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| RESEARCH ARTICLE

Insights into Digital Transformation Adoption in State-Owned Organizations: A Study from Vietnam

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| ABSTRACT
Digital transformation is a critical imperative for organizations worldwide, transcending industries and sectors. This study focuses on the context of state-owned organizations in Vietnam, investigating the key factors influencing the adoption of digital transformation initiatives. The research explores the roles of Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Willingness to Change (WC) in shaping the adoption process. The study employs a quantitative research design, utilizing a structured questionnaire to collect data from 200 managers and staff members in 20 state-owned organizations that have implemented digital transformation. Statistical analysis, including Partial Least Squares Structural Equation Modeling (PLS-SEM), is employed to test the proposed hypotheses. The findings reveal significant relationships between these key factors and digital transformation adoption. Both PU and PEOU have a positive and significant impact on DTA, indicating that when employees perceive digital tools as beneficial and user-friendly, they are more likely to embrace digital transformation. Moreover, a positive relationship between PEOU and WC highlights the importance of user-friendly technologies in fostering employees' willingness to change. Furthermore, the study underscores the mediating role of WC in amplifying the impact of PU and PEOU on DTA, emphasizing the significance of cultivating a workforce open to change in driving successful digital transformation. These findings offer theoretical insights into the digital transformation adoption process in state-owned organizations and provide practical implications for organizations seeking to navigate the complexities of digital transformation in a rapidly evolving technological landscape.

| KEYWORDS

Digital transformation, state-owned organizations, Perceived Usefulness, Perceived Ease of Use, Willingness to Change, adoption, technology adoption.

| ARTICLE INFORMATION

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1. Introduction

Digital transformation or digitization is no longer a new term as this activity has been researched, applied and implemented across organizations and enterprises worldwide for over 20 years. Digital transformation not only helps management activities but also acts as a key driver to promote and enhance production and business efficiency for enterprises (Bharadwaj et al., 2013), organizations and even individuals. Digital transformation signifies the shift from traditional, analog business methods to digital ones, often involving the adoption of cloud computing, big data analytics, artificial intelligence, and IoT technologies (McAfee & Brynjolfsson, 2017).

Not only do manufacturing and business enterprises focus on digital transformation, as many people mistakenly think, but digital transformation also occurs strongly and widely in government organizations and state-owned enterprises. Especially with the strong globalization in recent years, Kraus et al. (2021) argue that countries will increasingly focus on and invest more in digital

transformation activities to enhance international competitiveness for their nations and enterprises. Besides, Havard Bussiness Review (2019) stated that digital transformation is a holistic approach to optimizing business operations, enhancing customer experiences, and driving innovation. Some experts even believe that digital transformation is an important tool contributing to shaping the role of countries in the global economy.

According to Westerman et al. (2014), digital transformation refers to the integration of digital technologies into all aspects of a business, and it fundamentally changes the way organizations operate and deliver value to customers. Supporting the opinion of utilizing digital technologies, Ross et al. (2019) consider digital transformation as a useful strategy for creating new or modifying existing business processes, corporate culture, and customer experiences to meet changing business and market requirements.

Global technological trends are major stimuli propelling transformation across industries (Li et al., 2018). Digital technologies like cloud computing, big data analytics, artificial intelligence (AI), and the Internet of Things (IoT) are seeing declining costs, making adoption more feasible for a wider range of organizations (Martin, 2018). Connectivity is also increasing exponentially, with 5G and fiber optic networks enabling rapid data flow (Alaarj et al., 2018). Moreover, the technologies themselves are continuously advancing, providing more sophisticated functionality over time (Heavin & Power, 2018). These interlinked factors of lowering costs, expanding connectivity, and technology improvements are fueling digital adoption globally.

