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DETERMINANTS OF DIGITAL STRATEGIC MANAGEMENT PRACTICES IN MANUFACTURING FIRMS: EVIDENCE FROM LAGOS STATE, NIGERIA

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Abstract

Digital transformation has become essential for manufacturing firms seeking operational efficiency, strategic alignment, and competitive advantage. In Lagos State, Nigeria, many firms face challenges in implementing digital strategic management practices due to variations in technological capabilities, leadership commitment, workforce digital skills, and market pressures. This study aimed to examine the factors influencing digital strategic management practices among manufacturing firms in Lagos State. A quantitative survey research design was adopted, targeting senior management staff across ten purposively selected listed manufacturing firms. A sample of 302 respondents was proportionately drawn using stratified random sampling. Structured questionnaires were administered, and 269 valid responses were returned, representing a response rate of 89.1%. Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM), with significance evaluated at the 0.05 level. The findings revealed that Technological Capabilities ($\beta = 0.271$, $T = 4.512$, $p < 0.001$), External Market Pressure ($\beta = 0.240$, $T = 4.700$, $p < 0.001$), Digital Skills and Capabilities ($\beta = 0.171$, $T = 2.800$, $p = 0.005$), and Leadership Commitment and Support ($\beta = 0.156$, $T = 2.633$, $p = 0.008$) significantly influenced digital strategic management practices. Collectively, these factors explained 27.3% of the variance in digital strategic management practices ($R^2 = 0.273$; Adjusted $R^2 = 0.262$), indicating substantial explanatory power. The study concludes that effective digital strategic management in manufacturing firms depends on technological readiness, responsive leadership, employee digital competence, and sensitivity to market dynamics. It is recommended that firms invest in continuous technological upgrades, workforce digital training, and strategic leadership to strengthen digital transformation outcomes. Policymakers are encouraged to support infrastructural development and provide incentives that enable firms to adopt digital strategies effectively.

Keywords: *Digital Strategic Management Practices, IT Infrastructure Capabilities (bITIC), Technology Integration (bTI), Digital Skills and Capabilities (cDSC), External Market pressure (cEMP), Leadership Commitment and Support (cLCS), Technological Capabilities (cTC) Manufacturing Firms.*

1. INTRODUCTION

Digital transformation has increasingly become a strategic imperative for organisations seeking to remain competitive, responsive, and sustainable in a rapidly evolving business environment. Across industries, firms are progressively embedding digital technologies into managerial and operational processes in order to improve decision making, operational efficiency, and customer responsiveness. In the manufacturing sector particularly, digitalisation has moved beyond the mere adoption of technologies to encompass strategic integration through structured digital management practices that align organisational capabilities with business goals (Canhoto et al., 2021; Rêgo et al., 2021; Wirtz et al., 2021). As global competition intensifies and technological disruptions reshape production systems, firms are under increasing pressure to formulate and implement digital strategies that strengthen operational agility and long-term competitiveness.

Digital strategic management practices refer to the systematic integration of digital technologies into strategic planning, leadership, operational processes, and customer engagement mechanisms to improve organisational effectiveness and

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performance (Lynch, 2018; AlNuaimi et al., 2022). Such practices involve aligning digital initiatives with business objectives, strengthening digital leadership, building adequate information technology infrastructure, integrating technologies into operational workflows, and adopting customer centric digital approaches. For manufacturing firms, these practices are essential because they facilitate real time information exchange, production optimisation, process automation, and market responsiveness, all of which are necessary in highly competitive industrial environments (Gobble, 2018; Albukhitan, 2020).

Despite the growing relevance of digital strategic management practices, their successful implementation is rarely automatic. Existing literature suggests that firms differ considerably in their capacity to adopt and sustain digital transformation because of variations in organisational readiness, technological competence, leadership commitment, market conditions, and resource availability (Liere-Netheler et al., 2018; Vogelsang et al., 2018). In manufacturing contexts, where production systems are often complex and capital intensive, digital transformation efforts are strongly influenced by the extent to which organisations possess the required technological, managerial, and institutional capacities to support digital integration (Zhang et al., 2022; Faiz et al., 2024). Consequently, understanding the determinants of digital strategic management practices has become increasingly important for organisations seeking to maximise the benefits of digital transformation.

Several factors have been identified in literature as influential in shaping digital strategic management practices. Leadership commitment and support have been recognised as critical because organisational leaders often determine the direction, resource allocation, and commitment necessary for digital initiatives to succeed (Met et al., 2019; Leão et al., 2023). Organisational readiness, which reflects a firm's cultural, structural, and procedural preparedness for digital transformation, has also been shown to influence the adoption of digital strategies (Liere-Netheler et al., 2018; Sassi et al., 2017). Similarly, technological capabilities remain fundamental because firms with stronger technological expertise and infrastructure tend to be more adaptive and responsive to digital opportunities (Zhang et al., 2022; Faiz et al., 2024).

Furthermore, external market pressure arising from competition, regulatory expectations, customer demands, and technological disruptions has increasingly compelled firms to embrace digital transformation in order to remain viable and competitive (Vogelsang et al., 2018; Wang & Su, 2021). Resource availability, including financial strength, human expertise, and time allocation, has also been recognised as a major enabler or constraint in digital strategy implementation (Rojas Berrio et al., 2022; Tortorella et al., 2022). In addition, digital skills and capabilities among employees influence the effectiveness of digital strategy implementation because digital transformation depends not only on technological investments but also on the competence of employees to utilise digital systems effectively (Zhang et al, 2022).

Although considerable scholarly attention has been devoted to digital transformation and organisational performance, empirical evidence on the specific factors influencing digital strategic management practices among manufacturing firms remains fragmented, particularly within developing economies such as Nigeria. Many existing studies have concentrated on the outcomes of digital transformation while paying less attention to the underlying organisational and environmental conditions that determine whether firms are able to formulate and implement digital strategies successfully. In Nigeria, where infrastructural deficiencies, resource limitations, technological uncertainty, and institutional challenges continue to affect industrial productivity, understanding the drivers of digital strategic management practices is particularly important.

The manufacturing sector in Lagos State presents a useful context for examining this issue because Lagos remains the industrial and commercial hub of Nigeria, hosting a substantial concentration of manufacturing firms across diverse subsectors. Despite this concentration, many manufacturing firms continue to experience digital transformation challenges arising from inadequate technological preparedness, leadership limitations, inconsistent digital capabilities, and changing market demands. Consequently, while digitalisation has become increasingly necessary for competitiveness, the extent to which firms successfully implement digital strategic management practices may depend significantly on a range of influencing factors that are yet to be fully understood within the Nigerian manufacturing context.

Against this background, this study seeks to answer the following research question:

What factors significantly influence digital strategic management practices among manufacturing firms in Lagos State, Nigeria?

Understanding the determinants of digital strategic management practices is important because the success of digital transformation initiatives depends not merely on technology adoption but on the organisational and environmental conditions that enable effective implementation. By identifying the factors that significantly influence digital strategic management practices, this study provides evidence that may assist manufacturing firms in strengthening their digital readiness, strategic responsiveness, and competitive positioning.

The study is also important to policymakers and industrial stakeholders because it provides insights into areas requiring institutional support, particularly in relation to technological capability development, workforce digital competence, and enabling industrial policies for digital transformation. Furthermore, the study contributes to academic discourse by addressing an empirical gap regarding the determinants of digital strategic management practices within manufacturing firms in developing economies, thereby extending current understanding of digital transformation within industrial settings.

