DIGITAL TRANSFORMATION AND SME PERFORMANCE IN NIGERIA: METHODOLOGICAL CONSIDERATIONS

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Abstract

This research plans to investigate how digital tools influence the performance of small and medium-sized enterprises (SMEs) in Benue State, Nigeria. This is a snapshot of the study's methodological considerations. The research will employ the Structural Equation Model (SEM) as the analysis technique to test the relationship between digital tool adoption and SMEs' performance, utilizing the SPSS statistical software. The study will ensure internal consistency within the constructs of the study through Cronbach's alpha reliability assessment. Through the path coefficients, the SEM examination will be aided in this research, and this will eventually lead to the establishment of direct and indirect relationships among the constructs. The study will theoretically contribute by confirming the measurement scale's reliability, employing the Heterotrait-Monotrait (HTMT) ratio of correlations for discriminant validity, and dynamic challenges in model fit assessment. The practical insights to be derived will serve as a roadmap for owners/managers and SMEs' performance.

Key words: Digital Transformation, SMEs Performance, Nigeria

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Introduction

Today, the global business environment has become highly competitive, and it continues to transform due to the constantly changing business environment driven by the advancement in technology, the expansion of the global economy, and the desire of businesses to attain a certain degree of operational efficiency, among others. It is glaring that larger firms and, to some significant level, small and medium-sized enterprises (SMEs) have swiftly transformed digitally, especially in developed countries, leaving behind the developing economies. Digital transformation (DT) of SMEs is not rocket science; it is affected by the internal environment, i.e., the perception of the owners and managers towards the adoption of digital tools, the firm's size, the skill level of the workers (Beckmann et al., 2023; Ulrich-Diener et al., 2023) and the external environment emanating from outside pressure, government support, the social

context (Eggers et al., 2017; Ulrich-Diener et al., 2023). The ability of SMEs to adapt to these changes from their traditional practices remains a 'lifeblood' for their survival in this digital era.

While DT adoption is trailing in Africa (African Union, 2020), Nigeria ranks poorly in the global assessment of business- a business-friendly environment, securing the 131st position in 2020 according to the World Bank's report (Adeosun & Shittu, 2022). Nigeria, constituting approximately 47% of West Africa's population, boasts as one of the world's largest youth populations and holds the position of Africa's largest economy; thus, the digital economy presents opportunities for countries like Nigeria. Realizing the transformative impact on economic opportunities and inclusive growth requires improved connectivity and the implementation of digital identity schemes, access to digital payments, and support for startups and existing businesses. With these capabilities, the Nigerian economy can incorporate new technologies, connect individuals and SMEs with markets, and introduce sustainable business models. Nevertheless, this is not the case; for example, fixed broadband penetration is notably low, registering a household penetration rate of 0.04% by the end of 2018, below the African regional average of 0.6% and significantly lower than the world average of 13.6%. Nigeria ought to take advantage of the World Bank Group's support for the African Union's Digital Transformation Initiative for Africa, which aims to digitally enable African individuals, businesses, and governments by 2030 (World Bank Group, 2019).

This study plans to cover the gap in understanding how SMEs' digital tool adoption could impact their performance, as the research in this area remains grossly inadequate (Vrontis, 2022). The research proposes a framework and method to achieve this objective by critical assessment and reflection of the best practices drawn from the works of previous researchers and to plan a rigorous empirical study showing the relationship between digital tools and SME performance.

1   Development of the theoretical framework

This research uses scholarly articles from the Web of Science and Google Scholar databases to determine the most relevant articles to develop the research framework for this planned study. DT of a firm is driven by business strategy rather than technology. While some success may exist with a technology-centric approach, adopting such a strategy can be impractical and perilous. This is connected to their constrained resources and SMEs' low fault tolerance characteristics (Liu et al., 2021). This approach is crucial for swiftly meeting growing customer needs and gaining a competitive edge. In this context, the integration and restructuring of

internal and external environments are augmented by various digital technologies, aligning with the fundamental tenets of the Dynamic Capability View (DCV) theory (Vrontis et al., 2022).

