance to firms. Organisations can learn from past successes and failures and encourage employees to explore new ideas and approaches. The implementation of digital business strategies can better integrate past experiences, thus providing a stronger foundation for exploratory learning. Thus, we propose the hypothesis:

H3a: The organisational memory level has an inverted U-shaped moderating effect on the relationship between digital business strategy and exploratory learning.

Organisational memory level indicates that the firm has a large amount of knowledge in some areas (Walsh & Ungson 1991). Firstly, firms have ample historical information to guide the execution of digital business strategies and day-to-day decisions. Without adequate knowledge, firms will struggle to accurately predict the possible outcomes of new strategies and will face uncertainty in executing digital business strategies (Park et al. 2015). Therefore, the digital business strategy implemented by firms with a large store of knowledge guides employees' behaviour and leads to relatively more exploitative learning opportunities. Secondly, the existence of a large amount of knowledge can stimulate the curiosity and creativity of employees. Through the internal digital communication platform, employees find the existence of unknown knowledge in the field, which stimulates their willingness to absorb and integrate deep knowledge to upgrade the original solutions. These cross-boundary search efforts of employees continuously improve the efficiency of knowledge absorption in firms, and then become the starting point of exploitative learning. Thirdly, a large knowledge base makes firms more capable of solving complex problems (Li et al. 2013). Exploitative learning involves integrating the existing knowledge to solve new problems and challenges, and the OML makes employees more likely to find solutions. Thus, we propose the hypothesis:

H3b: The organisational memory level has a positive moderating effect on the relationship between digital business strategy and exploitative learning.

Low organisational memory dispersion (OMD) means that firms do not have the diverse perspectives to comprehensively understand the benefits of digital business strategy (Walsh & Ungson 1991). If a firm's memory dispersion is too low, it limits the organisation's ability to focus on certain perspectives, which can lead to narrow knowledge. Innovation and growth often occur at the intersections of different fields, and firms will miss cross-cutting opportunities if the memory is too narrow. It means firms are not able to cope with diversity, limiting their ability to innovate and explore. When OMD is high, firms are too distracted from resources and attention. Being involved in too many fields limits the exploration degree of a certain field. Going deep into a field and creating knowledge in it often takes time and focus, but firms that are spread out across too many fields can struggle to provide enough depth for each. In addition, too high dispersion increases management complexity. Firms need to manage knowledge and resources in multiple areas, which leads to resource redundancy and coordination

difficulties. When the OMD is moderate, the firm can maintain an appropriate breadth of knowledge in various fields, and there is enough diversified knowledge for exploratory learning. A moderate dispersion of organisational memory empowers the firm with the ability to explore new areas, while also having enough basic knowledge to support these explorations, ultimately prompting the company to be more innovative (Yalcinkaya, Calantone & Griffith 2007). Thus, we propose the hypothesis:

H4a: The organisational memory dispersion has an inverted U-shaped moderating effect on the relationship between digital business strategy and exploratory learning.

Digital business strategy provides more opportunities for internal knowledge sharing. When firms have diverse sources of knowledge, employees can benefit from experience and insights in different fields, which facilitates collaboration across departments and functions (Park et al. 2015). This sharing benefits leveraging the existing knowledge to solve problems and improve processes. Moreover, firms have extensive knowledge in multiple fields and can better cope with complex, multidimensional problems. The implementation process of digital business strategy will involve multiple aspects of the problems, which require various areas of knowledge to solve. Organisational memory dispersion enables companies to understand and respond to these issues more comprehensively, rather than relying solely on knowledge in one area. If an enterprise is limited to only one domain of knowledge, it is limited in integrating cross-domain knowledge to solve multi-dimensional problems (Walsh & Ungson 1991). Finally, having a broad knowledge and resource base helps firms better integrate the existing resources. In the process of digital business strategy implementation, human resources, technology and other departments have accumulated specific knowledge. The valuable knowledge stored by different departments is a useful source, which means that by integrating these resources, firms can make better use of existing resources and create more value. Thus, we propose the hypothesis:

H4b: Organisational memory dispersion has a positive moderating effect on the relationship between digital business strategy and exploitative learning.

The research model is shown in Figure 1.

Methods

Data collection and sample

This research involved collecting data from Chinese MNEs in South Africa using questionnaires administered in two phases. The surveyed MNEs spanned sectors such as manufacturing, construction and finance. Middle to senior-level managers, including CEOs and other senior executives, were selected to provide accurate and comprehensive firm information. The questionnaire emphasised adherence to ethical standards, assuring respondents that their data would be used solely for scholarly purposes and kept confidential, without disclosure to unrelated parties or organisations. The