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2. LITERATURE REVIEW

Conceptually, digital strategic management practices refer to the structured integration of digital technologies into strategic planning, implementation, monitoring and control. This study conceptualises digital strategic management practices through dimensions such as digital strategy alignment, digital leadership, IT infrastructure capabilities, technology integration and customer centric digital strategy. These dimensions show that digital strategic management is not merely about acquiring technology, but about ensuring that digital tools support long term organisational goals, managerial decision making, operational coordination and customer value creation (Peppard & Ward, 2016; Canhoto et al., 2021; Rêgo et al., 2021; AlNuaimi et al., 2022).

The factors influencing digital strategic management practices include leadership commitment and support, organisational readiness, technological capabilities, external market pressure, resource availability and digital skills and capabilities. Leadership commitment refers to the extent to which top management provides vision, direction and support for digital transformation. Without leadership buy in, digital strategy may suffer from poor coordination, weak accountability and resistance across departments (Met et al., 2019; Leão et al., 2023). Organisational readiness concerns the cultural, structural and systemic preparedness of a firm to implement digital initiatives effectively. It includes strategic clarity, employee engagement, digital awareness and willingness to revise old routines (Sassi et al., 2017; Liere-Netheler et al., 2018).

Technological capabilities represent the ability of a firm to acquire, deploy and utilise digital systems for strategic purposes. These capabilities include technical expertise, digital infrastructure, system compatibility and digital know how (Zhang et al., 2022; Faiz et al., 2024). External market pressure also plays a strong role because competition, customer expectations, technological disruption, regulatory demands and industry trends often compel firms to adopt digital strategies in order to remain relevant (Vogelsang et al., 2018; Wang & Su, 2021). Resource availability is equally important because digital transformation requires financial resources, skilled personnel, time and managerial attention (Rojas-Berrio et al., 2022; Tortorella et al., 2022). Finally, digital skills and capabilities determine whether employees can use digital tools, interpret digital data and contribute meaningfully to digital strategy execution (Ko et al., 2022; Zhang et al., 2022).

The theoretical foundation for this study is the Technology Organisation Environment framework, originally associated with Tornatzky and Fleischer (1990). The framework explains technology adoption through three broad contexts: technological context, organisational context and environmental context. The technological context covers digital infrastructure, compatibility and perceived technological benefits. The organisational context covers leadership support, resources, structure, culture and internal readiness. The environmental context covers competition, market pressure, regulatory expectations and stakeholder demands. This theory interfaces directly with the present study because the objective is to examine how technological, organisational and environmental factors influence digital strategic management practices among manufacturing firms in Lagos State. The study specifically identifies the TOE framework as suitable for analysing the research objective because it captures how leadership, resources, technological readiness and environmental pressure jointly affect digital strategy adoption.

Empirical evidence supports the relevance of these factors, although important contextual gaps remain. Met et al. (2019) identified strategic leadership, organisational agility and IT integration as critical enablers of digital business strategy. Liere-Netheler et al. (2018) and Vogelsang et al. (2018) found that competitive pressure, executive ambition, employee training, process automation and regulatory support foster digital transformation in manufacturing firms. Zhang et al. (2022) showed that digital leadership, market responsiveness and employee digital competence predict successful digital transformation among small and medium enterprises. Similarly, Wang and Su (2021) found that competitive intensity, government incentives, supply chain digitalisation and customer expectations drive digital transformation among Chinese manufacturing enterprises.

However, the relevance of these studies to Lagos State requires careful empirical validation. Many were conducted in economies with stronger digital infrastructure, better institutional support and greater access to finance than Nigeria. Others focused on non-manufacturing sectors, small enterprises, banking, public organisations or general technology adoption. Even studies from emerging economies often do not capture the peculiar combination of infrastructural constraints, skills shortages, financial limitations and competitive pressure faced by manufacturing firms in Lagos State. This gap justifies the present article because it examines the factors influencing digital strategic management practices within the specific industrial and geographical context of Lagos State manufacturing firms.

In line with the research question and the specific objective of the study, this study tests the following null hypothesis:

Ho: There is no significant relationship between the identified influencing factors and digital strategic management practices among manufacturing firms in Lagos State**.**

This study adds to knowledge by providing empirical evidence on the relative influence of leadership commitment, organisational readiness, technological capabilities, external market pressure, resource availability and digital skills on digital strategic management practices in Lagos State manufacturing firms. It also extends the Technology Organisation Environment framework by applying it to digital strategic management rather than general technology adoption alone.

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3. METHODS

This study adopted a quantitative survey research design to examine the factors influencing digital strategic management practices among manufacturing firms in Lagos State, Nigeria. The design was appropriate because the study sought to collect measurable data from a sizeable group of senior management staff and use the responses to test the relationship between identified influencing factors and digital strategic management practices. A cross-sectional approach was used, meaning that data were collected from respondents at one point in time. This allowed the study to capture the current state of digital strategic management practices and the factors shaping their adoption within the selected manufacturing firms. The study was conducted in Lagos State, Nigeria. Lagos was selected because of its strategic importance as Nigeria's commercial and industrial hub and because it accounts for a substantial proportion of manufacturing activity in the country. The state hosts a wide range of manufacturing firms across subsectors such as food and beverage, textiles, chemicals, electronics and pharmaceuticals. Its concentration of industrial activity, access to seaports, relatively strong infrastructure and exposure to both local and international markets made it suitable for examining the factors influencing digital strategic management practices in the manufacturing sector. The choice of Lagos was also justified by the fact that many firms in the state still face challenges relating to limited technological capabilities, digital skills gaps and inadequate digital infrastructure, despite operating in a competitive and rapidly digitalising business environment.

The population comprised senior management staff of selected listed manufacturing firms operating in Lagos State, Nigeria. Managing Directors were excluded because preliminary investigation indicated that they were not easily accessible for questionnaire administration due to limited availability and tight executive schedules. The focus on senior management staff was appropriate because these officers are involved in strategic and operational decision making and possess relevant knowledge of digital strategic management practices within their organisations. The selected firms were Nestlé Nigeria Plc, Nigerian Breweries Plc, Unilever Nigeria Plc, Cadbury Nigeria Plc, Flour Mills Nigeria Plc, Dangote Cement Plc, Lafarge Africa Plc, Berger Paints Plc, Neimeth Plc and Fidson Healthcare Plc. The firms were purposively selected from listed manufacturing companies based on market capitalisation, sectoral representation and operational presence within Lagos State. The total population of senior management staff across the selected firms was 1,402.

The sample size for the study was 302 respondents, determined from the population using the Krejcie and Morgan sample size determination table. The sample was distributed proportionately across the selected firms using proportional allocation so that each firm was represented according to its senior management population. A multi stage sampling procedure was adopted. In the first stage, purposive sampling was used to select the ten listed manufacturing firms from the consumer goods, industrial goods and pharmaceutical subsectors. In the second stage, stratified proportionate random sampling was used to organise the senior management population into relevant managerial strata, including General Managers, Principal Managers and Senior Managers. These categories covered officers in important operational areas such as production, finance, human resources, sales and marketing. In the final stage, simple random sampling was used within each stratum to select the respondents, thereby giving eligible senior managers an equal chance of inclusion and reducing selection bias.

