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ORIGINAL

Digital Transformation Success in SMEs: Exploring the Interplay of Technology, Organization, and Environment

El éxito de la transformación digital en las PYME: exploración de la interacción entre tecnología, organización y entorno

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ABSTRACT

Introduction: in the current digital economy, integrating cutting-edge technology into company operations has become essential to long-term sustainability and competitiveness. The term Digital Transform (DT) describes the deliberate use of digital technologies and processes to boost consumer engagement, operational effectiveness, and innovative capacity. For small and medium-sized enterprises (SMEs), DT presents both opportunities and challenges due to controlled resources and structural limitations.
Objective: to explore how technological, organizational, and environmental factors collectively influence the success of DT in SMEs was the primary objective of this research.
Method: an organized questionnaire collected data from 192 SME representatives across several industries. Using structural equation modeling (SEM), the research tested the relationships among particular variables. the model combined key constructs such as IT infrastructure readiness (ITIR) digital leadership (DL), organizational agility (OA), regulatory support (RS), market pressure (MP), workforce adaptability (WA), and Digital Transformation success (DTS). The DT process was assessed based on criteria that included the incorporation of digital platforms, real-time data utilization, and customer-driven innovation. SPSS and AMOS were utilized for data analysis, containing reliability tests, confirmatory factor analysis, descriptive statistics, and path analysis.
Results: results discovered that organizational agility (ß=0,38, p<0,01) and IT readiness (ß=0,33, p<0,01) had the most substantial effects on transformation success, with external market pressure (ß=0,27, p<0,05) also playing a meaningful role. Digital leadership was found to significantly mediate organizational capabilities.
Conclusion: these findings highlight the importance of internal capabilities supported by external drivers in shaping successful transformation outcomes.

Keywords: Digital Transformation; Structural Equation Modeling (SEM); Transformation Success Factors; Innovation Capability; Digital Economy.

RESUMEN

Introducción: en la economía digital actual, la integración de tecnología de vanguardia en las operaciones empresariales se ha vuelto esencial para la sostenibilidad y la competitividad a largo plazo. El término Transformación Digital (TD) describe el uso deliberado de tecnologías y procesos digitales para impulsar la participación del consumidor, la eficacia operativa y la capacidad de innovación. Para las pequeñas y medianas empresas (PYME), la TD presenta tanto oportunidades como desafíos debido a la limitación de recursos y las limitaciones estructurales.
Objetivo: el objetivo principal de esta investigación fue explorar cómo los factores tecnológicos, organizativos y ambientales influyen colectivamente en el éxito de la TD en las PYME.
Método: un cuestionario organizado recopiló datos de 192 representantes de PYME de diversos sectores. Mediante modelos de ecuaciones estructurales (SEM), la investigación evaluó las relaciones entre variables específicas. El modelo combinó constructos clave como la preparación de la infraestructura de TI (ITIR), el liderazgo digital (DL), la agilidad organizacional (OA), el apoyo regulatorio (RS), la presión del mercado (PM), la adaptabilidad de la fuerza laboral (WA) y el éxito de la Transformación Digital (DTS). El proceso de DT se evaluó con base en criterios como la incorporación de plataformas digitales, el uso de datos en tiempo real y la innovación orientada al cliente. Se utilizaron los programas SPSS y AMOS para el análisis de datos, que incluyeron pruebas de confiabilidad, análisis factorial confirmatorio, estadística descriptiva y análisis de trayectoria.
Resultados: los resultados revelaron que la agilidad organizacional (β=0,38, p<0,01) y la preparación de TI (β=0,33, p<0,01) tuvieron los efectos más significativos en el éxito de la transformación, mientras que la presión externa del mercado (β=0,27, p<0,05) también influyó significativamente. Se observó que el liderazgo digital mediaba significativamente las capacidades organizacionales.
Conclusión: estos hallazgos resaltan la importancia de las capacidades internas, respaldadas por impulsores externos, para el éxito de la transformación.

Palabras clave: Transformación Digital; Modelado de Ecuaciones Estructurales (SEM); Factores de Éxito de la Transformación; Capacidad de Innovación; Economía Digital.