Furthermore, according to the Diffusion of Innovation (DOI) theory, innovation is witnessed as a practice perceived as new by an individual or another unit of adoption; it is argued that the diffusion process often involves extending innovation through effective communication channels, which often targets receptive individuals. In contrast, adoption is more linked to the decision to accept and utilize the innovation, exemplified by cases such as the adoption of e-commerce (Hussain et al., 2020) in our context of adopting digital tools. Going further, we look at the Technology-Organization-Environment (TOE) framework, which has been widely employed in various studies addressing technology innovation and adoption/usage. Examples include studies on electronic data interchange (EDI) adoption, e-market adoption, and enterprise resource planning (ERP). However, this particular study centres its focus on organizational context and external environment as employed by (Hussain et al., 2020).

Rupeika-Apoga et al. (2022) acknowledged the growing importance of DT and pointed out a gap in knowledge due to insufficient empirical research. The study further investigated the mediating effects of DT on the revenue and business model of SMEs. It revealed a positive mediation, both through digital orientation on revenue and business model and through digital capacity on revenue.

This research will adopt a framework by Hussain et al. (2020), which is most suitable for this study as it combines elements from several theoretical perspectives to analyze the adoption and usage of digital tools on SME performance. It provides a comprehensive understanding of the factors influencing the adoption and usage of digital tools within SMEs, which is relevant in the context of developing countries like Nigeria. It also helps to identify not only the internal and external factors affecting adoption but also the mechanisms through which digital tools can improve performance. As a result, the study will develop nine hypotheses by evaluating the relationship between the organizational factors (adoption cost, top management support) and the external factors (government support and external competition) through the mediating role (indirect relationship) of digital tools with SMEs performance. This is because the relationship between the external environment and the internal environment cannot be directly measured; thus, it is important to measure the relationship through the use of constructs that are specific to the environmental factors, as shown below in Figure 1.

Fig. 1: Theoretical Framework
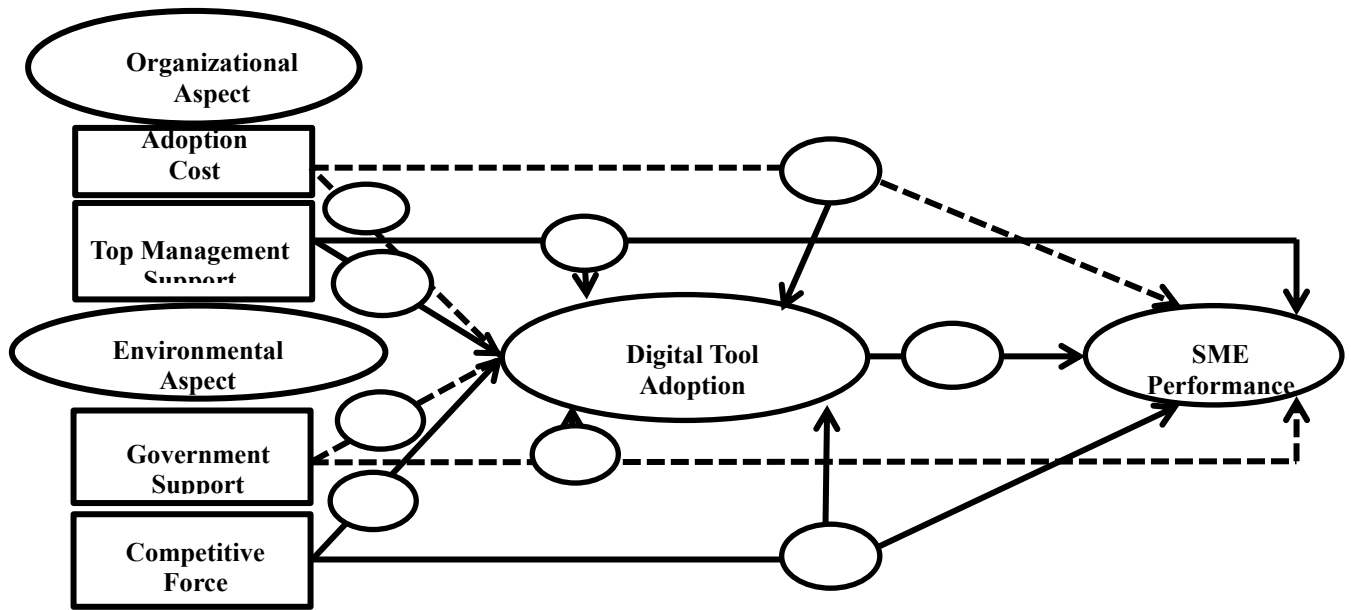
Explanatory notes to lines: Indirect relationship: ⋯⋯⋯ ; Direct Relationship: ⸻