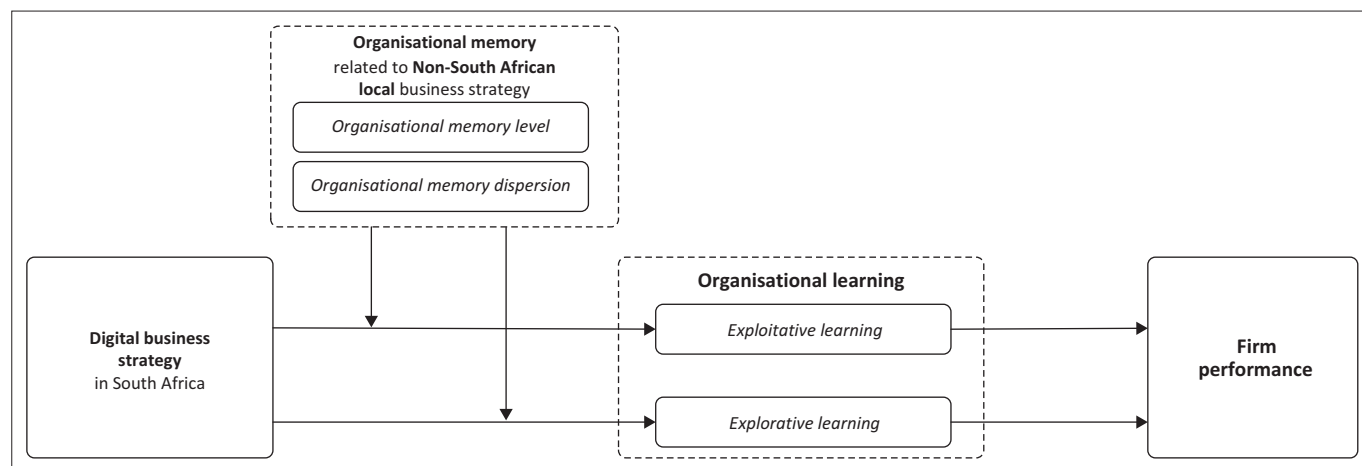


FIGURE 1: The research model.

survey was conducted in two stages. The initial stage involved querying managers about digital business strategies, organisational memory, organisational learning scales and control variable data. In the subsequent stage, a year later, the same managers were asked to fill out a performance evaluation scale. The first round saw 412 questionnaires distributed, yielding 357 valid responses, while the second round, conducted a year later, resulted in 314 valid responses from the 357 distributed questionnaires.

The study's sample was varied, covering several industries: 26.8% manufacturing, 31.5% construction, 26.4% finance and 15.3% other sectors. Most firms (62.1%) had 51–150 employees, and 57.7% were established for over 9 years. The firms were also geographically diverse, with 27.1% from East China, 32.8% from North China, 26.4% from Central China and 13.7% from other areas. This diversity in size, age, industry and location made the sample representative and credible, as shown in Table 1.

Variables

The measurement tools employed in this research consisted of well-established scales, structured as a five-point Likert scale. This format allowed responses to vary from 1, complete disagreement, to 5, full agreement. To enhance the reliability of the data in this research context, we made suitable adjustments to these scales. Table 2 shows the detailed information about these scale items.

- **Digital business strategy:** The scale of digital business strategy came from the research of Ukko et al. (2019) containing six items with a typical item such as 'Our firm is familiar with the development and use of digital technology'. The Cronbach's α was 0.844 in this study.
- **Organisational memory:** According to the research of Moorman and Miner (1997), we divided organisational memory into two dimensions: OML and OMD. Among them, OML contains three items, with typical items such as 'Members have a lot of knowledge concerning the digital business strategy implemented by the firm in other regions'; Organisational memory dispersion contains four items, with typical items such as 'Members have a common

TABLE 1: Basic characteristics of samples ($N = 314$).

Characteristic	Type	Frequency	%
Firm's type	Manufacturing	84	26.8
	Construction	99	31.5
	Finance	83	26.4
	Other	48	15.3
Scale	Under 50 people	53	16.9
	51–100 people	76	24.2
	101–150 people	119	37.9
	More than 150 people	66	21.0
Firm's age	Under 4 years	37	11.8
	5–8 years	96	30.6
	9–12 years	112	35.7
	Over 12 years	69	22.0
Location	East China	85	27.1
	North China	103	32.8
	East China	83	26.4
	Other	43	13.7

understanding of the overall thinking of the digital business strategy in other regions'. The Cronbach's α was 0.704 and 0.855, respectively, in this study.

- **Exploratory and exploitative learning:** Exploratory learning and exploitative learning were measured with three items, each adapted from Atuahene-Gima and Murray (2007). Measurement items for exploratory learning include 'We collect novel information and ideas that go beyond our current market and business opportunity experiences'. Exploitative learning includes items such as 'We search for the usual and generally proven methods and solutions in our marketplace'. The Cronbach's α was 0.719 and 0.803, respectively, in this study.
- **Firm's performance:** Referring to Perdana et al. (2022), we used six items to measure firm's performance. Typical items such as 'With digital business strategy, our sales have improved' and 'With digital business strategy, our profitability has improved'. The Cronbach's α was 0.871 in this study.
- **Control variables:** Considering that the dual learning and firm performance may be affected by firm type, firm size, firm age and home country, we take them as control variables to make the research results more reliable.

TABLE 2: Scale items, factor, reliability and validity analysis ($N = 314$).