INTRODUCTION

In an industry where competition is intense and always changing, DT has become an innovative strategy for many businesses looking to get a competitive advantage. The use of DT by several companies has enhanced their commercial performance and productivity, boosted their dominance, and led to innovative breakthroughs and sustained development.[1] In the digital age of innovation and change, businesses rush to adopt new technology. The way SMEs operate, communicate, and live is being altered by these technologies. It is difficult for SMEs in poor nations to compete in this digital era. Although DT is a difficult and complicated process, companies can make it successful by concentrating on these eight components. Leadership, culture, capabilities, processes, measurements, resources, collaborations, and governance are some of these building pieces.[2] The adoption of DT is a key driver of sustainable growth for SMEs, particularly in the context of the Fourth Industrial Revolution. Businesses are increasingly leveraging digital technologies through practices such as digitization and comprehensive transformation of operations to improve organizational performance and gain a competitive edge.[3] Many markets have been upended by DT, which has set tremendous pressure on established SMEs to transition to innovation-driven businesses. The application of emerging digital technologies, such as blockchain, mobile, cloud, artificial intelligence, and Internet of Things (IoT) technologies, to facilitate significant business gains is one definition of digital transformation.[4] Digital transformation, which is commonly misunderstood as automating procedures without altering the fundamental company operations, is the primary force behind the current economic transformation. In addition to digitalization, true DT involves revenue generation, value creation, and business model innovation.[5] The process of their DT is impacted by the significant diversity of SMEs. There is, however, a dearth of research that methodically describes how these elements relate to one another to offer a workable, organized procedure for SME digitization.

The research was analyzed to uncover the characteristics that influence their sustainable growth, which will serve as a reference for both academic researchers and industry decision-makers.[6] Interviews identified digital technology, employee digital skills, and DT strategies as critical resources. A questionnaire survey with 335 valid responses was analyzed using SPSS and SEM. Results show these resources positively impact DT, which in turn enhances financial performance. A limitation is the research focus on Chinese SMEs, which might affect the generalizability of the findings. SMEs are increasingly reshaping their business models through digital transformation.[7] With market-sensing dynamic capability acting as a mediator, this study looks at how strategic leaders' entrepreneurial perseverance propels both digital adoption and business model innovation. Analysis

was done on 229 SME owners' and senior managers' data. Results indicate that entrepreneurial persistence significantly enhances digital adoption. However, findings are context-specific and might not generalize globally. DT is vital for SMEs aiming for survival and sustainable growth in today's global landscape.[8] The research investigates the causal relationship between DT factors, innovation performance, and sustainable growth. Data from 303 SMEs were analyzed to identify key influencing variables. Results show that DT significantly boosts innovation, leading to sustainable growth. Industry-specific strategies were derived based on seven sectors, highlighting tailored variables for growth. However, the research's findings are limited to surveyed sectors and might not fully apply across all SME environments. The research [9] provides a strategic guideline for manufacturing SMEs to navigate Industry 4.0 by identifying 11 critical success determinants. External support is crucial, while operations technology readiness is the hardest to achieve. The model helps prioritize DT strategies effectively. The research also explores the critical elements affecting social and individual acceptance of digital technology.[10] Survey data from 100 workers was used to identify and test risk and success indicators. DT acceptance attitudes are highly shaped by intended behavioral features and innovative characteristics, positively impacting individual acceptance. The research provides theoretical and practical insights, but the industry and geographic focus of the sample limit the results.

Research Objective

This research intends to discover the effect of organizational, technical, and environmental factors on transformation outcomes and the role of DL in enhancing internal capabilities, with the primary objective of providing a validated framework for successful DT.[11,12]

The rest of the paper

The research was organized into several phases. Phase 1 provided the background and an outline of DT success in SMEs and presented a comprehensive review of related literature. Phase 2 explains the methodology, including data gathering, data analysis, and details about the questionnaire. Phase 3 demonstrated the evaluation of results through SEM analysis, which obtained better outcomes and discussed the findings. Phase 4 concluded the research.[13,14]

HYPOTHESIS FRAMEWORK

The hypothesis framework examines how the variables influence DTS in SMEs. ITIR and OA were expected to have the strongest positive impacts. DL not only directly affects agility but also mediates the interconnection between organizational capabilities and transformation success. External factors like RS and MP serve as an important drivers motivating transformation. WA supports effective implementation by enabling employees to embrace change. Together, these factors shape the success of DT initiatives. Figure 1 depicts the conceptual framework of the hypothesis variables.

- H1: ITIR significantly enhances the DTS of SMEs.
- H2: OA positively influences DL by fostering adaptive and forward-thinking leadership behavior.
- H3: DL directly contributes to the success of DTS initiatives.
- H4: OA facilitates rapid response to change, thereby improving DTS.
- H5: MP acts as a catalyst that drives SMEs toward achieving DTS.
- H6: RS provides the necessary external encouragement for SMEs to succeed in DTS.
- H7: WA enables smoother implementation of change, thus supporting DTS.
- H8: OA fosters DL, which in turn enhances DTS through a mediating pathway.

