The Factors Affecting the Digital Transformation Intentions of Small and Medium Enterprises in the Fashion Industry in Wenzhou, China

Chunshuang Ye[1*], Danaikrit Inthurit[2]

Surachai Kungwon[3], and Nirote Sinnarong[4]

Doctor of Philosophy in Digital Economics and Management Innovation,

International College, Maejo University, Thailand[1]

International College, Maejo University, Thailand[2]

Faculty of Economics, Maejo University, Thailand[3, 4]

[*]*Corresponding author.* E-mail: 51404171@qq.com[1]

Received September 27, 2024; **Revised** October 21, 2024; **Accepted** November 5, 2024

Abstract

Despite the benefits of digital transformation, its adoption among Chinese small and medium enterprises remains limited. A significant research gap exists in understanding these enterprises' intentions toward digital transformation. This study investigated the factors affecting the digital transformation intentions of small and medium enterprises in the fashion industry in Wenzhou, China. A conceptual framework was established, integrating the Theory of Reasoned Action, the Technology Acceptance Model, and the Theory of Planned Behavior. Structural Equation Modeling was employed to test research hypotheses. 430 questionnaires were collected. Results indicated that while enterprises recognized the importance of digital transformation and demonstrated some willingness to invest, their overall intentions were moderate and cautious. Attitude toward digital transformation, strongly influenced by perceived usefulness and ease of use, emerged as the strongest predictor of digital transformation intention. Subjective norms and perceived behavioral control also positively impacted the intention. Based on these findings, the study proposed strategies to enhance the digital transformation intentions of small and medium enterprises, including emphasizing the technology's benefits and ease of use, increasing external pressures, and ensuring that business managers felt adequately resourced and supported. This study contributes valuable insights into the antecedents of digital transformation among small and medium enterprises in the fashion industry.

Keywords: fashion industry; small and medium enterprises; digital transformation; structural equation modeling

Introduction

Digital transformation, integral to the fourth industrial revolution, brings significant changes across all business sectors (Iyanna et al., 2022) and has seen notable growth recently. According to estimates by Statista, global spending on digital transformation is projected to grow from USD 0.96 trillion in 2017 to USD 3.9 trillion by 2027. It's now a critical discussion topic in business circles, with enterprises adopting new tools like social media for communication (Gupta et al., 2021) and big data for service transformation (Edu, 2022). Enterprises actively seek new ways to adapt their business models to the data-centric era (Saura et al., 2023).

China's digital economy, one of the largest in the world, has rapidly grown from 27.2 trillion yuan in 2017 to 50.2 trillion yuan in 2022 (China Digital Economy Development Report 2023). Recognizing the important role of small and medium enterprises (SMEs) in the digital economy, the Chinese government has released documents, the "Evaluation Indicators for the Digital Level of Small and Medium Enterprises (2022)" and "Guidelines for the Digital Transformation of Small and Medium Enterprises" to promote digital transformation among these enterprises.

Despite the inevitable trend towards digital transformation, many Chinese SMEs, including those in Wenzhou—an important hub in China's fashion industry—are not fully prepared to implement digital processes. According to the "Analysis Report on Digital Transformation of Small and Medium Enterprises (2021)", 79% of SMEs are at the initial exploration stage, and only 12% have advanced to practical application. This reluctance poses significant challenges to reaching China's digital transformation process, making it crucial to find ways to enhance SMEs' intentions to adopt digital transformation.

Wenzhou's fashion industry comprises the footwear, apparel, and eyewear sectors. Most enterprises in the industry are SMEs. The fashion industry contributes significantly to the local economy, accounting for over 20% of the city's Gross Domestic Product (GDP). In 2023, these sectors generated substantial output of 87 billion yuan, 66 billion yuan, and 23.5 billion yuan, respectively (Zheren, 2024). This industry also generates numerous employment opportunities in diverse areas such as fashion design, production, marketing, and retail. Currently, Wenzhou is

striving to become the fashion capital of China, actively promoting the integration of digital technologies with the industry and serving as a benchmark for China's fashion industry development.

Recognizing the strategic importance of these sectors, the Wenzhou government has been actively promoting digital transformation initiatives. Development plans such as the "Three-Year Action Plan for Wenzhou to Build China's Fashion Industry Capital (2024-2026)," the "Wenzhou Footwear High-Quality Development Plan," and the "Wenzhou Apparel Industry High-Quality Development Plan" aim to raise the fashion industry's total output to over 400 billion yuan by 2026, focusing on integrating digital and real economies to enhance SME growth.

However, as mentioned above, SMEs in the fashion industry in Wenzhou face challenges due to reluctance to change and slow progress in adopting digital technologies. Enterprises encounter numerous obstacles such as high initial investment, skills gap, cultural resistance, and complexity of integration with existing systems. These factors make SMEs more hesitant to adopt digital transformation and hinder the overall progress of digital transformation. Nevertheless, current research on the factors driving SMEs' digital transformation intentions is limited, indicating a significant research gap. Therefore, it is necessary to conduct an in-depth analysis to understand better these factors affecting SMEs' digital transformation intentions.

This research aimed to identify the factors affecting the digital transformation intentions of SMEs in Wenzhou's fashion industry. To achieve this, a conceptual framework was developed by integrating the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), and the Theory of Planned Behavior (TPB). Structural Equation Modeling (SEM) was utilized to analyze the data. Practically, this research offers insights into the current state of digital transformation and its challenges, aiding governments and enterprises in developing effective policies and strategies. Theoretically, it enhances academic literature by filling gaps in our understanding of SMEs' digital transformation processes, providing new insights into their motivations behind their acceptance or rejection of digital innovations. Thus, this research holds practical and theoretical significance.