Measures		Loading	Cronbach's α	CR	AVE
Digital business strategy (DBS); KMO = 0.862, Bartlett's significance < 0.001		-	0.844	0.885	0.562
DBS1	In South Africa, we are familiar with the development and use of digital technology	0.807	-	-	-
DBS2	In South Africa, we have a clear vision of using digital technology in the future	0.714	-	-	-
DBS3	In South Africa, we support the application of digital technology in various business fields	0.712	-	-	-
DBS4	In South Africa, using digital technology in internal processes has become an important part of our business	0.762	-	-	-
DBS5	In South Africa, we are used to digital technology in our business	0.743	-	-	-
DBS6	In South Africa, digital technology has improved our business operations	0.759	-	-	-
Organisational memory level (OML); KMO = 0.748, Bartlett's significance < 0.001		-	0.704	0.823	0.608
OML1	Members have a lot of knowledge concerning the digital business strategy implemented by the firm in other regions	0.761	-	-	-
OML2	Members have a lot of experience concerning the digital business strategy implemented by the firm in other regions	0.825	-	-	-
OML3	Members are very familiar with the digital business strategy implemented by the firm in other regions	0.752	-	-	-
Organisational memory dispersion (OMD); KMO = 0.776, Bartlett's significance < 0.001		-	0.855	0.903	0.700
OMD1	Members have a common understanding of the overall thinking of the digital business strategy in other regions	0.784	-	-	-
OMD2	Members have a consensus on the implementation steps of the digital business strategy in other regions	0.895	-	-	-
OMD3	Members have a consensus on the ultimate goal of the digital business strategy in other regions	0.839	-	-	-
OMD4	Members have a consensus on the specific measures of the digital business strategy in other regions	0.826	-	-	-
Exploratory learning (ERL); KMO = 0.779, Bartlett's significance < 0.001		-	0.719	0.842	0.640
ERL1	We collect novel information and ideas that go beyond our current market and business opportunity experiences	0.788	-	-	-
ERL2	We focus on acquiring information and knowledge on our business that involves experimentation and high market risks	0.785	-	-	-
ERL3	We prefer to collect information with no identifiable strategic market needs to ensure experimentation with our business activities	0.827	-	-	-
Exploitative learning (EIL); KMO = 0.774, Bartlett's significance < 0.001		-	0.803	0.884	0.719
EIL1	We search for the usual and generally proven methods and solutions in our marketplace	0.888	-	-	-
EIL2	We aim to search for information to refine common methods and ideas when solving problems in our firm	0.773	-	-	-
EIL3	We search for knowledge and information that we can implement well rather than those ideas that could lead to implementation mistakes in the marketplace	0.878	-	-	-
Firm performance (FP); KMO = 0.795, Bartlett's significance < 0.001		-	0.871	0.903	0.610
FP1	With digital business strategy, our sales have improved	0.777	-	-	-
FP2	With digital business strategy, our profitability has improved	0.754	-	-	-
FP3	With digital business strategy, we introduce new products or services to the market more quickly than before	0.853	-	-	-
FP4	With digital business strategy, our customers respond more favourably to our new products/services than before	0.772	-	-	-
FP5	With digital business strategy, our market share has increased	0.737	-	-	-
FP6	With digital business strategy, my organisation's customer retention rate has improved	0.791	-	-	-

CR, construct reliability; AVE, average variance extracted.

Significantly, market fluctuations and rapid technological changes can also influence performance. Therefore, market and technology turbulence were included as control variables in our analysis. We utilised the measurement framework proposed by Jaworski and Kohli in 1993. The market turbulence included six items and technology turbulence consisted of five items. The Cronbach's α was 0.862 and 0.854, respectively, in this study.

Results

Reliability and validity analysis

In this research, the formal survey's data reliability was reassessed. The study began by analysing the KMO values and Bartlett's test of sphericity in Table 2. These values exceeded 0.7 and were significant, suggesting suitability for

exploratory factor analysis. The scales demonstrated acceptable factor loadings, varying from 0.712 to 0.895, which exceed 0.5. The Cronbach's α values for the eight constructs exceed 0.7. Additionally, the construct reliability (CR) values for the six constructs exceed 0.7, which is the acceptable CR level suggested by Bagozzi and Yi (1988). The average variance extracted (AVE) for all factors varying from 0.562 to 0.719 satisfied the standard criteria of 0.5. The research further evaluated the data using the Harman single-factor test, analysing all items across six variables. The total variance explained by the sample was 64.26%, with the primary component without rotation contributing 23.43%, below the 40% threshold. Common method bias was also assessed, introducing a hypothetical factor as per Podsakoff et al. (2003). The hypothesised model's fitting

TABLE 3: Results of confirmatory factor analysis ($N = 314$).