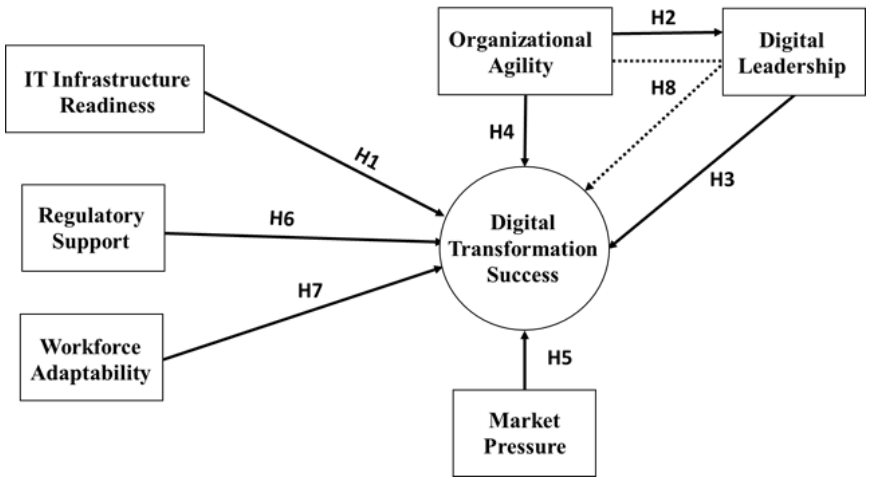

Figure 1. Visual Representation of Hypothesis Framework

METHOD

The research investigates factors influencing DTS in SMEs using quantitative methods. The process includes describing the research approach, data collection, and data preparation procedures. The research also discusses the reliability, CFA, and descriptive statistics procedures. Pathway evaluation is also discussed to ensure the research's rigor and validity.

Data Collection

A selection process was used to choose 192 representatives from SMEs in a range of industries. Among the attendees were managers and important staff members in charge of their companies' DT projects. Constructs considered in the research were covered by the structured questionnaire, and data was gathered via an online survey platform. The collected data provides a detailed understanding of the elements affecting SMEs' performance with digital transformation.

Questionnaire

The questionnaire aimed to identify key factors affecting SMEs' success in digital transformation. Two items were designed to measure each component, based on literature and tailored to SMEs' needs. The questionnaire quantified opinions on organizational, environmental, and technological aspects essential for successful digital transformation. A pre-test was conducted with a small group of SME managers to confirm clarity and relevance. The questionnaire balanced comprehensiveness and brevity to ensure high response rates and accurate data. Table 1 displays various questions based on factors.

Table 1. Variables-based questionnaire

Factors	Questionnaires
ITIR	How well does your current IT infrastructure support digital initiatives?
DL	To what extent do leaders in your organization promote digital innovation?
OA	How flexible is your company in adopting new digital business processes?
RS	To what extent do compliance regulations influence your digital strategies?
MP	How important is customer demand in shaping your digital transformation?
WA	How willing are employees to learn new digital skills?
DTS	How successful is your organization's digital transformation?

Statistical Analysis

The research utilized statistical analysis to examine the relationship between environmental factors and DT success in SMEs. Data was analyzed using SPSS through data cleaning, reliability testing, dataset preparation, and path analysis. Cronbach's alpha (α) was used to evaluate internal consistency, and the results exceeded the suggested cutoff. The dataset was then loaded into AMOS for model validation and hypothesis testing. A CFA was used to assess model validity, key fit indices were used to evaluate model adequacy, and reliability test was assessed using α. Descriptive statistics were conducted to know the distribution, central tendency, and variability of each factor before structural analysis.

RESULTS AND DISCUSSION

Research analyzing 192 SME responses found that organizational agility and IT readiness significantly impact DT success. Other factors like market pressure, regulatory support, and workforce adaptability also played a role. DL mediated the effect of organizational agility, supporting the research hypotheses with strong statistical support.[15,16]

Demographic Table

The demographics of 192 SME participants focused on age, gender, industry sector, company size, and organizational role. The majority were male and in service or manufacturing industries. They typically held decision-making positions like managers or owners. The majority were small, employing less than fifty people. The data reveals how leadership roles and organizational structure impact SMEs' adoption of DT strategies. Table 2 and figure 2 illustrate the demographic variables of the industry sector, company size, and respondent position.[16,17]

Table 2. Demographic evaluation based on variables

Variable	Category	Frequency (n)	Percentage (%)
Gender	Female	70	36,5
	Male	122	63,5

Age Group (years)	20-30	38	19,8
	31-40	74	38,5
	41-50	52	27,1
	Above 50	28	14,6
Industry Sector	Manufacturing	56	29,2
	Services	74	38,5
	Wholesale	32	16,7
	Technology	30	15,6
Company Size	< 50 employees	88	45,8
	50-100 employees	66	34,4
	> 100 employees	38	19,8
Respondent Position	CEO	60	31,3
	Manager	82	42,7
	Staff	50	26,0