Primary data served as the main source of information for the study. Data were collected using a structured questionnaire administered to senior management staff of the selected manufacturing firms. The questionnaire was designed to obtain information on digital strategic management practices and the factors influencing their adoption.

The main outcome measured in this study is Digital Strategic Management Practices (DSMP), defined as the integration of digital technologies into a firm's strategic management processes, including the development, alignment, and execution of digital strategies to achieve organisational objectives (Canhoto et al., 2021; Rêgo et al., 2021). Within the manufacturing context, DSMP encompasses five key dimensions: digital strategy alignment, digital leadership, IT infrastructure capabilities, technology integration, and customer-centric digital strategy. These dimensions collectively capture how digital initiatives are incorporated into operational processes to improve decision-making, efficiency, and competitive advantage (AlNuaimi et al., 2022; Maksimenko et al., 2021; Peppard & Ward, 2016; Gobble, 2018; Lynch, 2018; Grab et al., 2019)

The predictor variables influencing digital strategic management practices (DSMP) in this study encompass several critical dimensions comprising Leadership commitment and support, Organisational readiness, Technological capabilities, External market pressure, and digital skills and capabilities. Leadership commitment and support refers to the dedication of top management to champion digital initiatives, provide a clear vision, and mobilise organisational resources in support of digital transformation, which facilitates strategic alignment and successful implementation (Met et al., 2019; Leão et al., 2023). Organisational readiness captures the extent to which a firm's systems, culture, processes, and structures are prepared to adopt and implement digital strategies effectively, ensuring that internal operations are conducive to digital transformation (Liere-Netheler et al., 2018; Sassi et al., 2017). Technological capabilities reflect a firm's ability to acquire, deploy, and utilise digital technologies, including the adequacy of IT infrastructure, the technical expertise of staff, and the availability of software and hardware resources necessary for seamless digital operations (Zhang et al., 2022; Faiz et al., 2024). External market pressure denotes the influence of competitive intensity, customer expectations, regulatory requirements, and broader industry trends on a firm's decision to adopt digital strategies, serving as a key motivator for digital transformation in dynamic environments (Vogelsang et

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al., 2018; Wang & Su, 2021). While digital skills and capabilities represent the competence of employees in using digital tools, analysing digital information, and contributing meaningfully to the implementation of digital strategic management practices, ensuring that technological investments translate into operational improvements (Met et al., 2019; Faiz et al., 2024). These variables were operationalised using structured questionnaire items measured on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5), reflecting the degree to which respondents perceived the presence and effectiveness of these factors within their firms. The conceptual framework explicitly links these predictors to DSMP, providing both theoretical and empirical justification for examining their influence on digital strategic management practices within the Lagos State manufacturing sector.

The questionnaire was subjected to validity and reliability procedures to ensure that it measured the intended constructs accurately and consistently. Content validity was established by developing the questionnaire from recognised constructs in the literature and by subjecting the items to expert review in digital strategic management, organisational culture and operational performance. Construct validity was supported by grounding the study variables in existing theoretical and empirical literature, while criterion related validity was considered by comparing the instrument with established measures used in previous studies on similar constructs. Reliability was assessed using Cronbach's alpha, with a value of 0.70 or above considered acceptable for internal consistency. These procedures strengthened the credibility of the instrument and improved confidence in the data collected.

For this study, the model was specified to examine the influence of selected internal and external factors on digital strategic management practices. Digital strategic management practices served as the dependent variable, while leadership commitment, organisational readiness, technological capabilities, market pressure, resource availability and digital skills and capabilities served as the predictor variables. The model was expressed as follows:

$$DSMP = \beta_0 + \beta_1 LC + \beta_2 OR + \beta_3 TC + \beta_4 MP + \beta_5 RA + \beta_6 DSC + \beta_7 DSA + \varepsilon \quad (1)$$

In this model, DSMP represents digital strategic management practices, LC represents leadership commitment, OR represents organisational readiness, TC represents technological capabilities, MP represents market pressure, RA represents resource availability, DSC represents digital skills and capabilities, DSA represents digital strategy alignment, β_0 represents the constant term, β_1 to β_7 represent the parameter coefficients, and ε represents the error term. The model was used to test the null hypothesis that there is no significant relationship between the identified influencing factors and digital strategic management practices among manufacturing firms in Lagos State.

The data collected were analysed using descriptive and inferential statistical methods. Descriptive statistics were used to summarise the demographic characteristics of respondents and provide an overview of response patterns. These included frequencies, percentages, means and standard deviations. Partial Least Squares Structural Equation Modelling was employed for the data analysis. PLS SEM was appropriate because the study involved multiple latent constructs, several predictor variables and a complex relationship between influencing factors and digital strategic management practices. The analysis followed the standard stages of model specification, model estimation and model evaluation. The measurement model assessed the relevance and adequacy of the indicators used to represent the latent constructs, while the structural model examined the strength and significance of the hypothesised relationships. The statistical tests included the estimation of path coefficients to determine the direction and strength of relationships, coefficient of determination to assess the explanatory power of the model, indicator loadings to assess how well observed items represented their constructs, and bootstrapping to test the statistical significance of the path coefficients. Statistical significance was assessed at the 0.05 level. Variance Inflation Factor values were also examined to check for multicollinearity among predictor constructs. SPSS was used for descriptive statistical analysis, while Smart-PLS was used for the PLS SEM analysis.

Ethical procedures were observed throughout the study. Respondents were informed about the purpose and procedures of the research, and participation was voluntary. The privacy of participants was protected by ensuring confidentiality and anonymity. No personal identification information was recorded, and the data collected were stored securely. Results were reported in aggregate form so that no individual respondent or firm could be identified. Respondents were also allowed to skip any question they were uncomfortable with, thereby minimising potential risk. The researcher further committed to honest, transparent and accurate reporting of the findings.

4. RESULTS AND DISCUSSION

4.1 Response Rate of Questionnaire

A total of three hundred and two (302) copies of questionnaire were administered to respondents across manufacturing firms in Lagos State, Nigeria. As presented in Table 4.1, out of the 302 copies distributed, two hundred and sixty-nine (269) copies were properly completed, returned, and found suitable for analysis, representing 89.1% of the total questionnaire administered. The remaining questionnaires were either not returned or were improperly completed and therefore excluded from the analysis.

The response rate of 89.1% is considered highly adequate for behavioural and management research. According to Moser and Kalton (2017), a response rate above 30% to 40% is sufficient for meaningful statistical analysis and generalisation of findings. Consequently, the response rate achieved in this study is regarded as reliable and adequate for addressing the study objectives and testing the hypotheses formulated for the study. The high retrieval rate further suggests strong cooperation from respondents and reflects the relevance of the

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study to manufacturing firms operating within the digital business environment in Lagos State.