Research Objectives

This research aimed to investigate the factors affecting the digital transformation intentions of SMEs in the fashion industry in Wenzhou, China. The specifics are as follows:

First, to analyze the impact of perceived usefulness, ease of use, and attitude toward digital transformation from a technological perspective.

Second, to analyze the impact of perceived behavioral control on the digital transformation intention from an organizational perspective.

Third, to analyze the impact of subjective norms on the digital transformation intention from an environmental perspective.

Scope of Research

Geographic scope: This research covers Wenzhou City, located in the southeastern coastal area of Zhejiang Province, China. The fashion industry is one of the city's important pillar industries.

Industry scope: This study's industry scope is the fashion industry, which involves subsidiary industries' design, manufacturing, sales, and brand promotion. Wenzhou's fashion industry includes apparel, footwear, and eyewear sectors.

Enterprise scope: The enterprise scope of this study focuses on SMEs. SMEs play an essential role in the fashion industry in Wenzhou and contribute to regional economic development, employment opportunities, and tax revenue. According to "Measures for the Statistical Classification of Large, Medium, Small and Micro Enterprises (2017)", SMEs in the industry are defined as enterprises with less than 1,000 employees and operating revenue of less than 400 million yuan.

Content scope: The content scope of this study is to analyze the factors affecting the digital transformation intentions of SMEs in the fashion industry in Wenzhou, China. Specifically, it examines the relationship between perceived usefulness (PU), perceived ease of use (PEU), attitude toward digital transformation (ATD), subjective norms (SN), perceived behavioral control (PBC), and digital transformation intention (DTI). By analyzing these factors, the study aims to provide valuable insights into how SMEs in the fashion industry can enhance their digital transformation intentions.

Literature Reviews

Digital transformation is a process (Vial, 2019) that is a series of changes caused by various entities' application of digital technologies. It refers to the unprecedented disruptions in society, industry, and organizations (Feroz et al., 2021). With the development of the digital economy, academic and practical attention to digital transformation is increasing. More and more studies are

beginning to focus on the antecedents of digital transformation. Formulating and implementing a digital transformation strategy has become a key concern for many pre–digital organizations (Chanias et al., 2019). Previous research on the factors affecting the intention to transform digitally has focused on technological, organizational, and environmental perspectives. These perspectives describe characteristics of digital technologies, organizations' features and resources, and the external environment in which an organization operates its business (Tornatzky & Fleischer, 1990), which affect an organization's intention to adopt digital transformation.

Perception of technology and digital transformation intention

The perception of technology refers to an individual's knowledge, understanding, and perception of digital technology. Digital transformation requires sensing, seizing, and reconfiguring digital technological challenges into opportunities (Magistretti et al., 2021). Trenerry et al. (Trenerry et al., 2021) pointed out that perceptions and attitudes toward technological change were important for effective digital transformation. Individuals' beliefs about technological change and their digital mindsets will likely influence their engagement in or withdrawal from their company's digital transformation initiatives. Therefore, digital technologies were strongly emphasized during the digital transformation process (Gong & Ribiere, 2021).

TAM offers a simple but practical framework for understanding individual and organizational intentions to adopt innovative technologies. Based on TAM, scholars highlighted the importance of perceived digital technology, including perceived usefulness and ease of use, which were significant determinants of the digital transformation intention. Huang et al. (2023) also stated that the perceived benefits of digital technologies positively impacted employees' intentions to accept digital transformation. Still, resistance to change and perceived inertia were significant barriers. Truong (Truong, 2023) concluded that it was necessary to raise a positive attitude among SMEs, as adopting digital transformation brought many beneficial values to businesses and developed an enabling environment for adopting digital transformation.

According to this research, Hypotheses 1 to 5 are:

H1: Perceived Ease of Use has a positive effect on the Perceived Usefulness

H2: Perceived Usefulness has a positive effect on the Attitude toward Digital Transformation

H3: Perceived Ease of Use has a positive effect on the Attitude toward Digital Transformation

H4: Attitude toward Digital Transformation has a positive effect on the Digital Transformation Intention

H5: Perceived Ease of Use has a positive effect on the Digital Transformation Intention

Perception of organization and digital transformation intention

Perception of organization refers to the perception of organizational conditions that SMEs possess in the digital transformation process, which the perceived behavioral control in TPB can measure. Research shows that the perception of organizational conditions is closely related to digital transformation intention. SMEs feeling a high level of perceived behavioral control are more inclined to adopt digital transformation, but many face constraints like limited resources (Teng et al., 2022), capabilities (Zhang et al., 2022), and time (Bouwman et al., 2019). These challenges hinder their involvement in digital transformation. Therefore, Hypothesis 6 of this research is:

H6: Perceived Behavioral Control has a positive effect on the Digital Transformation Intention

Perception of environment and digital transformation intention

Perception of environment refers to the perception of the external environment, including the industry environment, competitive pressure, and policy support in which SMEs operate. Research shows that changes in customer behavior, industry shifts, and competitive landscapes often trigger digital transformation. External pressures from partners, competitors (Nguyen & Ho, 2022), government policy support, industry partnerships (Nguyen et al., 2023), and the social business environment (Holl & Rama, 2024) significantly impact SMEs' digital transformation intentions. In TRA and TPB, perception of the external environment (subjective norms) has a proven positive impact on digital transformation intention. Therefore, Hypothesis 7 of this research is:

H7: Subjective Norms have a positive effect on the Digital Transformation Intention

Despite the growing emphasis on digital transformation and substantial research interest, a significant gap exists in understanding the antecedents of SMEs' digital transformation. Limited empirical studies address the drivers of digital transformation and attitudes toward it (Rupeika–Apoga et al., 2022). Micro–level insights into how firms organize and manage digital transformation are scarce (Smith & Beretta, 2021). Additionally, most existing research focuses narrowly on adopting specific technologies or the impact of technology perception alone, overlooking the broader influence of organizational and environmental factors. Zhang et al. (2023) highlighted that digital transformation depends on the interaction between internal and external factors, suggesting that a

holistic approach that integrates these factors is crucial for stimulating digital transformation intentions.