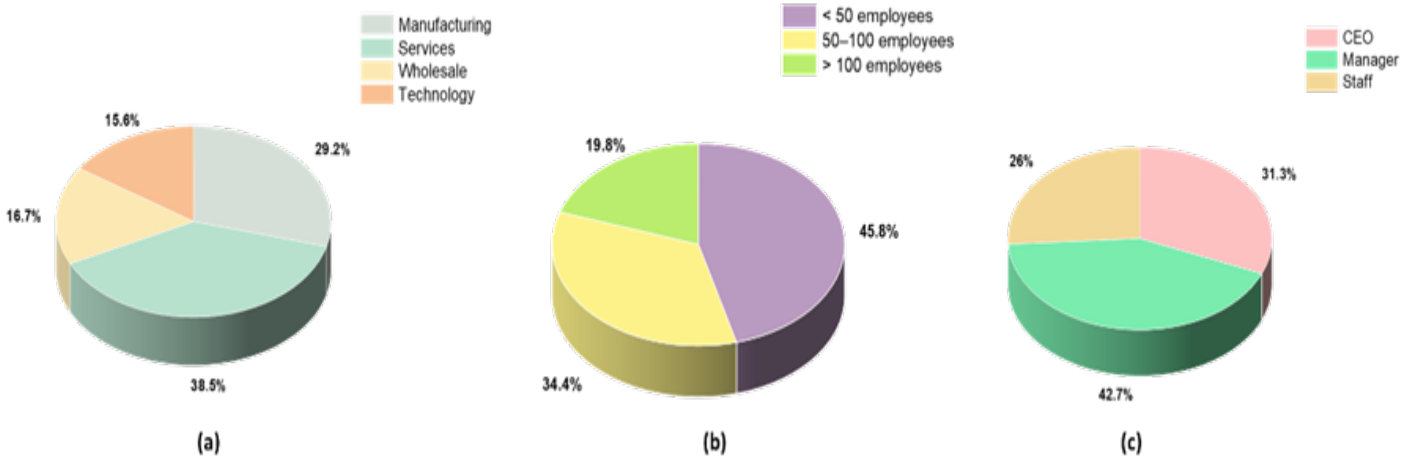

Figure 2. Graphical Representation of demographic factors (a) industry sector, (b) company size, (c) respondent position

Estimation of the Measurement Model

The research conducted reliability and CFA analyses to make sure the robustness of the proposed measurement technique was shown in table 3 and figure 3. Every construct demonstrated strong reliability by exceeding the suggested cutoff of 0,70 for both α and Composite Reliability (CR). Convergent validity was evaluated using CFA, with moral convergent validity demonstrated by standardized factor loadings and AVE values above the permissible cutoff of 0,50. Indicator reliability (λ^2) values confirmed that each observed item accurately reflected its underlying latent construct.[18,19]

Table 3. Factor-based Validity and Reliability

Factor	Item	Factor Loading	λ^2	α	CR	AVE
ITIR	ITIR1	0,82	0,67	0,84	0,87	0,63
	ITIR2	0,78	0,61			
	ITIR3	0,75	0,56			
	ITIR4	0,80	0,64			
OA	OA1	0,85	0,72	0,88	0,90	0,69
	OA2	0,81	0,66			
	OA3	0,79	0,62			
	OA4	0,83	0,69			
MP	MP1	0,77	0,59	0,79	0,83	0,62
	MP2	0,74	0,55			
	MP3	0,79	0,62			
RS	RS1	0,76	0,58	0,76	0,82	0,59
	RS2	0,73	0,53			
	RS3	0,78	0,61			

WA	WA1	0,80	0,64	0,81	0,85	0,61
	WA2	0,77	0,59			
	WA3	0,79	0,62			
	WA4	0,81	0,66			
DL	DL1	0,84	0,71	0,86	0,89	0,68
	DL2	0,82	0,67			
	DL3	0,79	0,62			
	DL4	0,83	0,69			
DTS	DTS1	0,85	0,72	0,89	0,91	0,71
	DTS2	0,84	0,71			
	DTS3	0,81	0,66			
	DTS4	0,79	0,62			
	DTS5	0,83	0,69			