Table 4.1: Response Rate of Questionnaire

Item	Frequency	Percentage (%)
Distributed Questionnaires	302	100
Returned Questionnaires and Used	269	89.1
Unreturned/Invalid Questionnaires	33	10.9
Total	**302**	**100**

Source: Researcher's Field Report (2026)

4.2 Demographic Characteristics of Respondents

Table 4.2 shows the demographic characteristics of respondents. The age distribution of the respondents revealed that the majority of the participants, representing 61.0%, were between 40 and 50 years of age, while 27.9% were between 30 and 40 years. Respondents aged 50 to 60 years accounted for 6.3%, whereas only 4.5% were less than 30 years old and 0.4% were above 60 years. This finding implies that the study largely captured responses from mature and experienced professionals who are likely to possess substantial knowledge regarding strategic management practices and operational activities within manufacturing firms. The dominance of respondents within the economically active and managerial age category further enhances the reliability of the information provided concerning digital strategic management practices.

The gender distribution showed that 84.0% of the respondents were male, while 16.0% were female. This indicates that the manufacturing sector in Lagos State remains male dominated, particularly in managerial and operational positions. The implication is that decision making and strategic digital transformation processes within manufacturing firms are still largely influenced by male professionals.

With respect to educational qualification, the findings showed that 43.1% of the respondents possessed BSc/BEng/BTech qualifications, while 27.1% had HND certificates. Respondents with Master's degrees constituted 24.5%, whereas those with PhD qualifications accounted for 3.7%. Only 1.5% possessed ND/NCE qualifications. The implication of this finding is that the respondents were adequately educated and possessed the intellectual capacity to understand and provide reliable information on digital strategic management practices and operational performance.

Table 4.2: Demographic Characteristics of Respondents (n = 269)

Variable	Category	Frequency (n)	Percent (%)
Age Group	Less than 30 years	12	4.5
	30 to 40 years	75	27.9
	40 to 50 years	164	61.0
	50 to 60 years	17	6.3
	60 years and above	1	0.4
Total		269	100
Gender	Male	226	84.0
	Female	43	16.0
Total		269	100
Educational Level	ND/NCE	4	1.5
	HND	73	27.1
	BSc/BEng/BTech	116	43.1
	Master's Degree	66	24.5
	PhD	10	3.7
Total		269	100
Years of Experience	Less than 5 years	5	1.9
	5 to 10 years	33	12.3
	11 to 15 years	175	65.1
	16 to 20 years	51	19.0
	More than 20 years	5	1.9
Total		269	100
Size of Organisation	Small, less than 50 employees	34	12.6
	Medium, 50 to 199 employees	10	3.7
	Large, 200 employees and above	225	83.6
Total		269	100
Sector/Sub sector of Manufacturing	Food and Beverages	158	58.7
	Textile and Garments	2	0.7
	Pharmaceuticals	33	12.3
	Building Materials	54	20.1
	Electrical/Electronics	10	3.7
	Chemical/Plastic	12	4.5
Total		269	100
Ownership	Indigenous/Nigeri	158	58.7

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Structure	an Owned		
	Foreign Owned	102	37.9
	Joint Venture	9	3.3
Total		269	100
Digital Strategy Implementation	Yes	237	88.1
	No	32	11.9
Total		269	100
Current Position in the Firm	Managing Director	3	1.1
	Production Manager	37	13.8
	Accounting Manager	5	1.9
	Human Resource Manager	67	24.9
	Sales and Marketing Manager	119	44.2
	Research and Development Manager	38	14.1
Total		269	100

Source: Researcher's Field Report (2026)

The high proportion of respondents with tertiary education also suggests that manufacturing firms in Lagos State rely significantly on skilled and professionally trained personnel.

The analysis of years of experience indicated that the majority of respondents, representing 65.1%, had between 11 and 15 years of working experience, while 19.0% had between 16 and 20 years. Respondents with 5 to 10 years of experience accounted for 12.3%, whereas those with less than 5 years and more than 20 years each represented 1.9%. This finding implies that most respondents possessed considerable industry experience and practical exposure to organisational operations, digital transformation processes, and strategic management activities. Consequently, the responses obtained are likely to reflect informed professional opinions grounded in practical industry realities.

The size distribution of organisations revealed that 83.6% of the firms were large scale organisations employing 200 workers and above, while 12.6% were small scale firms and only 3.7% were medium sized firms. The implication of this finding is that the study was largely dominated by large manufacturing firms which are more likely to possess the financial resources, technological infrastructure, and organisational capabilities required for implementing digital strategic management practices. This further suggests that digital transformation initiatives may be more prevalent among larger manufacturing organisations.

Regarding the sector or sub sector of manufacturing, the findings indicated that food and beverage firms constituted the largest category with 58.7%, followed by building materials firms with 20.1%, while pharmaceutical firms accounted for 12.3%. Chemical and plastic firms represented 4.5%, electrical and electronics firms accounted for 3.7%, whereas textile and garment firms constituted only 0.7%. The implication is that the food and beverage sector remains the most dominant manufacturing subsector in Lagos State and appears to be more actively involved in digital strategic management practices compared to other sectors.

The ownership structure of the organisations showed that 58.7% were indigenous or Nigerian owned firms, while 37.9% were foreign owned firms and 3.3% were joint ventures. This finding implies that indigenous firms dominate manufacturing activities within the study area. However, the substantial proportion of foreign owned firms also suggests increasing global business participation and the possibility of international digital management practices influencing the operational activities of manufacturing firms in Lagos State.

Moreover, the findings revealed that 88.1% of the respondents affirmed that their organisations currently implement digital strategies in their operations, while only 11.9% indicated otherwise. This demonstrates a high level of awareness and adoption of digital strategic practices among manufacturing firms in Lagos State. The implication is that digital transformation has become an important component of operational and strategic management processes within the manufacturing sector.

Furthermore, the distribution of respondents according to current position in the firm showed that Sales and Marketing Managers constituted the largest proportion with 44.2%, followed by Human Resource Managers with 24.9%. Research and Development Managers accounted for 14.1%, while Production Managers represented 13.8%. Accounting Managers and Managing Directors constituted 1.9% and 1.1% respectively. This finding implies that the study captured responses from managerial personnel directly involved in organisational strategy, innovation, operations, customer relations, and workforce management. Thus, the information provided is considered credible and relevant to the investigation of digital strategic management practices and operational performance.

4.3. Factors Influencing Digital Strategic Management Practices in the Manufacturing Firms

4.3.1 Measurement Model for Factors Influencing Digital Strategic Management Practices in the Manufacturing Firms

To assess the factors influencing digital strategic management practices among manufacturing firms in Lagos State, the study conducted a formative measurement model assessment using the Partial Least Squares Structural Equation Modelling (PLS-SEM) approach. The formative measurement model was

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evaluated based on the relevance and significance of indicator weights, indicator loadings, and the Variance Inflation Factor (VIF), in line with the recommendations of Hair et al. (2017; 2019; 2021). The formative assessment was necessary because the indicators jointly formed and explained the constructs rather than reflecting them.

The measurement model for study comprised indicators drawn from six formative constructs, namely IT Infrastructure Capabilities (bITIC), Technology Integration (bTI), Digital Skills and Capabilities (cDSC), External Market pressure (cEMP), Leadership Commitment and Support (cLCS), and Technological Capabilities (cTC). The relevance and significance of the formative indicators were evaluated using indicator weights and corresponding t-statistics and p-values generated through bootstrapping procedures. The study further assessed multicollinearity among the indicators using VIF values.