Model	χ^2/df	CFI	TLI	RMSEA	SRMR
Six-factor model: DBS, EIL, ERL, OML, OMD, FP	2.246	0.903	0.901	0.053	0.046
Five-factor model: DBS, EIL, ERL, OML, OMD + FP	5.566	0.716	0.666	0.123	0.091
Four-factor model: DBS, EIL, ERL, OML + OMD + FP	6.037	0.571	0.521	0.158	0.127
Three-factor model: DBS, EIL, ERL + OML + OMD + FP	7.360	0.452	0.395	0.173	0.142
Two-factor model: DBS, EIL + ERL + OML + OMD + FP	8.007	0.392	0.334	0.178	0.149
One-factor model: DBS + EIL + ERL + OML + OMD + FP	7.829	0.405	0.351	0.130	0.147

CFI, comparative fit index; TLI, Tucker–Lewis index; RMSEA, root-mean-square error of approximation; SRMR, standardised root mean squared residual; DBS, digital business strategy; OML, organisational memory level; OMD, organisational memory dispersion; ERL, exploratory learning; EIL, exploitative learning; FP, firm performance.

TABLE 4: Descriptive statistics and correlation analysis of variables ($N = 314$).

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Firm type	-	-	-	-	-	-	-	-	-	-	-	-
2. Firm age	-0.193**	-	-	-	-	-	-	-	-	-	-	-
3. Firm scale	-0.044	0.246***	-	-	-	-	-	-	-	-	-	-
4. Home country	0.101	-0.086	0.124*	-	-	-	-	-	-	-	-	-
5. MT	0.003	0.102	0.005	-0.152**	-	-	-	-	-	-	-	-
6. TT	-0.069	0.122*	-0.091	-0.105	0.360***	-	-	-	-	-	-	-
7. DBS	-0.044	0.058	0.024	0.091	-0.192**	-0.217***	-	-	-	-	-	-
8. EIL	0.114*	0.037	-0.029	0.073	-0.072	-0.091	0.248***	-	-	-	-	-
9. ERL	-0.017	-0.143*	0.055	0.094	-0.256**	-0.311***	0.245***	0.272***	-	-	-	-
10. OML	-0.124*	-0.085	0.033	0.011	-0.108	-0.002	0.108	-0.070	-0.064	-	-	-
11. OMD	0.051	-0.136*	-0.028	-0.070	-0.007	0.025	-0.163**	-0.103	0.038	-0.130*	-	-
12. FP	0.040	-0.095	0.014	0.211***	-0.140*	-0.258***	0.386***	0.306***	0.385***	0.006	-0.095	-
M	2.30	2.63	2.68	2.27	3.37	3.06	3.77	3.74	4.04	3.52	3.17	3.71
SD	1.02	0.99	0.94	1.00	0.66	0.77	0.62	0.64	0.76	0.80	0.94	0.68

*, $p < 0.05$, **, $p < 0.01$, ***, $p < 0.001$.

DBS, digital business strategy; OML, organisational memory level; OMD, organisational memory dispersion; ERL, exploratory learning; EIL, exploitative learning; FP, firm performance; MT, market turbulence; TT, technological turbulence; M, mean value; SD, standard deviation.

parameters showed minimal variations: $\Delta(\chi^2/df) = 0.049$, ΔCFI (comparative fit index) = 0.002, ΔTLI (Tucker–Lewis index) = 0.001 and $\Delta RMSEA$ (root-mean-square error of approximation) = 0.004, indicating effective control of common method bias. Lastly, the study explored discriminant validity among variables through confirmatory factor analysis of the six variables. The results revealed the poorest fit for the single-factor model, while the six-factor model exhibited a satisfactory fit ($\chi^2/df = 2.246$, CFI = 0.903, TLI = 0.901, RMSEA = 0.053, SRMR = 0.046), outperforming other models. This suggested strong discriminant validity for the six factors, as detailed in Table 3.

Descriptive statistics and correlation analysis

The analysis presented in Table 4 revealed a notable positive relationship between digital business strategy and firm's performance ($r = 0.386$, $p < 0.001$). Furthermore, a significant positive association was observed between digital business strategy and both exploitative and exploratory learning ($r = 0.248$, $p < 0.001$; $r = 0.245$, $p < 0.001$). There was also a strong positive correlation between exploitative and exploratory learning and firm's performance ($r = 0.306$, $p < 0.001$; $r = 0.385$, $p < 0.001$). These correlations provide initial support for the proposed hypotheses.

Direct effect test

Regression analysis using SPSS 24 software was conducted to examine the hypotheses, as detailed in Table 5. The analysis

revealed that digital business strategy significantly enhanced firm's performance ($\beta = 0.380$, $p < 0.001$, M2), supporting H1. Furthermore, this strategy positively influenced both exploratory and exploitative learning ($\beta = 0.252$, $p < 0.001$, M5; $\beta = 0.236$, $p < 0.001$, M8). Additionally, it was observed that exploratory and exploitative learning each significantly contributed to improved firm's performance ($\beta = 0.171$, $p < 0.01$, M3; $\beta = 0.209$, $p < 0.001$, M3). These findings regarding the direct effects laid the groundwork for assessing the mediating effects.