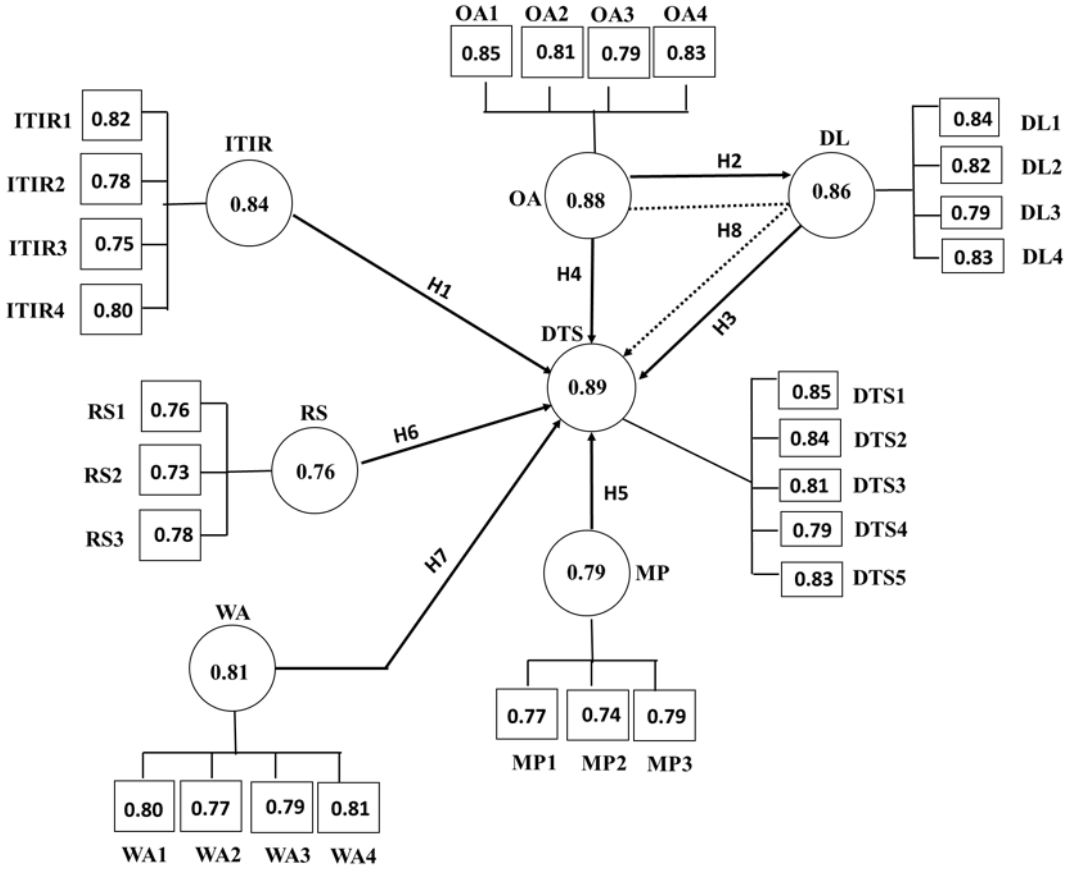

Figure 3. Visual Representation of the measurement model

Descriptive Statistics

The research used descriptive statistics to analyze the data that was shown in table 4. These statistics helped to determine if the conditions for further parametric analysis were met and offered insights into general trends. The data was found to be widely distributed, enhancing the use of SEM to examine correlations between variables affecting SMEs' performance during digital transformation. Figure 4 shows the distribution of constructs and variability comparison using mean and standard deviation values.[20,21]

Table 4. Statistical Overview of Constructs Related to DT in SME

Factors	Min	Max	Mean	SD	Skewness	Kurtosis
ITIR	2,40	5,00	4,12	0,68	-0,43	0,21
OA	2,80	5,00	4,25	0,64	-0,37	-0,15

MP	2,20	5,00	3,95	0,72	-0,28	-0,33
RS	2,10	5,00	3,81	0,74	-0,19	-0,49
WA	2,70	5,00	4,07	0,67	-0,40	0,05
DL	2,90	5,00	4,18	0,66	-0,35	0,12
DTS	3,00	5,00	4,30	0,61	-0,45	0,26