Vietnam is also experiencing rapid technological transformation, as average broadband speeds have doubled since 2017 (Cimigo, 2021). Mobile connectivity has surged, with over 150 million sim cards now active for a population of 98 million (Cimigo, 2021). Cloud computing adoption is expected to grow 25% yearly as businesses migrate from servers to cloud platforms (Ken Research, 2021). These trends indicate Vietnam's digital infrastructure is developing quickly thanks to investments in connectivity and cloud services.

Hence, this paper reviews the stimuli fueling digital adoption in the Vietnamese context, from emerging technologies to competitive and efficiency motivations. It also examines salient challenges companies must surmount on the transformation journey. A multiple case study analysis will provide nuanced insights into how leading Vietnamese companies across sectors are leveraging digital capabilities while managing the roadblocks. The research aims to expand knowledge on both the key drivers of compelling digital transformation and the strategies firms need to successfully navigate the process in light of Vietnam's unique cultural and market landscape. As digital disruption continues, understanding the stimuli and challenges will be imperative for organizations in Vietnam and worldwide seeking to remain relevant.

2. Literature review

2.1 Digital transformation - Nature, definitions and classifications

Although it emerged recently as a crucial business priority, digital transformation remains undergoing conceptual development. Therefore, this concept has attracted significant attention from both academia and industry. At its core, digital transformation refers to the strategic deployment of digital technologies to fundamentally alter an organization's operations, processes, and business models (Westerman et al., 2014). This approach has been supported by Matt et al. (2015) when they consider digital transformation as a change enabled by digital technologies that need to be guided by the enterprise strategy. Ross et al. (2016) and Hess et al. (2016) both emphasize the importance of digital transformation as enlightening its role in enhancing an organization's agility, responsiveness, and competitiveness in an increasingly digital and interconnected world. Furthermore, it encompasses the reimagining of customer experiences, the integration of digital solutions into every facet of an organization's activities, and the exploitation of data-driven insights for informed decision-making (Bharadwaj et al. (2013).

The definitions of digital transformation highlight its holistic nature, encompassing technological, organizational, and cultural dimensions (Lycett et al., 2004). It transcends mere digitization and automation, as it necessitates a strategic vision that redefines how an organization creates, delivers, and captures value in the digital age (Markus et al., 2017). In essence, digital transformation represents a profound shift that reshapes not only an organization's technological landscape but also its underlying structures, processes, and mindset.

Digital transformation can be classified into various categories based on its scope and impact. One prominent classification distinguishes between business process transformation, which focuses on optimizing internal operations, and customer experience transformation, which centers on enhancing interactions with customers (Keen, 2018). Another classification, proposed by Iansiti and Lakhani (2014), categorizes digital transformation into two distinct types: "*digital reinvention*," which involves reimagining an organization's core processes and business model using digital technologies, and "*digital extension,*" which involves using digital tools to extend and complement existing processes without fundamentally altering them. Additionally, researchers such as Henderson and Venkatraman (1999) have classified digital transformation into strategic transformation, aimed at redefining an organization's competitive positioning, and operational transformation, which targets the optimization of internal processes. These

classifications highlight the multifaceted nature of digital transformation, offering valuable insights into the various dimensions and strategic considerations involved in the process.

2.2 Digital transformation – Benefits and challenges

Beyond sheer technological enablement, digital transformation is also being stimulated by changing customer expectations and the desire for improved customer experiences (Eggers & Bellman, 2015). Customers now anticipate and demand highly personalized, seamless omni-channel experiences when engaging with companies (HBR, 2016). For instance, Vietnamese consumers increasingly expect contextualized interactions and mobile-first engagement (Cimigo, 2019). Firms are, therefore, using technologies like AI and big data analytics to better understand customers and deliver tailored real-time experiences across physical and digital touchpoints (Ramaswamy & Ozcan, 2018).

In Vietnam particularly, consumers have rapidly embraced digital channels, with 68% now preferring online shopping and 90% using ride-hailing apps (Cimigo, 2021). Younger Vietnamese consumers especially demand seamless mobile experiences. Companies must digitally transform to align with these shifting preferences. Homegrown e-commerce platform Tiki has achieved explosive growth through leveraging data-driven personalization and mobile-centric customer experiences (Tran, 2021).