Following the formative measurement model procedures, indicators with significant weights were regarded as Relatively Important (RI). However, where the indicator weight was not statistically significant, the loading value was examined. Indicators with loading values greater than 0.50 and statistically significant loadings were retained on the basis of their absolute importance (AI) and theoretical relevance to the construct. Furthermore, VIF values below the threshold of 5.0 indicated the absence of multicollinearity concerns among the indicators.

As presented in Table 4.3 and Figure 4.1, the indicators under the IT Infrastructure Capabilities construct demonstrated strong relevance and significance. Specifically, bITIC2 recorded a significant weight of 0.389 with a t-statistic of 2.948 and p-value of 0.003, while bITIC4 exhibited a very high significant weight of 0.845 with a t-statistic of 10.168 and p-value of 0.000. Their corresponding loadings of 0.561 and 0.925 respectively were also statistically significant. This indicates that reliable and scalable IT systems, as well as IT infrastructure capable of supporting real-time data access and decision-making, are highly important determinants of digital strategic management practices in manufacturing firms.

Similarly, the indicators measuring Technology Integration were found to contribute meaningfully to the construct. The indicator bTI1_rev recorded a significant weight of 0.429 with a p-value of 0.012, although its loading of 0.269 was not statistically significant at the 5

Table 4.3: Relevance and Significance of Factors Influencing Digital Strategic Management Practices in the Manufacturing Firms

Path	Weights	T stat	P values	Loadings	T stat	P values	VIF	Decision
bITIC2 -> bITIC	0.389	2.948	0.003	0.561	4.489	0.000	1.043	RI
bITIC4 -> bITIC	0.845	10.168	0.000	0.925	17.019	0.000	1.043	RI
bTI1_rev -> bTI	0.429	2.522	0.012	0.269	1.695	0.090	1.232	RI
bTI2 -> bTI	0.523	3.244	0.001	0.472	3.219	0.001	1.262	RI
bTI4 -> bTI	0.741	6.356	0.000	0.861	10.422	0.000	1.056	RI
cDSC2 -> cDSC	0.670	4.631	0.000	0.776	6.342	0.000	1.028	RI
cDSC4 -> cDSC	0.639	4.363	0.000	0.750	5.963	0.000	1.028	RI
cEMP2 -> cEMP	0.726	3.655	0.000	0.864	6.083	0.000	1.076	RI
cEMP4 -> cEMP	0.522	2.434	0.015	0.715	4.156	0.000	1.076	RI
cLCS2 -> cLCS	1.000	n/a	n/a	1.000	n/a	n/a	1.000	RI
cTC2 -> cTC	0.586	4.849	0.000	0.655	5.556	0.000	1.008	RI
cTC4 -> cTC	0.759	7.642	0.000	0.812	9.384	0.000	1.008	RI

Source: Researcher's Field report (2026)

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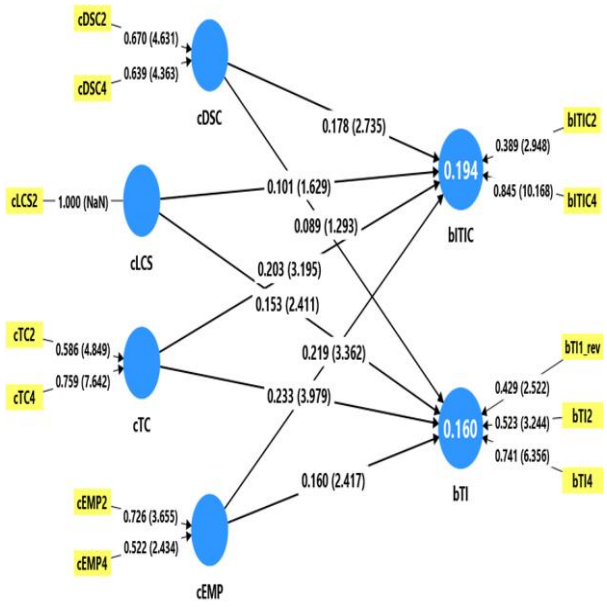

Figure 4.1: Measurement Model for Factors Influencing Digital Strategic Management Practices in the Manufacturing Firms

percent level. Nevertheless, because the weight remained significant, the indicator was retained as relatively important. The indicators bTI2 and bTI4 also showed significant weights of 0.523 and 0.741 respectively, with corresponding p-values below 0.05. Their loading values of 0.472 and 0.861 further confirmed their contribution to the construct. These findings imply that the integration of digital technologies into operational and decision-making processes constitutes an important factor influencing digital strategic management practices among manufacturing firms.

For the Digital Skills and Capabilities construct, the indicators cDSC2 and cDSC4 demonstrated significant contributions to the construct with weights of 0.670 and 0.639 respectively. Both indicators recorded statistically significant t-statistics and p-values of 0.000. Their loadings of 0.776 and 0.750 further indicated strong indicator relevance. This suggests that employee digital competencies and continuous digital capability development significantly influence the implementation of digital strategic management practices.

Under the External Market pressure, cEMP2 and cEMP4 were found to be statistically significant with weights of 0.726 and 0.522 respectively. Their corresponding loading values of 0.864 and 0.715 were also statistically significant. The findings indicate that employee preparedness, acceptance, and active participation are essential drivers of digital strategic management practices within manufacturing firms.

The Leadership Commitment and Support construct was represented by indicator cLCS2, which recorded a perfect loading and weight value of 1.000. This indicates that leadership commitment constitutes a highly critical factor influencing digital strategic management practices in the study area. The result underscores the central role of managerial support and leadership commitment in driving digital transformation initiatives within manufacturing firms.

Furthermore, the Technological Capabilities construct exhibited strong indicator relevance and significance. The indicators cTC2 and cTC4 recorded significant weights of 0.586 and 0.759 respectively, with corresponding t-statistics of 4.849 and 7.642 and p-values of 0.000. Their loading values of 0.655 and 0.812 respectively further validated their importance. This finding implies that firms possessing higher technological competence and technical expertise are more likely to successfully implement digital strategic management practices.

The study also evaluated the Variance Inflation Factor (VIF) values to determine whether multicollinearity existed among the formative indicators. As shown in Table 4.6, all VIF values ranged from 1.000 to 1.262, which are substantially below the recommended threshold value of 5.0 suggested by Hair et al. (2017). This confirms that multicollinearity is not a concern in the formative measurement model and that the indicators independently contribute to explaining their respective constructs. Other constructs such as Digital strategy alignment, digital leadership, customer-centric digital strategy, organisational readiness and resource availability were removed from the model as a result of insignificant weight and poor outer loading.

Overall, the results of the formative measurement model revealed that all retained indicators met the required criteria for relevance, significance, and multicollinearity assessment. Consequently, all indicators were retained for subsequent structural model analysis. The findings imply that factors such as IT infrastructure capability, technology integration, digital skills and capability, external market pressure, leadership commitment, and technological capabilities are significant determinants influencing digital strategic management practices among manufacturing firms in Lagos State, Nigeria.