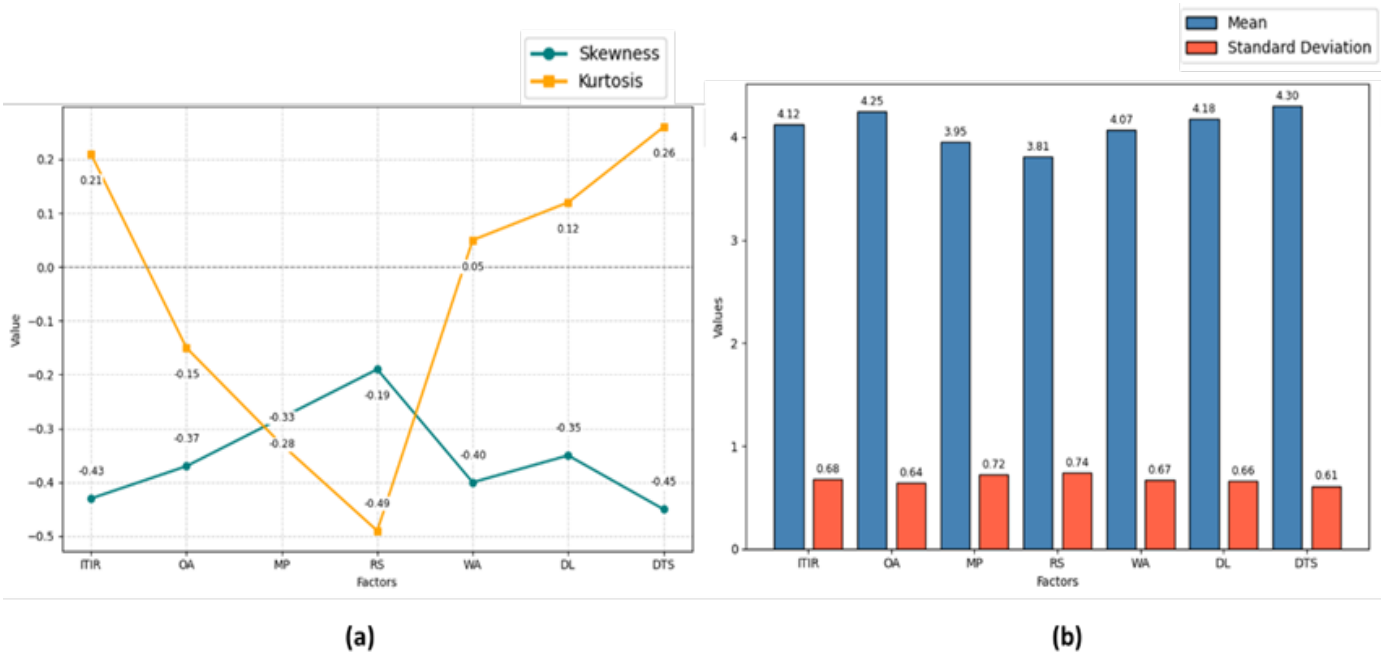

Figure 4. A pictorial illustration of (a) Skewness vs Kurtosis, (b) Mean vs SD

Path Analysis

Path analysis was conducted utilizing SEM to observe the direct and mediated relationships among the research constructs. Specifically, the model measured how the factors impact DTS, both directly and indirectly through the mediating role of DL. Table 5 summarizes the standardized path coefficients (ß), standard errors (SE), and t and p values for each hypothesized relationship. All proposed pathways were initiated to be statistically significant, providing strong experimental support for the research model. Figure 5 portrays the path estimation structure.[22,23]

DT has become essential for SMEs aiming to persist as viable in a rapidly evolving digital economy. This research reveals that transformation success is primarily driven by OA and ITIR, highlighting the importance of internal flexibility and technological preparedness. In DL, a key mediator helps connect resources to strategic ends, along with market pressure that directly induces the transformation input; workforce flexibility and RS act as indirect forms of reinforcement. This realization of the interplay of technology, organization, and environment, together with its application, acknowledges that DT is not just another singular technical project but a holistic set of problems that require simultaneous concerted efforts in several domains for long-lasting realization.[24,25,26]

Table 5. Pathway Estimation of the Hypothesis

Hypothesis	Pathway	ß	SE	t-value	p-value	Support
H1	ITIR → DTS	0,33	0,06	5,50	<0,001	Yes
H2	OA → DL	0,42	0,05	6,80	<0,001	Yes
H3	DL → DTS	0,30	0,04	6,10	<0,001	Yes
H4	OA → DTS	0,38	0,05	6,90	<0,001	Yes
H5	MP → DTS	0,27	0,05	5,20	<0,001	Yes
H6	RS → DTS	0,21	0,04	4,80	<0,001	Yes
H7	WA → DTS	0,25	0,05	5,00	<0,001	Yes
H8	OA → DL → DTS	0,13	—	—	—	Yes