Mediating effect test

Initially, hierarchical regression analysis was applied to evaluate the mediating effect of exploratory and exploitative learning, as illustrated in Table 5. When considering firm's performance as the outcome variable, it was observed that digital business strategy exerted a notably positive influence on firm's performance, although with a reduced coefficient ($\beta = 0.292$, $p < 0.001$, M3). Concurrently, both exploratory and exploitative learning demonstrated a significant positive effect on firm's performance ($\beta = 0.171$, $p < 0.01$, M3; $\beta = 0.209$, $p < 0.001$, M3). This indicates that exploratory and exploitative learning function as intermediaries linking digital business strategy and firm performance, thereby supporting H2a and H2b.

The assessment of the mediating effect utilised the PROCESS add-on for SPSS 24, coupled with the bootstrap approach. A total of 5000 bootstrap samples were used, and the confidence intervals were established at a 95% confidence level.

TABLE 5: Regression analysis of direct effect ($N = 314$).

Variable	FP			EIL			ERL		
	M1	M2	M3	M4	M5	M6	M7	M8	M9
Constant	4.258***	2.558***	1.151**	3.776***	3.645***	3.597***	5.511***	5.375***	5.379***
Firm's type	-0.002	0.008	0.002	0.074*	0.076*	0.062	-0.043	-0.047	-0.067
Firm's age	-0.031	-0.054	-0.040	0.060	0.027	0.044	-0.093*	-0.111*	-0.098*
Firm's scale	-0.013	-0.006	-0.010	-0.042	-0.026	-0.007	0.046	0.063	0.073
Location	0.123**	0.107**	0.098*	0.040	0.026	0.017	0.026	0.019	0.008
MT	-0.027	0.018	0.052	-0.043	-0.024	-0.041	-0.175**	-0.160*	-0.180**
TT	-0.199***	-0.143**	-0.097*	-0.064	-0.020	-0.009	-0.233***	-0.193**	-0.180**
DBS	-	0.380***	0.292***	-	0.252***	0.538***	-	0.236**	0.599***
EIL	-	-	0.171**	-	-	-	-	-	-
ERL	-	-	0.209***	-	-	-	-	-	-
OML	-	-	-	-	-0.064	0.018	-	-0.114*	-0.072
OML ²	-	-	-	-	-	0.053	-	-	0.006
OML × DBS	-	-	-	-	-0.018	-0.166	-	-0.129	-0.122
OML ² × DBS	-	-	-	-	-	-0.372***	-	-	-0.212*
OMD	-	-	-	-	-0.044	-0.047	-	0.042	0.035
OMD ²	-	-	-	-	-	0.005	-	-	0.049
OMD × DBS	-	-	-	-	-0.104	-0.112	-	0.013	-0.003
OMD ² × DBS	-	-	-	-	-	-0.207**	-	-	-0.388***
R ²	0.104	0.214	0.299	0.033	0.103	0.192	0.137	0.187	0.260
ΔR ²	0.104	0.110	0.086	0.033	0.069	0.089	0.137	0.050	0.073
F	5.932***	11.893***	14.435***	1.773	3.150***	4.712***	8.140***	6.330***	6.992***

*, $p < 0.05$, **, $p < 0.01$, ***, $p < 0.001$.

DBS, digital business strategy; OML, organisational memory level; OMD, organisational memory dispersion; ERL, exploratory learning; EIL, exploitative learning; FP, firm's performance; MT, market turbulence; TT, technological turbulence.

TABLE 6: Mediating effect test of BOOTSTRAP method in PROCESS program ($N = 314$).

Effect type	Path	Effect	SE	LLCI	ULCI
Direct effect	DBS → FP	0.304	0.056	0.193	0.414
Total effect	DBS → FP	0.118	0.033	0.053	0.182
Indirect effect 1	DBS → EIL → FP	0.043	0.019	0.012	0.088
Indirect effect 2	DBS → ERL → FP	0.068	0.026	0.028	0.133

Note: If the interval does not include 0, it means that the effect is significant, otherwise it is not significant.

DBS, digital business strategy; ERL, exploratory learning; EIL, exploitative learning; FP, firm performance; SE, standard error; LLCI, lower limit of 95% confidence interval; ULCI, upper limit of 95% confidence interval.

Table 6 displays these findings. The analysis revealed a direct impact of digital business strategy on company performance at 0.304 (95%CI [0.193, 0.414]). The indirect effects were also notable: via exploitative learning, the effect was 0.043 (95%CI [0.012, 0.088]), and through exploratory learning, it was 0.068 (95%CI [0.028, 0.133]). The absence of zero in these intervals suggests that both exploitative and exploratory learning act as mediators in the relationship between digital business strategy and firm's performance. This once again supports H2a and H2b.