This study aimed to analyze the factors affecting the digital transformation intentions of SMEs, which belong to the antecedents of the digital transformation research field. The study could enrich the existing digital transformation research and fill the research gaps. In addition, this research comprehensively explored the factors affecting the digital transformation intention from three perspectives: perception of technology (perceived usefulness, perceived ease of use, and attitude toward digital transformation), perception of organization (perceived behavioral control), and perception of environment (subjective norms), which can provide a holistic understanding of the antecedents of digital transformation.

Research Methodology

This research established a conceptual framework integrating the TRA, TAM, and TPB theories (see Figure 1). SEM was employed to verify the research hypotheses, and IBM SPSS Statistics and AMOS software were utilized for data analysis.

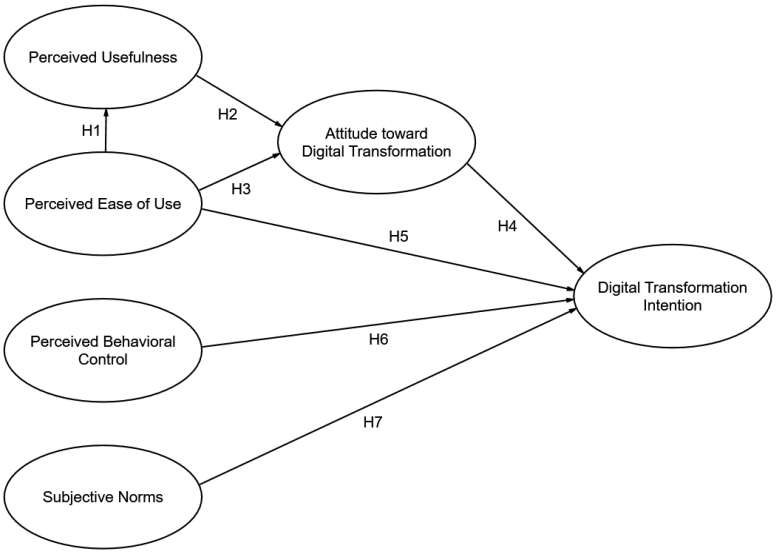

Figure 1 Conceptual Framework

Population

This research focuses on SMEs in the fashion industry in Wenzhou, China. According to the "White Paper on the Development of Wenzhou Fashion Industry" released by the Wenzhou Government in 2020, there are 11596 SMEs in Wenzhou's fashion industry.

Sampling

This research determined the sample size using Yamane's formula (Yamane, 1973). According to the calculations, the minimum sample size was 387. Utilizing a sample size larger than that could enhance the statistical power of the analysis and ensure more reliable results.

$$s = \frac{N}{1+Ne^2} \approx 387$$

s=sample size, N=population and e=level of significance (0.05).

This research utilized the purposive sampling method to collect data. Purposive sampling is recommended for research focusing on specific and sensitive skills, behaviors, attributes, or personalities. Its core advantage lies in its ability to maximize the efficient use of limited resources (Duan et al., 2015).

Research instrument

The questionnaire consists of two parts. The first part is demographic Information. This part aims to collect basic demographic information from the respondents, such as age, gender, position, education, etc. The information helps to understand the background and characteristics of the respondents for better subsequent analysis. The second part is a 5–point Likert scale designed based on the TRA, TAM, and TPB models, including 36 items. All items are measured from 1 to 5 (1–Strongly Disagree, 2–Disagree, 3–Neutral, 4–Agree, 5–Strongly Agree). The respondents need to rate according to their actual situation.

Data collection

An online questionnaire survey platform (https://www.wjx.cn/) (PitchBook) was used to collect first–hand data from SMEs in Wenzhou's fashion industry. Both online and on–site ways are used to distribute the questionnaires. The criteria used to clean the returned questionnaires were as follows: First, as mentioned above, the fashion industry in Wenzhou included apparel, footwear, and eyewear enterprises. Therefore, we excluded questionnaires from enterprises categorized under "other industries". Second, according to the "Standards for the Classification of Large, Medium,

Small, and Micro Enterprises (2017)" in China, questionnaires indicating "No. of employees more than or equal to 1000; or operating revenue more than or equal to CNY 400 million" (i.e., responses from large enterprises) were removed. Therefore, respondents were obtained from SMEs in the fashion industry. Finally, 430 valid questionnaires remained for analysis.

Data analysis

Descriptive statistics

This research uses descriptive statistics on demographic and variable information to outline the sample and investigate the current state of SMEs' digital transformation intentions in Wenzhou's fashion industry.

Assessment of the measurement model

The measurement model assessment covers reliability, KMO and Bartlett's sphericity tests, convergent validity, discriminant validity testing, and evaluation of model fit. This part aims to ensure the accuracy and reliability of the measurement model. Confirmatory Factor Analysis (CFA) is used for the model fit assessment.

Assessment of the structural model

The structural model assessment focuses on path analysis. It analyzes the effects of the variables PU, PEU, ATD, SN, PBC, and DTI and is used to conduct hypothesis testing.

Research Results

We successfully collected 524 questionnaires through online and offline methods, providing a rich dataset for this research. However, the data was cleansed by excluding questionnaires from non–fashion industries, non–SMEs, and responses that indicated insufficient time to complete the questionnaire correctly.