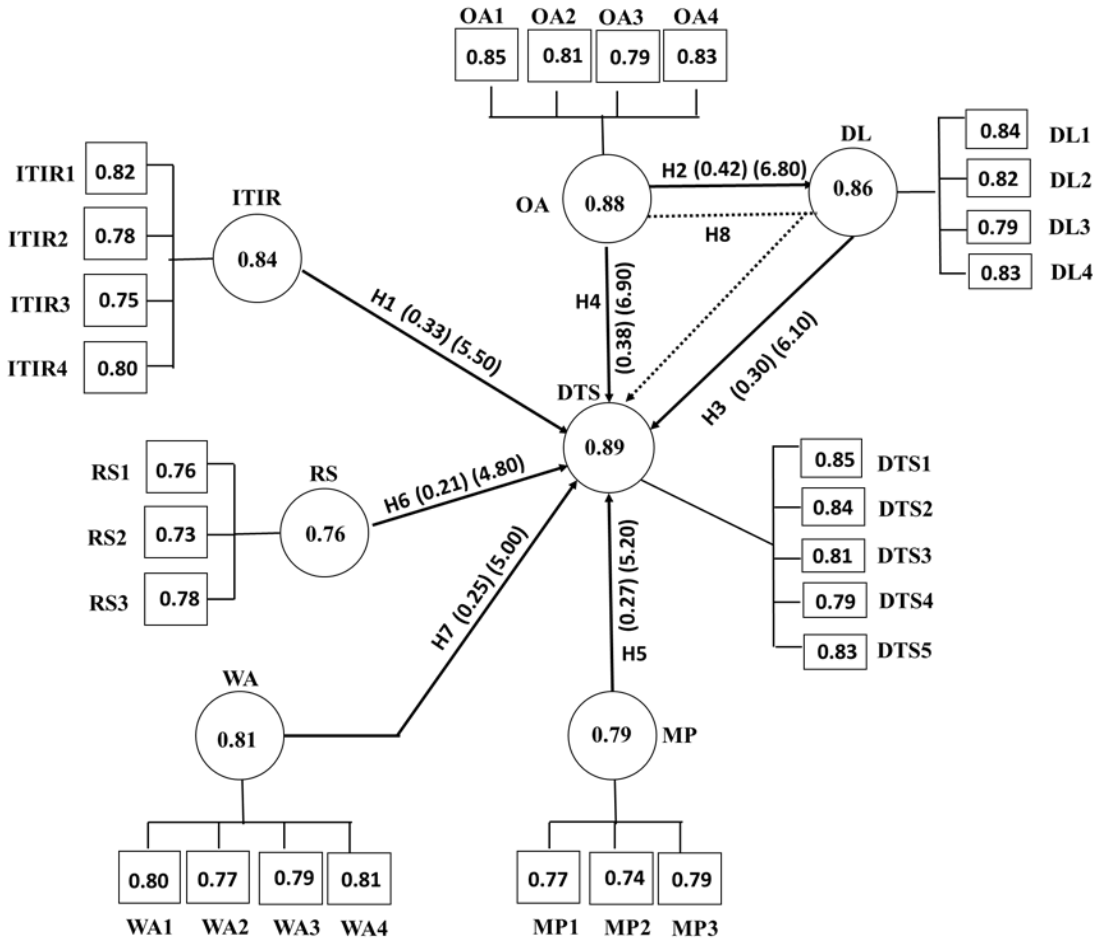

Figure 5. Graphical Representation of path analysis

CONCLUSION

The research analysis revealed that successful DT is largely driven by internal capabilities; autonomy in the organization enables it to integrate digital platforms, expedite usage of real-time data, and innovate around customer value. The transformation outcomes were also largely influenced by some external forces, including MP. By enhancing organizational capabilities and aligning strategic initiatives with technological adoption, DT acts as the mediator. Therefore, SMEs that incorporate agility within business processes, invest in better IT infrastructure, and proactively address external pressures are were composed to sustain success in the digital economy. Nevertheless, the research suffers from some limitations due to the nature of the design and the size of the data sample.

REFERENCES

1. Zhang X, Xu Y, Ma L. Research on successful factors and influencing mechanisms of the digital transformation in SMEs. Sustainability. 2022 Mar 2;14(5):2549. https://doi.org/10.3390/su14052549

2. Ta VA, Lin CY. Exploring the determinants of digital transformation adoption for SMEs in an emerging economy. Sustainability. 2023 May 1;15(9):7093. https://doi.org/10.3390/su15097093

3. Montaño Jiménez JR, Martínez Severich R, Calle Viles E, Ortega Martinez RA. Design and Development of a Podiatric Station Prototype for the Diagnosis of Diabetic Foot. eVitroKhem. 2025; 4:165.

4. Jiménez Pérez GA. Benefits and challenges of using AI in heritage education. EthAIca. 2024; 3:102.

5. Estrada Meza RU, González Pérez MG. Urban Mobility and Social Justice: public transport in the Guadalajara metropolitan area, Mexico. Transport, Mobility & Society. 2023; 2:68.