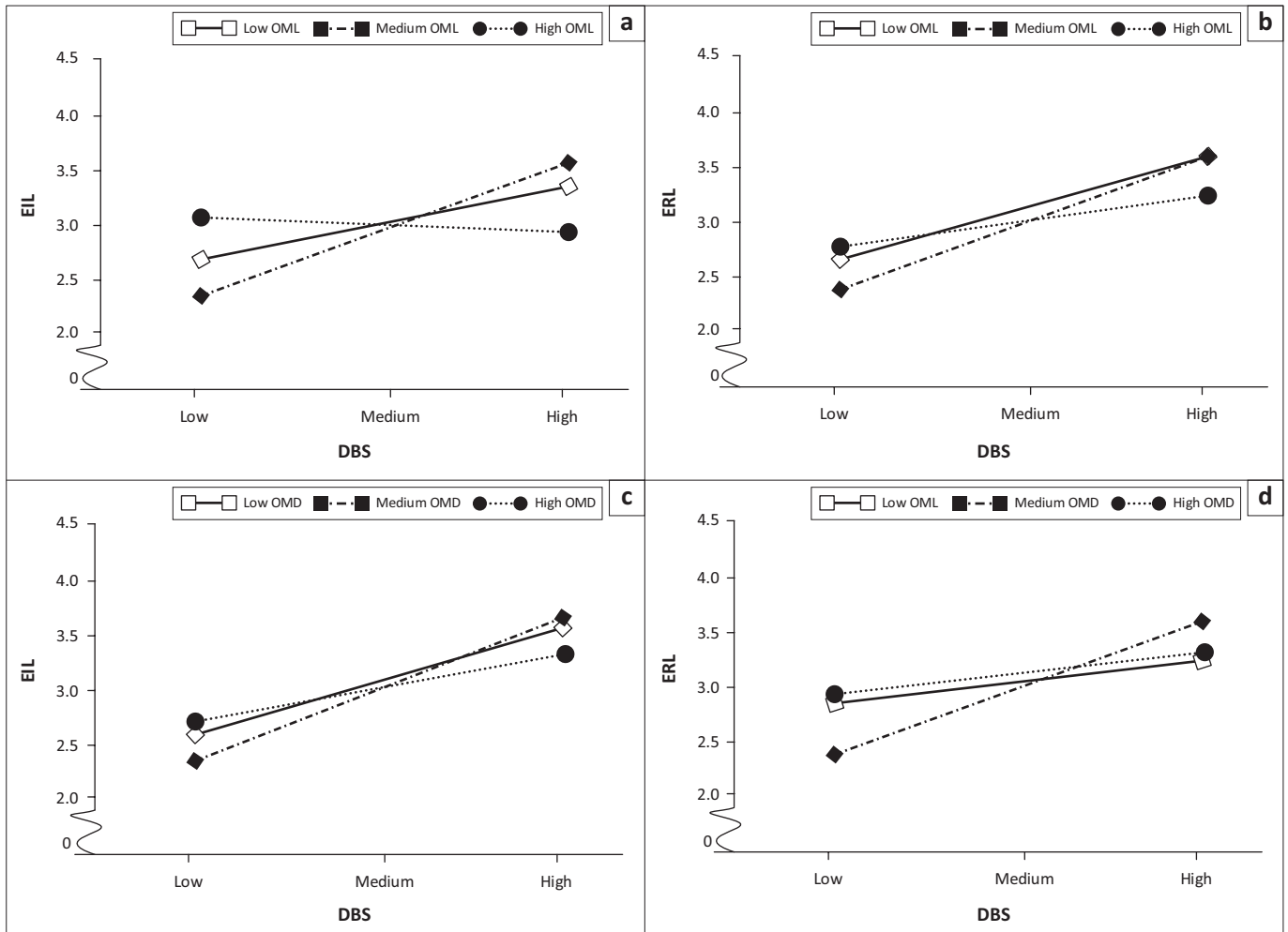
Moderating effect test

The results, as depicted in Table 5, revealed that the interaction between the level of organisational memory and the digital business strategy did not exert a substantial influence on both exploitative and exploratory learning ($\beta = -0.018$, $p > 0.05$, M5; $\beta = -0.129$, $p > 0.05$, M8). However, a significant negative effect was observed when considering the square of the OML in interaction with the digital business strategy, affecting both forms of learning ($\beta = -0.372$, $p < 0.001$, M6; $\beta = -0.222$, $p < 0.05$, M9). This suggested an inverse U-shaped moderating effect of the OML on the relationship between digital business strategy and the dual learning processes, confirming H3a but

not H3b. Similarly, the interaction between OMD and digital business strategy showed no significant effect on exploitative and exploratory learning ($\beta = -0.104$, $p > 0.05$, M5; $\beta = 0.013$, $p > 0.05$, M8). Conversely, a pronounced negative impact was noticed when examining the square of OMD in interaction with digital business strategy ($\beta = -0.207$, $p < 0.01$, M6; $\beta = -0.388$, $p < 0.001$, M9), indicating an inverse U-shaped moderating effect of OMD on the same relationship, thereby validating H4a and rejecting H4b. Lastly, illustrative diagrams were constructed to visually represent these moderation effects (Figure 2A–D).