The intensifying competition also incentivizes digital transformation, as new digitally savvy market entrants disrupt industries with leaner business models (Reis et al., 2018). In Vietnam, e-commerce platforms like Shopee and Tiki have pressured traditional retailers to develop online channels and adopt social commerce (Le, 2022). Agile startups are also disrupting financial services, education, healthcare and other sectors, forcing cautious incumbents to digitally transform to compete (learn.g2.com, 2020).

However, while stimulating innovation and growth, digital transformation also poses notable challenges. One primary challenge is the significant upfront resource requirements, as transitioning to new digital technology systems demands substantial initial investments (Mahdavian et al., 2018). Integrating advanced technologies like IoT sensors, machine learning algorithms, and cloud data lakes entails sizable costs in terms of devices, infrastructure, and development (Microsoft, 2018). Training workers to use new technologies is also expensive (Schwab, 2017). Resource constraints can, therefore, slow adoption, especially for smaller companies and cash-strapped enterprises across Vietnam and other emerging markets.

Security risks are another key challenge, as digital ecosystems create more vulnerabilities to cyber threats (Nieuwenhuis et al., 2018). Cyberattacks in Vietnam increased by 20%-30% during the pandemic as criminals exploited the remote working and e-commerce boom (Vo, 2022). Migrating data and systems to the cloud, integrating IoT devices, and opening networks for automation all expand the attack surface (Srinivas et al., 2019). Companies must balance digital innovation ambitions with robust cyber risk management. However, security is not foolproof, and even major firms still experience data breaches. Those in regulated sectors like finance and healthcare face added data protection pressures.

Technically integrating new applications with legacy IT systems can also pose difficulties (Warner & Wager, 2019). Like counterparts globally, Vietnamese companies struggle to smoothly interface modern cloud platforms with aging on-premise hardware (Tran, 2021). Poor integration results in fragmented systems that inhibit data sharing and transparency. Seamless integration is critical but difficult, especially with outdated IT environments still common across Vietnam.

Additionally, organizational and cultural resistance to change can hinder technology adoption (Galliers et al., 2015). Employees accustomed to legacy tools may lack enthusiasm for learning new systems (Schwarzmüller et al., 2018). Culturally, Vietnamese workers may be averse to risk and uncertainty, causing reluctance towards digital transformation initiatives (Quang et al., 2016). Instilling an agile culture embracing experimentation over stability requires deft change management (Kane et al., 2015). Entrenched organizational silos, rigid hierarchies, and fixed mindsets within Vietnamese companies pose added hurdles (Quang et al., 2016).

2.3 Hypotheses development

In today's rapidly evolving technological landscape, digital transformation has emerged as a critical strategic imperative for organizations across various sectors. Among these organizations, state-owned entities hold a distinctive position. They often face unique challenges and opportunities when it comes to embracing digital transformation initiatives. Digital Transformation Adoption (DTA) signifies the organization-wide acceptance, integration, and use of digital technologies and practices (Markus et al., 2017). Successful Digital Transformation Adoption entails the alignment of digital strategies with organizational goals, the integration of digital tools into existing processes, and the cultivation of a digital-first culture. Two key independent factors influencing this willingness to change and actual adoption of Digital Transformation are Perceived Usefulness and Perceived Ease of Use, which are central constructs in the Technology Acceptance Model (TAM) (Davis, 1989).

2.3.1 Perceived Usefulness (PU)

Perceived Usefulness (PU) refers to an individual's perception of how adopting a new technology or system would enhance their job performance or facilitate their tasks (Davis, 1989). Within the context of state-owned organizations, the perceived usefulness (PU) of digital transformation initiatives stands out as a compelling driver of adoption. PU, as articulated by Davis (1989), refers to the extent to which individuals believe that a particular technology can enhance their job performance. In state entities, this concept extends beyond individual job performance to encompass the broader goals and missions of the organization.