4.3.2 Structural Path Analysis of Factors Influencing Digital Strategic Management Practices in the Manufacturing Firms

The structural model for factors influencing Digital Strategic Management Practices (DSMPs) in manufacturing firms was estimated using Partial Least Squares Structural Equation Modelling (PLS-SEM) after the formative measurement model was confirmed to be satisfactory in Section 4.3.1 (Table 4.3 and Figure 4.1). The structural results are presented in disaggregated form in Table 4.4 and Figure 4.2, and in aggregated form in Table 4.5. Following the recommendations of Hair et al. (2017; 2019; 2021), and Adepoju et al. (2023; 2025) the interpretation of statistical significance was based on T-statistics and p-values, where T-statistics greater than 1.96 with p-values less than or equal to 0.05 indicate statistical significance at the 95 per cent confidence level. Coefficients of determination (R^2) were interpreted using Cohen's (1992) benchmark as reported in (Adepoju et al., 2023; 2025) where values of 0.26, 0.13, and 0.02 indicate substantial, moderate, and weak explanatory power respectively. Similarly, the effect size (f^2) was interpreted based on the conventional thresholds of 0.02, 0.15, and 0.35 representing small, medium, and large effects respectively. Variance Inflation Factor (VIF) values were also

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examined to ascertain the absence of multicollinearity among the predictor constructs.

The disaggregated structural results presented in Table 4.4 examined the influence of Digital Skills and Capabilities (cDSC), External Market Pressure (cEMP), Leadership Commitment and Support (cLCS), and Technological Capabilities (cTC) on the two dimensions of Digital Strategic Management Practices, namely IT Infrastructure Capabilities (bITIC) and Technology

Table 4.4: Path Analysis for Disaggregated Factors Influencing Digital Strategic Management Practices in the Manufacturing Firms

Path	Beta	STD	T stat	P values	f-square	VIF
cDSC -> bITIC	0.178	0.065	2.735	0.006	0.034	1.140
cDSC -> bTI	0.089	0.068	1.293	0.196	0.008	1.140
cEMP -> bITIC	0.219	0.065	3.362	0.001	0.057	1.044
cEMP -> bTI	0.160	0.066	2.417	0.016	0.029	1.044
cLCS -> bITIC	0.101	0.062	1.629	0.103	0.012	1.066
cLCS -> bTI	0.153	0.064	2.411	0.016	0.026	1.066
cTC -> bITIC	0.203	0.064	3.195	0.001	0.045	1.132
cTC -> bTI	0.233	0.059	3.979	0.000	0.057	1.132
Endogenous	**R-Square**	**R-Square Adjusted**				
bITIC	0.194	0.181				
bTI	0.160	0.147				

Source: Researcher's Field Report (2026)

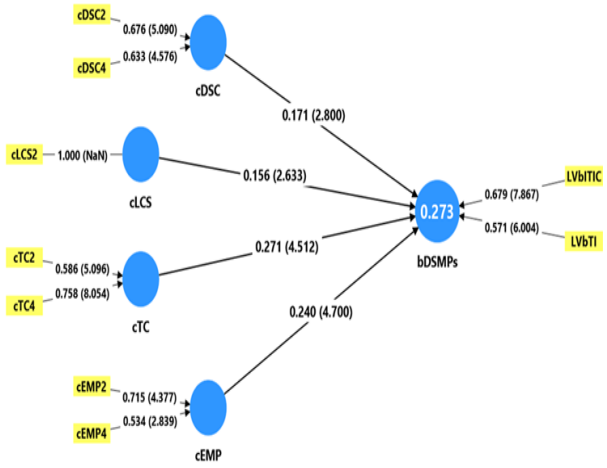

Figure 4.2: Structural Model for Factors Influencing Digital Strategic Management Practices in the Manufacturing Firms

Integration (bTI). The findings revealed that Digital Skills and Capabilities exerted a positive and statistically significant influence on IT Infrastructure Capabilities (cDSC → bITIC; β = 0.178, T = 2.735, p = 0.006, f^2 = 0.034).

This implies that improvements in employees' digital competence and organisational digital capabilities significantly enhance the development and deployment of IT infrastructure within manufacturing firms. Although the effect size is small, the relationship remains meaningful and statistically robust. However, the influence of Digital Skills and Capabilities on Technology Integration was positive but statistically insignificant (cDSC → bTI; β = 0.089, T = 1.293, p = 0.196, f^2 = 0.008). This suggests that while digital skills may support infrastructure readiness, they do not independently translate into the effective integration of technologies within operational and strategic processes in the sampled firms.

External Market Pressure demonstrated statistically significant positive effects on both dimensions of Digital Strategic Management Practices. Specifically, External Market Pressure significantly influenced IT Infrastructure Capabilities (cEMP → bITIC; β = 0.219, T = 3.362, p = 0.001, f^2 = 0.057) and Technology Integration (cEMP → bTI; β = 0.160, T = 2.417, p = 0.016, f^2 = 0.029). These results imply that competitive intensity, customer expectations, market dynamism, and industry-related pressures compel manufacturing firms to strengthen their IT infrastructure and pursue greater integration of digital technologies. The effect sizes are small but meaningful, indicating that market-related forces constitute important external drivers of digital strategic management adoption among manufacturing firms in Lagos State.

Leadership Commitment and Support produced mixed results across the two endogenous dimensions. The relationship between Leadership Commitment and Support and IT Infrastructure Capabilities was positive but statistically insignificant (cLCS → bITIC; β = 0.101, T = 1.629, p = 0.103, f^2 = 0.012). Although the coefficient suggests a positive tendency, the relationship did not attain the required threshold for significance at the 95 per cent confidence level. This indicates that leadership support alone may not be sufficient to significantly influence infrastructure development without complementary technological or market-related capabilities. Conversely, Leadership Commitment and Support significantly influenced Technology Integration (cLCS → bTI; β = 0.153, T = 2.411, p = 0.016, f^2 = 0.026).

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This finding suggests that managerial commitment, executive direction, and strategic support play important roles in facilitating the integration of digital technologies into organisational processes and decision-making systems.

Technological Capabilities emerged as one of the strongest determinants in the disaggregated structural model. The findings showed that Technological Capabilities significantly and positively influenced IT Infrastructure Capabilities (cTC → bITIC; β = 0.203, T = 3.195, p = 0.001, f^2 = 0.045) as well as Technology Integration (cTC → bTI; β = 0.233, T = 3.979, p = 0.000, f^2 = 0.057). These relationships were statistically highly significant and indicate that firms with stronger technological competence, adaptive systems, and advanced technological resources are more likely to develop robust IT infrastructure and effectively integrate digital technologies into their strategic and operational activities. Among the predictors in the disaggregated model, Technological Capabilities exerted the strongest influence on Technology Integration, reflecting its strategic importance in the digital transformation process of manufacturing firms.

The explanatory power of the disaggregated model was assessed using the R-square statistics reported in Table 4.7. The predictors jointly explained 19.4 per cent of the variance in IT Infrastructure Capabilities (R^2 = 0.194; Adjusted R^2 = 0.181) and 16.0 per cent of the variance in Technology Integration (R^2 = 0.160; Adjusted R^2 = 0.147). Using Cohen's (1992) benchmarks, these values indicate moderate explanatory power. This implies that the selected factors collectively provide meaningful explanations for variations in the digital strategic management dimensions examined in the study, although other contextual and organisational variables not included in the model may also contribute to explaining these constructs.

The effect sizes (f^2) reported in Table 4.7 further revealed that all statistically significant relationships exhibited small effect sizes, as none reached the 0.15 threshold for medium effects. Nonetheless, the most notable effects were observed for External Market Pressure on IT Infrastructure Capabilities (f^2 = 0.057) and Technological Capabilities on Technology Integration (f^2 = 0.057). These findings indicate that although the predictors individually exert modest practical influence, they collectively contribute meaningfully to the development of Digital Strategic Management Practices in manufacturing firms.