Source: Adapted and modified from Hussain et al. (2020, p. 5)

2 Planned methodological approach

This research will be conducted in Benue State, Nigeria; the researcher plans to visit various SMEs within the State to interact with the owners and top management of the SMEs and to respond to the conduct onsite personal interviews to reach the highest possible return on the survey; it is also important to note that, the response of one respondent from an SME is not going to be adequate to understand how digital tools impact on the SME, thus at least three (3) responses per SME will be evaluated. Furthermore, the data collection process will be supported by three (3) experienced experts and only registered SMEs that employ digital tools in their operations will be investigated because an SME that has not incorporated digital tools in their business operations will only lead to spurious findings and the data collection will take approximately two and half months. A structured survey will be prepared, and the collected data will be used to investigate the relationship among the constructs of the study. The respondents will be the owners and managers of digitally transformed SMEs as employed by (Kikawa et al., 2022; Hussain et al., 2020). A well-structured close-ended questionnaire will be used to fit the context, culture, and characteristics of the SMEs categorized to cover the demographic aspect of the study and the specific construct content aspects of this study, which will be first evaluated with a pilot study and eventually improved and the questionnaire will be structured in a Likert five-scale type, from "strongly disagree" (1) to "strongly agree" (5) as

used in the prior studies mentioned above. The research will ensure that the study's ethical considerations and scientific integrity are met and that the respondents' level of understanding will be evaluated. Based on this, the estimated sample size for this study is at least 318 surveys. This is evaluated at a 95% confidence interval with a 5% margin of error drawn from a population of 1811 registered SMEs in the Benua State. The desired sample size was calculated by using the Cochran sample size formula.

Furthermore, the obtained data will be analyzed through different methods. In this regard, the researchers plan to employ the following methods as the most suitable with the justification below.

2.1   Discriminant Validity: Heterotrait-monotrait ration of correlations (HTMT)

The HTMT correlation ratio is a method employed in structural equation modelling (SEM) to evaluate discriminant validity. A low HTMT value, nearing 0, signifies strong discriminant validity, indicating clear distinctions between the constructs. Conversely, a high HTMT value raises concerns about discriminant validity, suggesting that the intended separations between constructs may not be as pronounced, as Hussain et al. (2020) demonstrated.

2.2   Structural Equation Model (SEM)

Before the SEM estimation, this research will conduct the reliability test to establish internal consistency and how reliable the measurement of the various constructs is through the evaluation of Cronbach's alpha values, which ought to be at least 0.7 thresholds.

The estimation process of an SEM is comprised of two sections: the measurement model and the structural model. The rationale behind selecting SEM lies in its robust and comprehensive nature, enabling the validation of relationships between underlying constructs and observable variables. SEM is known for its ability to precisely gauge the fluctuations in latent variables, and its widespread use in empirical research within the social sciences underscores its effectiveness, as substantiated by previous research by Kikawa et al. (2022) and Ulrich-Diener et al. (2023).