6. Díaz Cruz SA, Batista Villar T, Valido-Valdes D, Núñez Núñez Y, Fernández González JL. Factors that impact in the answer of the ulcers from the diabetic foot to the Heberprot-P®. Podiatry (Buenos Aires). 2025; 4:151.

7. Omrani N, Rejeb N, Maalaoui A, Dabić M, Kraus S. Drivers of digital transformation in SMEs. IEEE Trans Eng Manag. 2022;71:5030–5043. https://doi.org/10.1109/tem.2022.3215727

8. Kahveci E. Digital Transformation in SMEs: Enablers, interconnections, and a framework for sustainable competitive advantage. Adm Sci. 2025 Mar;15(3):107. https://doi.org/10.3390/admsci15030107

9. Plaza Escandon HD, Del Campo Saltos GS, Guevara Viejó F. Influence of digital platform use on reading and writing for cognitive development in eighth-grade students in general basic education. Case study: Monseñor Juan Wiesneth educational unit. South Health and Policy. 2022; 1:16.

10. Gómez Escobar N, Castillo Peña A, Pérez Castillo C. Analysis of growers' perception of the use of an automated irrigation system. Environmental Research and Ecotoxicity. 2023; 2:54.

11. Villada Melo RA, Caicedo Peña JC, Rivera Rosero JA. Technological innovation for cultural tourism: Virtual assistant at the Las Lajas Shrine, Colombia. Land and Architecture. 2025; 4:184.

12. Montano-Silva RM, Abraham-Millán Y, Peña-Méndez A, Fernández-Breffe T, Céspedes-Proenza I, Romero-Amaro J de la C. Science, innovation and development for a healthy smile. Nursing Depths Series. 2025; 4:157.

13. Gouveia FD, São Mamede H. Digital transformation for SMEs in the retail industry. Procedia Comput Sci. 2022;204:671–681. https://doi.org/10.1016/j.procs.2022.08.081

14. Teng X, Wu Z, Yang F. Research on the relationship between digital transformation and performance of SMEs. Sustainability. 2022 May 13;14(10):6012. https://doi.org/10.3390/su14106012

15. Diaz Breto G, Pérez Alvarez Y, Rego Rodríguez FA. Portable Technologies in Clinical Biochemistry, from the laboratory to the point of care. eVitroKhem. 2025; 4:160.

16. Arancibia PB, del Valle Soria S. The impact of artificial intelligence on educational transformation. EthAlca. 2023; 2:70.

17. Estrada Meza RU, González Pérez MG. Analysis of public transport fares in Guadalajara, Mexico. Transport, Mobility & Society. 2023; 2:72.

18. Auza-Santivañez JC, Bautista-Vanegas FE, Carías A, Apaza Huanca B, Sosa Remón A, Condo-Gutierrez AR, et al. Structural and functional disorders in children's feet, motor development, and preventive approaches in early life. Podiatry (Buenos Aires). 2025; 4:163.

19. Christofi M, Khan H, Zahoor N, Hadjielias E, Tarba S. Digital transformation of SMEs: The role of entrepreneurial persistence and market sensing dynamic capability. IEEE Trans Eng Manag. 2023. https://doi.org/10.1109/tem.2022.3230248

20. Kim S, Ha T. Influential variables and causal relations impact on innovative performance and sustainable growth of SMEs in the aspect of Industry 4.0 and digital transformation. Sustainability. 2023 May 3;15(9):7310. https://doi.org/10.3390/su15097310

21. Santaya Labrador JM, Perojo López OL. Information management in university residences: an experience from the UCM in Pinar del Río. South Health and Policy. 2023; 2:71.

22. Gaviria MA. Environmental Education as a Strategy for Ecosystem Conservation: A Bibliometric Analysis of Global Trends. Environmental Research and Ecotoxicity. 2025; 4:175.

23. Arteaga Quistial JE, Velásquez Bravo M Ángel, Revelo Zambrano OA. Application of predictive models for territorial planning in Pasto, Colombia. Land and Architecture. 2024; 3:110.

24. Zambrano Farias LK, Cabrera Olvera JL. Clinical Simulation in health care training: barriers to efficacy and impact on health care safety. Nursing Depths Series. 2025; 4:390.

25. Ghobakhloo M, Iranmanesh M. Digital transformation success under Industry 4.0: A strategic guideline for

manufacturing SMEs. J Manuf Technol Manag. 2021;32(8):1533–1556. https://doi.org/10.1108/jmtm-11-2020-0455

26. Oh K, Kho H, Choi Y, Lee S. Determinants for successful digital transformation. Sustainability. 2022 Jan 28;14(3):1215. https://doi.org/10.3390/su14031215

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