Demographic information

The demographic information shows that 53.5% of the respondents are male and 46.5% are female. The most represented age groups are 36–45 (42.1%) and 46–55 (21.6%). Regarding education, 40.5% have an associate degree or equivalent, 34.9% have a bachelor's degree, and 14% have a master's degree or higher. Most respondents are middle managers (52.1%), with senior managers at 46.7% and other managerial positions at 1.2%. The information suggests a balanced gender distribution, a predominance of middle–aged respondents, and a well–educated sample,

mainly in senior managerial positions. This indicates that the sample has significant decision–making power regarding digital transformation within their organizations.

Current state of SMEs' digital transformation intentions in Wenzhou's fashion industry

The statistical analysis shows that the mean value of each latent variable ranges from 3.13 to 3.23, all near the neutral mark of 3, indicating that the general perception of digital transformation among SMEs in Wenzhou's fashion industry is neutral to slightly positive. The overall intention to adopt digital transformation is not strong. Specifically, the mean value of ATD is 3.21, which indicates a moderately positive attitude. The mean value of DTI is 3.23, slightly above neutral. This shows that while enterprises have a certain intention to implement digital transformation, many still hesitate and prefer to wait and see. The analysis results of DTI items show moderate support for digital transformation among enterprises. For DTI1, "Our enterprise intends to adopt digital transformation in the future", 23.5% agreed, 20.9% strongly agreed, with an average score of 3.2; for DTI2 "Our enterprise's intention to adopt digital transformation is high", 29.5% agreed, 18.6% strongly agreed, with an average score of 3.25; for DTI3 "Our enterprise intends to increase the resources for digital transformation", 30% agreed, 16.7% strongly agreed, with an average score of 3.2; and for DTI4 "Our enterprise intends to invest more in digital transformation", 31.9% agreed, 17.9% strongly agreed, with an average score of 3.26.

These results reveal that SMEs in Wenzhou's fashion industry generally have a neutral to positive digital transformation intention, with many recognizing its importance and planning to increase resources and investment. However, the average score for digital transformation intention is only 3.23, and the proportion of "agree" and "strongly agree" responses is not significantly higher than the other options. This indicates concerns about potential challenges during transformation, leading to only moderate intention levels. Therefore, it is necessary to analyze further the factors affecting the intention of digital transformation and implement corresponding measures to promote the digital transformation process among SMEs in Wenzhou's fashion industry.

Assessment of the measurement model

Reliability

Reliability is a crucial indicator for measuring the consistency of survey results and the stability of measurement instruments. Cronbach's alpha coefficient is usually used to indicate

reliability. Usually, a Cronbach's alpha larger than 0.9 indicates very high internal consistency. Values between 0.7 and 0.9 suggest good internal consistency, while those below 0.7 represent low internal consistency, indicating that the scale needs to be revised (Nunnally, 1978). The total Cronbach's alpha of the scale in this research is greater than 0.9 (Cronbach's alpha = 0.946), and the Cronbach's alpha of each construct is greater than 0.8. These findings indicate that the scale as a whole and in each construct has good Internal consistency or reliability, and all items should be retained.

KMO and Bartlett's sphericity test

The KMO value in this research is greater than 0.9 (KMO value=0.922), and the P value is less than the chosen significance level (P<0.05), according to the analysis results of the KMO and Bartlett's sphericity test. The data is very appropriate for factor analysis since the variables are correlated, according to Kaiser's (1974) and Bartlett's (1950) criteria.

Convergent validity

Convergent validity refers to how well items of the same construct correlate with each other (Hair Jr et al., 2021), indicating internal consistency. In this research, all the unstandardized factor loading coefficients are significant at the 0.1% level, with standardized loadings ranging from 0.694 to 0.814, most above 0.7. The Average Variance Variation (AVE) for each latent variable exceeds 0.5, and the composite reliability (C.R.) is above 0.8, confirming the measurement model's good convergent validity.

Discriminant validity

Variables of the measurement model are tested for their ability to discriminate between different constructs using discriminant validity. As shown in Table 1, each square root of a construct's AVE is greater than the correlation coefficient between the construct and other constructs. According to the Fornell–Larcker criterion (Fornell & Larcker, 1981). This indicates that the measurement instrument used in this research has strong discriminant validity.

Table 1 Measurement Model Discriminant Validity

	SN	PU	DTI	ATD	PBC	PEU
SN	0.739					
PU	0.571	0.745				
DTI	0.498	0.466	0.751			
ATD	0.673	0.497	0.514	0.754		
PBC	0.594	0.483	0.496	0.56	0.756	
PEU	0.448	0.487	0.444	0.46	0.469	0.742

Note: The numbers on the diagonal are the square roots of the AVE of constructs, and the numbers on the off-diagonal are the Pearson correlation coefficients between one construct and another.

Model fit

In CFA, model fit indices are used to assess the degree of fit between the measurement model and the sample. Through these indices, we can examine to what extent the established measurement model can accurately reflect the structure of the observed variables. In this research, the statistical results of the model fit indices of the measurement model are as follows (see Table 2): CMIN/DF=2.308, GFI=0.857, AGFI=0.835, RMSEA=0.055, SRMR=0.0346, CFI=0.913, TLI=0.905, IFI=0.913. It can be comprehensively assessed that the measurement model is an overall good fit. The results indicate that the measurement indicators can reflect the characteristics of latent variables well, and the structural model of latent variables can be further analyzed in the next step.