The measurement model, the same as the Confirmatory Factor Analysis (CFA), is employed to evaluate how well a proposed model aligns with the observed data. It is essential in this research to validate the structure of diverse constructs within the model, assessing both convergence and reliability. Upon the confirmation of favourable outcomes in the CFA, the estimation of the structural model will be conducted as used by Octasylva et al. (2022). The

research is expected to satisfy these estimation criteria as employed by Ulrich-Diener et al. (2023).

After meeting the measurement model criteria described in Table 1, the subsequent stage involves assessing the structural model. This entails examining the internal arrangement of the model by analyzing path coefficients, as well as the direct and indirect connections among the constructs. This process informs decision-making regarding hypotheses and may prompt additional analyses, such as investigating mediation effects (Henseler et al., 2009). It is noteworthy that path coefficients are standardized within a range of -1 to +1. Values near +1 indicate a strong positive relationship, while those closer to -1 suggest a robust negative relationship (Hair et al., 2014).

Tab. 1: Estimation Criterion (Model Fit Measure)

Type of Index	Description	Criterion
Absolute fit index	Model chi-square with its degrees of freedom and *p*-value.	P> .05
Absolute fit index	CMIN = chi-square / df >3	CMIN > 3
Absolute fit index	Root Mean Square of Error of Approximation (RMSEA)	RMSEA <.05
Absolute fit index	Pclose	RMSEA p > 0.05
Absolute fit index	Standardized Root Mean Square Residual (SRMR).	SRMR<.08
Incremental (relative, comparative) fit indexes	Comparative Fit Index (CFI)	CFI >= .95
Parsimonious index	Goodness of fit (GFI)	GFI >= .95

Source: Adapted and modified from Hair et al. (2014), Kikawa et al. (2022) and Ulrich-Diener et al. (2023)

Conclusion

In conclusion, several lessons can be drawn from this article. Looking at the importance of understanding the dynamics of Digital Transformation (DT) in SMEs, as the global business environment continues to change rapidly, these changes will not stop but rather continue to advance and can become complicated for businesses, so SMEs need to flow with the trend of DT in enhancing competitiveness and survival or risk losing their current position on the market and risk of possible failure in their entrepreneurial journey. Furthermore, the gap in empirical research regarding the impact of digital tool adoption on SME performance is a lesson drawn

from this study planning to investigate this phenomenon within the context of a developing economy, i.e., Nigeria. Bridging this gap requires a comprehensive understanding of the factors influencing SMEs' adoption and usage of digital tools. In line with this, this study will apply a robust methodological approach as it plans to include selecting appropriate data collection methods, ensuring sample representativeness, and employing suitable analytical techniques.

At this point, it is essential to note that this study cannot be said to be without limitation, as the study intends only to investigate registered SMEs that have already adopted digital tools; this could introduce selection bias, as it excludes SMEs that have not yet incorporated digital tools into their operations. This may lead to incomplete or biased conclusions about the impact of digital tool adoption on SME performance. However, it is important to note that this study's findings will stimulate SMEs that are yet to adopt DT in their operation to do so because we cannot investigate the impact of DT from an SME that does not use these tools in their operation. Furthermore, the study will also rely on self-reported data from SME owners and managers, potentially suggesting a risk of response bias, where participants may provide inaccurate or socially desirable responses and skew the results of the study as the quality and reliability of the data collected through questionnaires depend on the accuracy of respondents' answers. Again, the researchers will ensure that the respondents understand the questionnaire clearly and have the requisite business knowledge to dish out befitting responses. Lastly, conducting empirical research, especially in developing country contexts, can be resource-intensive in terms of time, finances, and workforce. Limited resources may constrain the size of the sample or the depth of data analysis, potentially limiting the robustness of the study. As a way of response to this limitation, this study is planned to secure external funding to ensure its feasibility. The researcher, as a full-time PhD student with the support of his supervisor, has ample time to dedicate to this research. He will travel to Nigeria to spend two and a half months and will also be supported by three experts.

The contribution of the study to the international body of knowledge will be in the further calibration of the established measures of DT (Ulrich-Diener et al., 2023) and enriching the body of knowledge of knowledge by providing empirical findings from the emerging country context.

Acknowledgement

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