The aggregated structural model presented in Table 4.8 examined the collective influence of the four predictor constructs on the higher-order construct of Digital Strategic Management Practices (bDSMPs). The findings showed that all four constructs exerted statistically significant positive effects on DSMPs. Digital Skills and Capabilities significantly influenced DSMPs (cDSC → bDSMPs; β = 0.171, T = 2.800, p = 0.005, f^2 = 0.035). This indicates that firms possessing stronger digital competencies and employee capabilities are more likely to implement effective digital strategic management practices.

Table 4.5: Structural Path for Factors Influencing Digital Strategic Management Practices in the Manufacturing Firms (Aggregated)

Path	Beta	STD	T stat	P values	f-square	VIF	R-Square	R-Square Adjusted
cDSC -> bDSMPs	0.171	0.061	2.800	0.005	0.035	1.141	0.273	0.262
cEMP -> bDSMPs	0.240	0.051	4.700	0.000	0.076	1.045		
cLCS -> bDSMPs	0.156	0.059	2.633	0.008	0.032	1.066		
cTC -> bDSMPs	0.271	0.060	4.512	0.000	0.089	1.132		

Source: Researcher's Field Report (2026)

External Market Pressure also exerted a statistically significant positive effect on DSMPs (cEMP → bDSMPs; β = 0.240, T = 4.700, p = 0.000, f^2 = 0.076). This result suggests that competitive pressure, customer demand, and industry dynamics strongly motivate firms to adopt digital strategic practices. The relationship was highly significant and exhibited one of the highest structural coefficients in the aggregated model.

Leadership Commitment and Support similarly demonstrated a statistically significant positive effect on DSMPs (cLCS → bDSMPs; β = 0.156, T = 2.633, p = 0.008, f^2 = 0.032). This finding indicates that managerial support, strategic direction, and executive commitment positively contribute to digital strategic implementation in manufacturing firms, although the practical effect remains relatively small.

Technological Capabilities emerged as the most influential predictor in the aggregated structural model (cTC → bDSMPs; β = 0.271, T = 4.512, p = 0.000, f^2 = 0.089). This relationship was highly significant and recorded the largest path coefficient as well as the largest effect size among all predictors. The result implies that technological readiness, adaptability, and capability development are the most critical factors driving Digital Strategic Management Practices in manufacturing firms within the study area.

The aggregated model further showed that the four predictor constructs jointly explained 27.3 per cent of the variance in Digital Strategic Management Practices (R^2 = 0.273; Adjusted R^2 = 0.262). Based on Cohen's benchmark, this represents substantial explanatory power because the value exceeds the 0.26 threshold. Thus, the combined influence of digital skills, external market pressure, leadership commitment, and technological capabilities provides a strong explanation for

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the implementation of DSMPs among manufacturing firms in Lagos State.

The VIF values reported across Tables 4.4 and 4.5 ranged from 1.044 to 1.141, all of which are substantially below the threshold of 5.0 recommended by Hair et al. (2017). This confirms the absence of problematic multicollinearity among the predictor constructs and indicates that the structural estimates are reliable and stable.

Overall, the structural model results presented in Tables 4.4 and 4.5, together with Figure 4.2, reveal that Technological Capabilities constitute the most influential determinant of Digital Strategic Management Practices among manufacturing firms in Lagos State. This is followed by External Market Pressure, Digital Skills and Capabilities, and Leadership Commitment and Support. The findings suggest that firms that possess strong technological resources, adaptive digital systems, and updated technological infrastructure are more likely to effectively implement digital strategic management practices. The dominance of Technological Capabilities is further reinforced at the indicator level, where cTC4 ("The organisation continually updates its technology stack") recorded the highest loading (0.758), indicating that continuous technological upgrading represents the most impactful element driving digital strategic management implementation within the sampled firms.

Discussion of Findings

The findings from the structural model presented in Tables 4.4 and 4.5, alongside Figures 4.2, provide important empirical insights into the factors influencing digital strategic management practices among manufacturing firms in Lagos State, Nigeria. The pattern of results demonstrates that technological capabilities, external market pressure, digital skills and capabilities, and leadership commitment and support all contribute to the implementation of digital strategic management practices, although the strength and significance of these influences vary across the disaggregated and aggregated models. Overall, the findings are largely consistent with existing literature on digital transformation, strategic management, and technology adoption within manufacturing organisations and emerging economies.

The positive influence of Digital Skills and Capabilities on IT Infrastructure Capabilities and on aggregated Digital Strategic Management Practices aligns strongly with prior empirical studies that emphasised the role of workforce competence and digital literacy in successful digital transformation initiatives. Tahirkheli and Ajigini (2022) identified digital skills and organisational learning capacity as critical determinants of digital innovation strategy, while Zhang et al. (2022) established that employee digital competence significantly predicts successful digital transformation in SMEs. The present study reinforces these findings within the Nigerian manufacturing context, suggesting that firms possessing stronger digital capabilities among employees are more likely to establish and sustain digital strategic practices.

The finding equally corroborates the conclusions of Bouwmans et al. (2024), who categorised digital transformation skills into technical, strategic, and adaptive dimensions. In the Lagos manufacturing environment, where digital competency gaps remain prevalent, the positive effect of digital skills implies that firms with technologically competent personnel are better positioned to integrate digital systems into strategic planning and operations. Furthermore, the result supports the work of Vuksanović Herceg et al. (2020), who argued that employee readiness and technological integration jointly shape the success of Industry 4.0 implementation. The current study therefore extends these arguments by empirically demonstrating that digital competence directly strengthens digital strategic management implementation within manufacturing firms in an emerging economy setting.

However, the non-significant relationship between Digital Skills and Capabilities and Technology Integration introduces an important nuance to the literature. While digital skills are important, the finding suggests that workforce competence alone may not automatically guarantee successful technology integration. This partially diverges from studies such as Chen, Lyu, and Chen (2024), who found strong relationships between digital capability and interdepartmental integration in manufacturing SMEs. The divergence may be explained by contextual realities in Lagos State, where infrastructural limitations, unstable electricity supply, financial constraints, and fragmented technological ecosystems may hinder the translation of employee skills into practical technological integration. Consequently, even digitally skilled employees may face operational barriers that limit effective technology deployment.

The findings relating to External Market Pressure are particularly significant and strongly consistent with prior studies that identified competitive intensity, customer expectations, and environmental turbulence as major drivers of digital transformation. Liere-Netheler (2018) concluded that competitive pressure and technological opportunities are central motivators of digital transformation in manufacturing firms. Similarly, Wang and Su (2021) found that competitive intensity and supply chain digitalisation significantly influence digital transformation efforts among Chinese manufacturers.

The present findings equally align with Ta and Lin (2023), who established that environmental turbulence and customer pressure are significant determinants of digital transformation adoption among SMEs in emerging economies. In the context of Lagos manufacturing firms, increasing market competition, changing consumer expectations, and pressure to maintain competitiveness within both local and global supply chains appear to compel firms to adopt more digital strategic approaches. The findings therefore reinforce the proposition that external environmental forces remain powerful catalysts for organisational digitalisation.