Table 2 Model Fit Indices of the Measurement Model

Fit Indices	Standard	Source	Values	Results
CMIN/DF	1–3 good fit <5 reasonable fit	Malhotra et al. (2014)	2.308	Good fit
GFI	≥0.8 reasonable fit ≥0.9 good fit	Bagozzi and Yi (1988)	0.857	Reasonable fit
AGFI	≥0.8 reasonable fit ≥0.9 good fit	Doll et al. (1994), Intarot and Beokhaimook (2018)	0.835	Reasonable fit
RMSEA	< 0.05 good fit <0.08 reasonable fit	Malhotra et al. (2014)	0.055	Reasonable fit
SRMR	< 0.05 good fit <0.08 reasonable fit	Hu and Bentler (1999)	0.0346	Good fit
CFI	> 0.9	Bagozzi and Yi (1988)	0.913	Good fit
TLI	> 0.9	Faturohman et al. (2021)	0.905	Good fit
IFI	> 0.9	Bollen (1989)	0.913	Good fit

Assessment of the structural model

Summary of path analysis

The path analysis results show that all seven hypotheses proposed are supported (see Table 3 and Figure 2). The P values of the unstandardized regression coefficients are less than 0.05, indicating that the relationships are statistically significant. The R^2 of the independent and dependent variables PU, ATD, and DTI are 0.273, 0.331, and 0.343, respectively, indicating moderate to good explanatory levels. PEU positively impacts PU, explaining 27.3% of the variation. PU and PEU positively impact ATD, contributing 33.1% of the variation. The standardized regression coefficients for PU and PEU on ATD are 0.327 and 0.333, respectively, indicating that PEU has a greater impact on ATD than PU. Additionally, ATD, PEU, SN, and PBC positively impact DTI, explaining 34.3% of the variation in DTI. Among these, ATD has the most significant impact on DTI with a standardized regression coefficient of 0.232, followed by PBC (0.201), PEU (0.188), and SN (0.154), which has the slightest impact.

Table 3 Structural Model Regression Statistics

Hypothesis	Path			UnStd. Estimate	S.E.	C.R.	P	Std. Estimate	Results	R^2
H1	PU	<---	PEU	0.547	0.06	9.082	***	0.523	Supported	0.273
H2	ATD	<---	PU	0.316	0.058	5.413	***	0.327	Supported	0.331
H3	ATD	<---	PEU	0.337	0.062	5.457	***	0.333	Supported	
H4	DTI	<---	ATD	0.221	0.057	3.863	***	0.232	Supported	0.343
H5	DTI	<---	PEU	0.181	0.068	2.672	0.008	0.188	Supported	
H6	DTI	<---	PBC	0.194	0.065	2.995	0.003	0.201	Supported	
H7	DTI	<---	SN	0.147	0.063	2.346	0.019	0.154	Supported	

*Note: **** means *P<0.001*

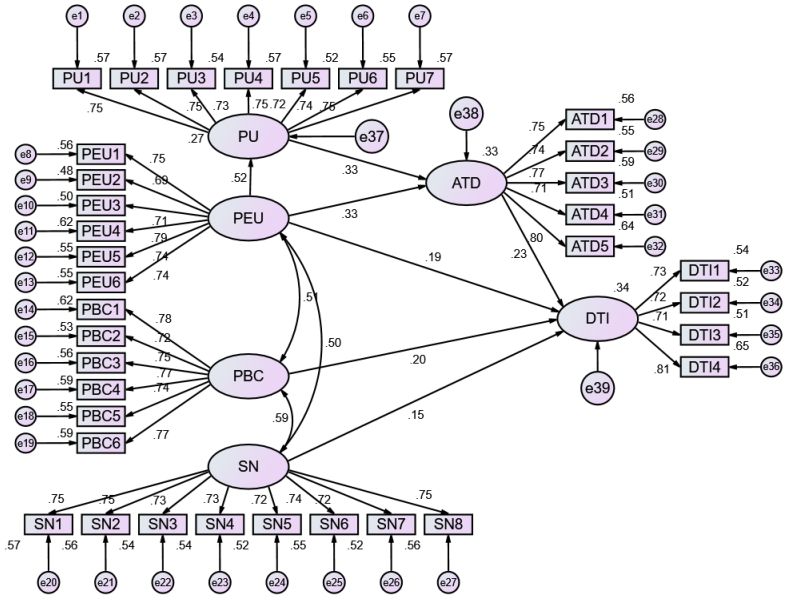

Figure 2 Standardized Regression Path diagram of Structural Model

Hypothesis testing

H1: Perceived Ease of Use has a positive effect on the Perceived Usefulness

The results demonstrate that PEU significantly positively impacts PU (β=0.547, P< 0.001), explaining 27.3% of its variance. This suggests that when digital technologies are perceived as easier to use, their perceived usefulness increases. When enterprise managers recognize the convenience of digital technology, they are more likely to recognize its value, thereby forming a positive digital transformation atmosphere within the enterprise.

H2: Perceived Usefulness has a positive effect on the Attitude toward Digital Transformation

H3: Perceived Ease of Use has a positive effect on the Attitude toward Digital Transformation

The results show that both PU and PEU significantly positively affect ATD, contributing to 33.1% of the variance, with standardized regression coefficients of 0.327 and 0.333, respectively. PEU has a slightly greater effect on ATD than PU. These findings suggest the importance of PU and PEU in shaping SMEs' attitudes toward digital transformation. For SMEs in Wenzhou's fashion industry, successful adoption of digital transformation depends on highlighting both the commercial value and the ease of use. This boosts managers' positive attitudes and facilitates a smoother transition to digital practices.

H4: Attitude toward Digital Transformation has a positive effect on the Digital Transformation Intention

The results show that ATD significantly positively affects DTI among SMEs in Wenzhou's fashion industry (β=0.221, P<0.001). This indicates that when managers believe that digital holds a positive attitude toward digital transformation, they are more likely to implement it. The significant positive impact of ATD on DTI underscores the need to cultivate a positive mindset towards digital transformation to facilitate its successful adoption.

H5: Perceived Ease of Use has a positive effect on the Digital Transformation Intention

The analysis shows that PEU significantly affects DTI (β = 0.181, P<0.05). This implies that user–friendly digital technology, which reduces learning costs and simplifies operations, encourages SMEs to engage in digital transformation actively. Conversely, complex technologies may deter adoption due to resource, capability, and knowledge constraints. Thus, ease of use mitigates resistance to digital technology and enhances managers' recognition of its value, enhancing their willingness to adopt digital transformation.