Conclusion

This study has the following important findings. We argue that the adoption of a digital business strategy significantly enhances the performance of MNEs operating in South Africa. This positive correlation suggests that integrating digital tools, platforms and methodologies into the core business strategy not only streamlines operations but also provides these companies with a competitive edge in the South African market (Bharadwaj et al. 2013). The digital transformation enables these firms to better understand local consumer behaviour, optimise supply chain processes and tap into new market segments more efficiently. Furthermore,



DBS, digital business strategy; OML, organisational memory level; OMD, organisational memory dispersion; ERL, exploratory learning; EIL, exploitative learning.

FIGURE 2: The moderating effect of organisational memory level and dispersion: (a) EIL-OML; (b) ERL-OML; (c) EIL-OMD; (d) ERL-OMD.

the digital approach aids in real-time decision-making, fostering innovation and enhancing customer engagement (Mithas et al. 2013). Besides, our findings reveal that technological turbulence has a significant negative impact on the MNEs' performance. This phenomenon can be attributed to the accelerated pace of industrial-technological innovations in environments characterised by high technological turbulence, making it challenging for firms to maintain a competitive edge and achieve above-normal profits through reliance on their own knowledge resources and technologies (Tsai, Liao & Hsu 2015). However, the relationship between market turbulence and performance was not significant. A plausible explanation for this could be that rapidly changing market demands not only pose challenges to firms but also potentially introduce new market opportunities through complex and diverse consumer needs. In the context of South Africa's rapidly evolving digital landscape, MNEs that proactively embrace digital strategies in combination with the external market and technical environment are better positioned to capitalise on emerging opportunities and navigate potential challenges.

We also regard that benefiting from the digital business strategy is rooted in two primary learning approaches:

exploratory and exploitative learning. Exploratory learning involves the pursuit of new knowledge and understanding, allowing companies to innovate and adapt to the dynamic digital landscape (Schildt et al. 2005). It encourages experimentation, risk-taking and the exploration of unfamiliar territories. On the other hand, exploitative learning focuses on refining and optimising existing knowledge and processes (Brady & Davies 2004). By doing so, companies can improve efficiency, reduce costs and capitalise on established competencies (Nijssen et al. 2012). By integrating both these learning approaches, MNEs in South Africa aim to strike a balance between innovation and optimisation, ensuring sustained growth and competitiveness in the digital era.

What is more, it appears that the relationship between digital business strategy and dual learning (both exploratory and exploitative learning) is moderated by OML and dispersion in an inverted U-shaped manner. This suggests that when organisational memory is at a moderate level and is neither too centralised nor too dispersed, it optimally enhances the positive effects of a digital business strategy on both types of learning. However, at very low or very high levels of organisational memory and dispersion, the benefits of a digital business strategy on learning diminish. This could be because,

at low levels, there is not enough historical knowledge to inform and guide the strategy's implementation (Walsh & Ungson 1991). On the other hand, at very high levels, the vast and potentially scattered organisational memory might become overwhelming or conflicting, hindering the effective translation of digital strategies into meaningful learning outcomes (Stein 1995). This finding underscores the importance of maintaining a balanced organisational memory structure to maximise the benefits of digital business strategies on learning.

Theoretical implications

This research has made an important contribution to the existing literature and theory. Firstly, we shift the perspective from technical to strategic level. Prior literature has been replete with technical case studies showcasing the implementation of specific digital tools, their immediate impacts and the challenges faced (Barrett et al. 2015; Kitsios & Kamariotou 2021; Opazo-Basáez et al. 2022). While invaluable, these studies often missed the larger strategic narrative: How do digital tools fit within a company's broader strategy? This research bridges this gap by positioning digital business strategy as an integral component of MNEs' overarching strategic vision, especially within the South African context. In addition, through studying the relationship between MNEs' digital business strategy and performance in the context of South Africa, we complement prior works stressing the context-specific nature of the internationalisation-performance relationship and answer a recent call for better integration of the distinctiveness of internationalisation strategies in explaining firm performance (Jiang et al. 2020).

Secondly, this study breaks new ground by introducing organisational memory as a moderating variable and organisational learning as a mediator. This nuanced approach offers a more layered understanding of the mechanisms through which digital business strategy influences performance. Organisational memory can either amplify or diminish the effects of a digital business strategy. Meanwhile, organisational learning, encompassing the process through which organisations acquire, disseminate and utilise knowledge, becomes the bridge between strategy and performance. Earlier studies on digital business strategy have primarily focused on direct impacts (Chi et al. 2018; Pagani 2013; Ukko et al. 2019; Wang et al. 2020): How the strategy influences outcomes. Although previous studies have recognised that organisational learning can provide a valuable basis for explaining the internationalisation and performance differences between MNEs (Chung, Ding & Ma 2019), this study supplements this knowledge system by extending the application of these theoretical frameworks to the analysis of the mediating role of dual learning and the moderating role of organisational memory. Specifically, the incorporation of organisational memory and learning introduces a dynamic interplay between past experiences, current learning processes and future strategic outcomes. This interplay, previously underexplored, presents a richer, more intricate picture than earlier linear models of influence.