Furthermore, the significance of market pressure supports the argument of Kipkirui (2024), whose study within the Kenyan

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manufacturing sector identified competitive pressure and regulatory dynamics as critical drivers of digital transformation adoption. The similarity between the Nigerian and Kenyan contexts strengthens the broader applicability of these findings within African manufacturing ecosystems. The present study therefore contributes to the literature by validating the importance of external environmental pressure within a developing-country industrial setting characterised by infrastructural and institutional constraints.

Leadership Commitment and Support also demonstrated significant positive effects on Technology Integration and aggregated Digital Strategic Management Practices. These findings support earlier studies that identified leadership commitment as one of the most important drivers of digital transformation success. Ko et al. (2022) argued that strategic intent and managerial vision are more decisive than technology alone in shaping digital outcomes. Similarly, Met et al. (2019) emphasised executive sponsorship and cross-functional alignment as essential success factors for digital business strategy.

The findings further corroborate Tahirkheli and Ajigini (2022), who established that top management support is fundamental for digital innovation strategy implementation. Likewise, Wolf et al. (2018) identified leadership commitment and open communication as critical success factors for digital transformation initiatives. The present study confirms these assertions by showing that leadership support significantly enhances digital strategic management practices among manufacturing firms in Lagos State.

However, the non-significant effect of leadership commitment on IT Infrastructure Capabilities suggests that leadership support alone may not directly translate into infrastructural development unless accompanied by adequate financial resources, technical expertise, and long-term investment capacity. This finding partially nuances the literature by indicating that while leadership drives strategic direction and technology integration, infrastructural development in Nigerian manufacturing firms may remain heavily constrained by broader economic and institutional limitations.

Technological Capabilities emerged as the most influential predictor across the structural models. These findings strongly support prior studies emphasising the centrality of technological readiness and digital infrastructure in digital transformation processes. The results align with Albukhitan (2020), who argued that digital transformation success depends heavily on the alignment between IT systems and organisational strategy. Similarly, Omrani et al. (2022) found that technological infrastructure significantly influences the digital transformation journey of SMEs. The present findings equally corroborate Chirumalla et al. (2025), who identified modular IT architecture and technological agility as essential for sustained transformation in manufacturing firms.

The findings also resonate with Chen et al. (2024), who found that digital capability and interdepartmental integration strongly influence digital transformation outcomes in manufacturing SMEs. The current study therefore confirms that technological capabilities remain foundational to digital strategic management implementation within manufacturing environments, especially where firms seek to modernise operations and remain competitive under increasingly digital market conditions.

The explanatory power of the structural models further strengthens the robustness of the findings. The predictors jointly explained a meaningful proportion of the variance in both the disaggregated and aggregated constructs, indicating that the selected factors provide substantial explanation for variations in digital strategic management practices among manufacturing firms in Lagos State. Similarly, the effect size analysis confirms that although the individual effects are mostly small, the constructs collectively play important complementary roles in shaping digital strategic management implementation.

Implication of Findings

The implication of these findings is highly significant for manufacturing firms, policymakers, and industrial stakeholders in Nigeria. The dominance of Technological Capabilities as the strongest predictor of Digital Strategic Management Practices implies that firms seeking successful digital transformation must prioritise investments in technological infrastructure, system upgrades, and digital architecture. Figure 4.2 further revealed that the indicator relating to continuous updating of organisational technology systems emerged as the most impactful item within the technological capabilities construct. This implies that firms that regularly modernise their technological systems are more likely to achieve stronger digital strategic management outcomes.

The strong influence of External Market Pressure equally suggests that competitive forces and changing customer expectations are accelerating digital transformation within manufacturing firms. Consequently, organisations that fail to respond proactively to market-driven technological changes risk losing competitiveness within increasingly digitalised industrial ecosystems. For policymakers, this finding highlights the importance of creating enabling environments that encourage innovation, digital competitiveness, and industrial modernisation.

The significance of Digital Skills and Capabilities implies that workforce development remains essential for digital transformation success. Manufacturing firms must therefore prioritise employee digital training, technical capacity building, and continuous learning initiatives to strengthen their digital readiness. Without adequate human capital, technological investments may fail to yield optimal strategic benefits.

Similarly, the positive role of Leadership Commitment and Support indicates that digital transformation requires active managerial involvement and strategic vision. Organisational leaders must champion digital initiatives, encourage innovation, allocate resources effectively, and institutionalise digital thinking within corporate strategy. Digital

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transformation is therefore not merely a technological issue but also a leadership and strategic management responsibility.

Overall, the findings imply that successful digital strategic management practices in Lagos manufacturing firms depend on the interaction between technological readiness, market responsiveness, workforce competence, and leadership commitment. The results further suggest that firms that continuously update their technological capabilities while responding strategically to external market dynamics are more likely to achieve sustainable digital transformation and long-term competitiveness.

Hypothesis Testing

Ho: There is no significant relationship between the identified influencing factors and digital strategic management practices among manufacturing firms in Lagos State.

The findings from the structural model revealed that Leadership Commitment and Support ($\beta = 0.156$, $p = 0.008$), Technological Capabilities ($\beta = 0.271$, $p = 0.000$), External Market Pressure ($\beta = 0.240$, $p = 0.000$), and Digital Skills and Capabilities ($\beta = 0.171$, $p = 0.005$) significantly influenced digital strategic management practices among manufacturing firms in Lagos State. Since the probability values of these significant predictors were less than the 0.05 level of significance, the null hypothesis was rejected. Therefore, the study concludes that there is a significant relationship between the identified influencing factors and digital strategic management practices among manufacturing firms in Lagos State, Nigeria.

Conclusion and Recommendations

The implementation of digital strategic management practices among manufacturing firms is significantly shaped by organisational and environmental factors. Specifically, Technological Capabilities, External Market Pressure, Digital Skills and Capabilities, and Leadership Commitment and Support emerged as significant determinants of digital strategic management practices. This finding implies that manufacturing firms are more likely to achieve successful digital transformation when they possess adequate technological competence, skilled personnel, committed leadership, and sufficient responsiveness to market expectations and competitive pressures. Therefore, digital strategic management practices are not implemented in a vacuum but are influenced by a combination of internal preparedness and external environmental dynamics.

Based on the findings and conclusions of this study, the study recommends that manufacturing firms should prioritise technological capability development and digital workforce competence to strengthen digital strategic management practice. Since Technological Capabilities emerged as the strongest predictor of digital strategic management practices, followed by External Market Pressure, Digital Skills and Capabilities, and Leadership Commitment and Support, firms should invest in modern digital infrastructure, advanced software systems, and continuous digital skills training for employees. Management should also remain responsive to changing customer expectations and industry competitive pressures in order to improve digital strategic adaptability and organisational readiness.

This study was limited to selected listed manufacturing firms in Lagos State, Nigeria, and data were collected from senior management staff at a single point in time. As a result, the findings reflect the perceptions and digital strategic realities of the sampled firms during the study period and may not fully capture changes that could occur over time or across other manufacturing clusters in Nigeria. Further studies should adopt longitudinal designs to examine how the determinants of digital strategic management practices evolve over time. Future researchers may also extend the study to manufacturing firms in other Nigerian states or compare listed and non-listed firms to provide broader evidence on how organisational, technological and market-related factors shape digital strategic management practices in different industrial contexts.

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