Summary of key findings related to the first research objective:

This study highlights the important roles of PU, PEU, and ATD in driving digital transformation intentions among SMEs in Wenzhou's fashion industry. The findings show that PEU enhances PU, positively influencing attitudes toward digital transformation. This connection implies that ease of use and usefulness are vital for fostering a positive attitude toward adopting digital technologies, thereby boosting digital transformation intentions. These insights underscore the need for valuable and user–friendly technologies, aiding SMEs in implementing effective digital transformation strategies.

H6: Perceived Behavioral Control has a positive effect on the Digital Transformation Intention

The results show that PBC significantly influences DTI among SMEs in Wenzhou's fashion industry (β=0.194, P<0.05). This finding suggests that the resources, knowledge, and capabilities perceived by SMEs significantly affect their decisions on digital transformation. When managers perceive adequate resources, technical support, and knowledge, they are more likely to pursue and support digital transformation actively.

Summary of key findings related to the second research objective:

This research highlights the significant role of PBC in driving the digital transformation intentions among SMEs in Wenzhou's fashion industry. This finding suggests that when enterprise managers perceive adequate organizational resources, knowledge, and capabilities, their confidence in successfully implementing new digital technologies increases. This insight underscores SMEs' need to enhance their internal capacities and resource allocations as strategic measures to facilitate and sustain digital transformation initiatives.

H7: Subjective Norms have a positive effect on the Digital Transformation Intention

The analysis results show that subjective norms significantly influence digital transformation intentions among SMEs in Wenzhou's fashion industry (β=0.147, P<0.05). This impact is driven by the expectations and pressures from industry peers, customers, and government. Managers who perceive strong support, expectations, and pressure from these important groups are more likely to engage in digital transformation. This indicates that social influences from key stakeholders motivate SME managers to adopt digital transformation initiatives.

Summary of key findings related to the third research objective:

This research validates that subjective norms significantly affect digital transformation intentions among SMEs in Wenzhou's fashion industry. Expectations and pressures from peers, partners, customers, and government strongly shape these intentions. It is crucial for stakeholders seeking to use social influence to speed up the adoption of new technologies, underscoring the need for effective communication and engagement strategies.

Discussion

The research findings align with the theoretical expectations of TRA, TAM, and TPB, but also provide empirical verification of these theories by emphasizing the critical role that technological, organizational, and environmental factors play in promoting SMEs' intention to adopt digital transformation. Despite the valuable insights provided by existing research, most studies lack a focus on the digital transformation intentions of SMEs in the fashion industry. Few studies comprehensively consider the impacts of perceived usefulness, perceived ease of use, attitude toward digital transformation, perceived behavioral control, and subjective norms on digital transformation intention. This paper enriches the current literature on digital transformation intention by examining the

integrated effects of these factors, offering theoretical and practical guidance for applications in the fashion industry. Such in-depth research facilitates a better understanding of the antecedents of digital transformation among SMEs across various industry contexts.

First, from the perspective of technological perception, the dual importance of perceived ease of use and usefulness, highlighted in the results, echoes and expands upon the insights from the literature reviews, which suggested that these perceptions were crucial for digital transformation (Magistretti et al., 2021; Trenerry et al., 2021). Our results demonstrate that perceived ease of use and usefulness of digital technologies significantly drive a positive attitude towards digital transformation, which strongly influences the digital transformation intentions among SMEs. This observation aligns with the findings presented in the earlier studies (Hoang & Khoa, 2024; Huang et al., 2023; Truong, 2023), which emphasized similar influences, albeit without examining the direct effects of ease of use on digital transformation intentions. The finding is particularly relevant for SMEs in the fashion industry in Wenzhou. This positive attitude is critical for seamless technology adoption, as user-friendly and beneficial technologies promote broader staff acceptance, reduce resistance to change, and expedite the digital transformation process, making it vital for industry stakeholders to consider these factors when supporting SMEs. The statistical results underscore that ease of use positively impacts digital transformation intention, particularly in contexts like Wenzhou, where technological sophistication can present a barrier for SMEs in the fashion industry due to limited resources, capabilities, and knowledge. This understanding is crucial for tailoring support initiatives effectively. By reducing learning costs and simplifying operations, enterprise managers are more likely to embrace user-friendly digital technologies, thereby enhancing their recognition of the technologies' value, fostering a positive attitude toward digital transformation, and increasing their intention to adopt the transformation.

Secondly, from the perspective of organizational perception, the research highlights that perceived behavioral control, the perception of having control over the necessary resources, capabilities, and knowledge for digital transformation, is a key determinant in shaping transformation intentions, making this insight particularly relevant for SME managers and policymakers. This is consistent with the views of Teng et al. (2022), who emphasized the constraints of internal resources on digital transformation. The practical implications of this finding suggest that when SME managers believe they have adequate resources and support, they are more likely to initiate and sustain transformation efforts, indicating a need for policies that empower these managers. Therefore,

fostering an environment that enhances the managers' perceived behavioral control through training, access to technical resources, and supportive policies can significantly accelerate the adoption and implementation of digital transformation initiatives, which is crucial for anyone supporting SMEs.

Finally, from the perspective of environmental perception, the study quantitatively demonstrates how subjective norms influence SMEs' transformation intentions, which have been less frequently addressed in the context of Wenzhou's fashion industry. The results indicate that pressures and expectations from the industry, customers, and government significantly influence SMEs' intentions to engage in digital transformation. These insights are consistent with the findings of V. A. T. Nguyen et al. (2023). These findings are particularly relevant for industry policymakers, including the Wenzhou government and fashion industry associations, aiming to facilitate digital transformation in the fashion industry. This underscores the critical role of external social pressures in shaping organizational behaviors related to the adoption of digital transformation, highlighting the need for targeted strategies to support SMEs in responding to these pressures. In the context of Wenzhou's fashion industry, shifts in government policies, customer demands, and industry trends have become powerful drivers for SMEs to adopt digital transformation, which suggests that understanding the social influence is essential for these enterprises.