Lastly, by integrating the theory of organisational learning (Fiol & Lyles 1985) with the digital strategy discourse for MNEs, this study offers a fresh theoretical lens. It posits that the efficacy of a digital business strategy is not just determined by the strategy itself but also by how organisations learn from and adapt to it. It is not just about what digital tools a company employs but how it learns to maximise these tools' potential. The theory of organisational learning has been explored extensively in management literature. This study supports Jackson's (2019) view that the reason why learning organisations tend to realise digital transformation is that they can obtain more useful knowledge through organisational learning to promote R&D and innovation. However, its application in the realm of digital strategy, especially for MNEs in South Africa, remains sparse. Previous works have treated digital strategy and organisational learning independently. This study considers that internationalisation is a process that relies on two different organisational learning processes to acquire and utilise new knowledge and market opportunities to solve this gap, which paves the way for a more interdisciplinary approach, merging two vital areas of study to yield deeper, more holistic insights.

Practical implications

This study provides meaningful advice for Chinese MNEs operating in South Africa on how to improve international performance through digital business strategies in the digital age. Firstly, they should invest in local digital talent development and partnerships, leveraging the burgeoning tech hubs in cities such as Johannesburg and Cape Town. By nurturing local talent, businesses can ensure that their digital solutions resonate with the South African market nuances. Secondly, to navigate the challenges of digital infrastructure and connectivity in remote areas, businesses should consider a hybrid approach, combining online and offline experiences. By grounding their strategies in local insights and embracing South Africa's unique digital trajectory, MNEs can achieve enhanced performance and more sustainable growth. Thirdly, we also suggest the Chinese MNEs operating in South Africa effectively balance between exploratory and exploitative learning to optimise performance. South Africa's diverse socio-economic landscape demands a two-pronged approach. While MNEs utilise exploratory learning to continuously probe the dynamic market for new insights, cultural nuances and emerging trends, they simultaneously harness exploitative learning to refine and capitalise on established processes, channels and customer insights. This synergy ensures MNEs remain agile and responsive to the evolving South African market while also deriving value from their accumulated knowledge and foothold.

What is more, the Chinese MNEs in South Africa recognise the vital interplay between OML and dispersion for enhanced learning. Multinational enterprises emphasise creating centralised knowledge repositories and leveraging digital platforms to facilitate knowledge sharing across geographies and divisions. This ensures that insights garnered in one region or unit can benefit the organisation as a whole.

However, both excessively high and strikingly low organisational memory can pose challenges. An overload of organisational memory can lead to rigidity and hinder adaptability, causing firms to be overly reliant on past strategies that may not suit current market dynamics. Conversely, too little organisational memory can result in repeated mistakes and a lack of continuity in operations. To strike a balance, MNEs should consider periodic audits of their knowledge management systems to identify and remove redundant or outdated information. By ensuring an optimal level of organisational memory, MNEs can foster a learning environment that is both informed by past experiences and agile enough to adapt to South Africa's evolving market landscape.

Limitations and directions for future research

Several limitations exist within this study, highlighting areas for future research. Firstly, as this research is centred on MNEs in South Africa, future investigations could examine the nexus between digital business strategy and performance across diverse geographical contexts. Secondly, even though the foundation of this research lies in organisational learning theory, there is potential to delve into more intricate mechanisms linking digital business strategy to service innovation performance. Drawing from the upper echelons theory (Hambrick & Mason 1984), existing literature attests to the influence of CEO or Top Management Teams' (TMTs) cognitive faculties and orientations on performance outcomes (Carpenter, Geletkanycz & Sanders 2004). We postulate that, augmented by digital technologies, the cognitive prowess of CEOs or TMTs might be amplified, equipping them to discern heightened market opportunities for customer value creation, which in turn could foster desirable organisational results. An intriguing prospect for future research would be to assess the moderating effect of TMTs' cognitive styles on the relationship between digital business strategy and performance. Although the digital business strategy has a significant positive impact on the performance of MNEs operating in South Africa, there are still other unexplored variables affecting the development of MNEs. For example, organisational resilience can prevent MNEs' core competence from being affected when faced with major challenges, and help enterprises reconstruct organisational resources and relationships to achieve contrarian growth (Hillmann & Guenther 2021). Thus, to fertilise the research in relation to international performance, future studies may include more abundant influencing factors and mechanisms.

Acknowledgements

The authors would like to thank the editors of this journal and all the anonymous reviewers who provided valuable comments on this work. The authors also thank the Nanjing University for providing a scientific research platform.

Competing interests

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

Authors' contributions

Both authors, K.R. and R.L., contributed to conceptualisation, investigation and original draft preparation. R.L. designed the study. K.R. analysed the data and made contributions for editing. R.L. was responsible for funding acquisition and supervision.

Ethical considerations

This article followed all ethical standards for research without direct contact with human or animal subjects.

Funding information

This work was supported by the National Nature Science Foundation of China (grant no.: 72072086), as well as Research Project of Henan Science and Technology Think Tank (HNKJZK-2024-54B) and Doctoral Training Fund Project of Henan Institute of Technology.

Data availability

The data that support the findings of this study are available from the corresponding author, R.L., upon reasonable request.

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