Conclusion

This research investigates the current state of digital transformation intentions of SMEs in Wenzhou's fashion industry. The findings indicate that, although these SMEs recognize the importance of digital transformation and demonstrate some willingness to invest, their overall intention remains moderate and cautious. The research also identifies the key factors affecting the digital transformation intentions of SMEs in Wenzhou's fashion industry. The results reveal that digital technologies' perceived ease of use and usefulness significantly impact enterprises' attitudes toward digital transformation, which is the strongest predictor of transformation intention. Moreover, subjective norms (external pressures, e.g., policies and market demand) and perceived behavioral control (confidence in internal resources) also positively influence transformation intentions. External support and the adequacy of internal resources are critical drivers of digital transformation among SMEs.

Suggestions

Policy suggestions

This study proposes the following strategies to enhance the digital transformation intentions of SMEs in Wenzhou's fashion industry:

First, foster a positive attitude toward digital transformation. SMEs need to organize training programs to emphasize the practical benefits of digital technologies and their ease of use to encourage acceptance among enterprises.

Second, leverage external pressures from industry, customers, and government. External pressures play a significant role in shaping SMEs' digital transformation efforts. So, the Wenzhou government can motivate SMEs to adopt digital technologies through digital fashion industrial parks and financial and technical support.

Third, strengthen perceived behavioral control. Through continuous training and supportive policies, ensure SME managers feel equipped with the necessary resources, capabilities, and knowledge to carry out digital transformation.

Suggestions for future research

This research only focuses on SMEs in the fashion industry in Wenzhou. Future research can expand into SMEs in different regions or industries, enabling cross–regional or cross–industry comparisons to analyze how regional or sector–specific characteristics influence the digital transformation intention. Such comparisons would reveal the varying impacts of factors like policy support, industry structure, and organizational culture on SMEs' digital transformation readiness. This, in turn, would facilitate the development of more universal or regionally tailored digital transformation strategies for SMEs.

New Knowledge

This study reveals the unique factors influencing the digital transformation intentions of SMEs in Wenzhou's fashion industry from three perspectives: technology, organization, and environment. The new insights from this research deepen the understanding of these SMEs' digital transformation intentions. They also provide valuable references for policymakers and business managers in related fields, helping them formulate digital transformation strategies that better align with practical needs.

For the government, this study enhances understanding of the current state of digital transformation among SMEs in Wenzhou's fashion industry and the driving factors behind this process. The knowledge can provide a reference for formulating targeted enterprise digital transformation policies.

The research illuminates SMEs' challenges and constraints in adopting digital transformation and offers guidance to help them explore strategies well–suited to their needs. This will enable more effective adaptation to technological advancements and market shifts in the digital economy.

For academic research, the study addresses a significant research gap concerning SMEs' digital transformation in a specific sector and region. It provides empirical insights into the attitudes and intentions of SMEs regarding digital transformation, advancing understanding in this field. This research clarifies the factors behind SMEs' acceptance or resistance to digital transformation, contributing to a deeper understanding of the antecedents of digital transformation among SMEs. This research enriches academic discussion on digital transformation by offering a new empirical and theoretical perspective, making it a valuable contribution to this emerging field.

References

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, *16*, 74–94. https://doi.org/10.1007/BF02723327

Bartlett, M. S. (1950). Tests of significance in factor analysis. *British journal of psychology*, (3), 77–85.

Bollen, K. A. (1989). *Structural equations with latent variables*. John Wiley & Sons. https://doi.org/10.1002/9781118619179

Bouwman, H., Nikou, S., & de Reuver, M. (2019). Digitalization, business models, and SMEs: how do business model innovation practices improve performance of digitalizing SMEs?. *Telecommunications Policy*, *43*(9). https://doi.org/10.1016/j.telpol.2019.101828

Chanias, S., Myers, M. D., & Hess, T. (2019). Digital transformation strategy making in pre–digital organizations: the case of a financial services provider. *The Journal of Strategic Information Systems*, *28*(1), 17–33. https://doi.org/10.1016/j.jsis.2018.11.003

Doll, W. J., Xia, W., & Torkzadeh, G. (1994). A confirmatory factor analysis of the end–user computing satisfaction instrument. *MIS Quarterly*, *18*(4), 453–461. https://doi.org/10.2307/249524

Duan, N., Bhaumik, D. K., Palinkas, L. A., & Hoagwood, K. (2015). Optimal design and purposeful sampling: complementary methodologies for implementation research. *Adm Policy Ment Health*, *42*(5), 524–532. https://doi.org/10.1007/s10488–014–0596–7

Edu, A. S. (2022). Positioning big data analytics capabilities towards financial service agility. *Aslib Journal of Information Management*, *74*(4), 569–588. https://doi.org/10.1108/ajim–08–2021–0240

Faturohman, T., Kengsiswoyo, G. A. N., Harapan, H., Zailani, S., Rahadi, R. A., & Arief, N. N. (2021). Factors influencing COVID–19 vaccine acceptance in Indonesia: an adoption of the technology acceptance model. *F1000Research*, *10*, 476. https://doi.org/10.12688/f1000research.53506.2

Feroz, A. K., Zo, H. J., & Chiravuri, A. (2021). Digital transformation and environmental sustainability: a review and research agenda. *Sustainability*, *13*(3), 20. https://doi.org/10.3390/su13031530

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Gong, C., & Ribiere, V. (2021). Developing a unified definition of digital transformation. *Technovation*, *102*. https://doi.org/10.1016/j.technovation.2020.102217

Gupta, S., Nawaz, N., Alfalah, A. A., Naveed, R. T., Muneer, S., & Ahmad, N. (2021). The relationship of CSR communication on social media with consumer purchase intention and brand admiration. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(5), 1217–1230. https://doi.org/10.3390/jtaer16050068

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS–SEM) using R: a workbook*. Springer Nature.

Hoang, C. C., & Khoa, B. T. (2024). Exploring the role of knowledge management capacity on SMEs' digital transformation intentions: Integrating signaling theory and the technology acceptance mode. *Tạp chí Kinh tế và Phát triển*, *26*(1), 48–62. https://doi.org/10.33301/jed-05-2024-0048

Holl, A., & Rama, R. (2024). Spatial patterns and drivers of SME digitalisation. *Journal of the Knowledge Economy*, *15*, 5625–5649. https://doi.org/10.1007/s13132-023-01257-1

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Huang, C.-K., Lee, C.-A., & Chen, Y.-N. (2023). The duality determinants of adoption intention in digital transformation implementation. *Journal of Organizational and End User Computing*, *35*(3), 1–28. https://doi.org/10.4018/joeuc.330534

Intarot, P., & Beokhaimook, C. (2018). Influencing factor in e-wallet acceptant and use. *International Journal of Business and Administrative Studies*, *4*(4), 167. https://doi.org/10.20469/ijbas.4.10004-4

Iyanna, S., Kaur, P., Ractham, P., Talwar, S., & Najmul Islam, A. K. M. (2022). Digital transformation of healthcare sector. What is impeding adoption and continued usage of technology-driven innovations by end-users?. *Journal of Business Research*, *153*, 150–161. https://doi.org/10.1016/j.jbusres.2022.08.007

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, *39*(1), 31–36. https://doi.org/10.1007/BF02291575

Magistretti, S., Pham, C. T. A., & Dell'Era, C. (2021). Enlightening the dynamic capabilities of design thinking in fostering digital transformation. *Industrial Marketing Management*, *97*, 59–70. https://doi.org/10.1016/j.indmarman.2021.06.014

Malhotra, N. K., Lopes, E., & Veiga, R. T. (2014). Structural equation modeling with Lisrel: an initial vision. *Brazilian Journal of Marketing*, *13*(2). https://ssrn.com/abstract=2678786

Nguyen, H. P. T., & Ho, T. A. (2022). Factors affecting the willingness to accept digital transformation by small and medium enterprises in Ho Chi Minh City. *Science & Technology Development Journal–Economics–Law and Management*, *6*(2), 2752–2762. https://doi.org/10.32508/stdjelm.v6i2.973

Nguyen, T. T., Nguyen, T. V. T., Nguyen, T. T. T., & Nguyen, H. T. (2023). Determinants of intention towards digital transformation adoption: evidence from Vietnam's public sector. *Journal of Law and Sustainable Development*, *11*(11), e1646. https://doi.org/10.55908/sdgs.v11i11.1646

Nguyen, V. A. T., Hoang, T. T., Mai, T. D., Lam, T. H., & Pham, H. N. (2023). The factors affecting digital transformation in small and medium enterprises in Hanoi city. *Uncertain Supply Chain Management*, *11*(4), 1705–1718. https://doi.org/10.5267/j.uscm.2023.6.019

Nunnally, J. C. (1978). *Psychometric theory (2nd ed.)*. McGraw–Hill.

Rupeika–Apoga, R., Petrovska, K., & Bule, L. (2022). The effect of digital orientation and digital capability on digital transformation of SMEs during the COVID–19 pandemic. *Journal of Theoretical and Applied Electronic Commerce Research*, *17*(2), 669–685. https://doi.org/10.3390/jtaer17020035

Saura, J. R., Palacios–Marques, D., & Barbosa, B. (2023). A review of digital family businesses: setting marketing strategies, business models and technology applications. *International Journal of Entrepreneurial Behavior & Research*, *29*(1), 144–165. https://doi.org/10.1108/ijebr–03–2022–0228

Smith, P., & Beretta, M. (2021). The gordian knot of practicing digital transformation: coping with emergent paradoxes in ambidextrous organizing structures. *Journal of Product Innovation Management*, *38*(1), 166–191. https://doi.org/10.1111/jpim.12548

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

Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation.* MA: Lexington Books.

Trenerry, B., Chng, S., Wang, Y., Suhaila, Z. S., Lim, S. S., Lu, H. Y., & Oh, P. H. (2021). Preparing workplaces for digital transformation: an integrative review and framework of multi–level factors. *Front Psychol*, *12*, 620766. https://doi.org/10.3389/fpsyg.2021.620766

Truong, N. X. (2023). Adopting digital transformation in small and medium enterprises: an empirical model of influencing factors based on TOE–TAM integrated. *Tạp chí Nghiên cứu Tài chính–Marketing*, *13*(6), 45–57. https://doi.org/10.52932/jfm.vi72.352

Vial, G. (2019). Understanding digital transformation: a review and a research agenda. *The Journal of Strategic Information Systems*, *28*(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

Yamane, T. (1973). *Statistics: an introductory analysis* (3rd ed.). Harper & Row.

Zhang, W., Chu, J., Zhang, T., & Wang, Y. (2023). Identifying the factors influencing enterprise digital transformation intention: an empirical study based on net effects and joint effects. *Business Process Management Journal*, *29*(7), 2107–2128. https://doi.org/10.1108/bpmj-03-2023-0174

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

Zheren, K. (2024). *Wenzhou has released three development plans in the fashion industry*. https://www.wenzhou.gov.cn/art/2024/6/2/art_1217828_59247122.html