Research has consistently demonstrated that when employees within state-owned organizations perceive digital transformation as useful, they are more likely to support and actively participate in these initiatives (Almarashdeh et al., 2019). This aligns with the Technology Acceptance Model (TAM) proposed by Davis (1989), which posits that perceived usefulness positively influences users' acceptance of technology. In the case of state organizations, PU serves as a catalyst for change, encouraging employees to enthusiastically embrace digital transformation endeavors.

Moreover, the influence of PU extends beyond mere acceptance; it is instrumental in shaping the direction and extent of digital transformation efforts within state entities. When employees believe that digital initiatives align with organizational goals and can contribute to enhanced public service delivery or streamlined administrative processes, they are more likely to advocate for the allocation of resources and attention to these initiatives.

- H1a: *Perceived Usefulness (PU) positively influences Digital Transformation Adoption (DTA) in state-owned organizations*.
- H1b: *Perceived Usefulness (PU) positively influences the willingness to change of the State organization*.

2.3.2 Perceived Ease of Use (PEOU)

Also stated by Davis (1989), Perceived Ease of Use (PEOU) relates to the perceived simplicity of using a technology or system. The perceived ease of use (PEOU) of digital tools and systems also plays a pivotal role in influencing their adoption within state-owned organizations. PEOU, another construct proposed by Davis (1989), pertains to the degree to which individuals believe that using a technology will be free from effort. In the context of state entities, PEOU extends to the transition from traditional processes to digital workflows.

State organizations are characterized by their intricate bureaucratic structures and established workflows. Consequently, the transition to digital systems can be perceived as disruptive and challenging by employees. PEOU becomes a crucial factor in mitigating resistance to change. When employees perceive digital tools and systems as user-friendly, accessible, and straightforward, they are more likely to embrace the adoption process.

Empirical studies have consistently supported the positive relationship between PEOU and technology adoption (Gefen & Straub, 2000). In state-owned organizations, this relationship holds significant implications. When the shift from traditional practices to digital workflows is perceived as smooth and uncomplicated, it accelerates the adoption process.

- H2a: *Perceived Ease of Use (PEOU) positively influences Digital Transformation Adoption (DTA) in state-owned organizations*.
- H2b: *Perceived Ease of Use (PEOU) positively influences the willingness to change of the State organization*.

2.3.3 Willingness to Change (WC)

The willingness to change (WC) is defined by Armenakis & Harris (2002) as employees' attitudes and intentions regarding change. The willingness to change (WC) among employees within state-owned organizations emerges as a critical mediating factor in the adoption of digital transformation initiatives. While WC is not a construct originating from the TAM, it plays a pivotal role in shaping the acceptance and impact of digital technologies in state entities. In state organizations, employees' willingness to embrace change can be a significant mediating in the relationship between perceived usefulness (PU) and digital transformation adoption (DTA). When employees exhibit a high level of willingness to change, the positive impact of perceived usefulness on DTA is likely to be amplified. Essentially, a workforce that is open and receptive to change serves as a catalyst for the positive effects of perceived usefulness to manifest more strongly.

Similarly, WC can serve as a moderating factor in the relationship between perceived ease of use (PEOU) and digital transformation adoption (DTA) within state-owned organizations. When employees are highly willing to adapt to change, the positive impact of PEOU on DTA is likely to be more pronounced. It is the willingness of employees to readily embrace new digital technologies and workflows that enhances the effectiveness of PEOU in driving DTA.

- H3a: *Willingness to Change (WC) positively influences Digital Transformation Adoption (DTA) in state-owned organizations.*
- H3b: *Willingness to Change (WC) positively mediates the relationship between Perceived Usefulness (PU) and Digital Transformation Adoption (DTA) in state-owned organizations*
- H3c: *Willingness to Change (WC) positively mediates the relationship between Perceived Ease of Use (PEOU) and Digital Transformation Adoption (DTA) in state-owned organizations.*

The proposed research model is:

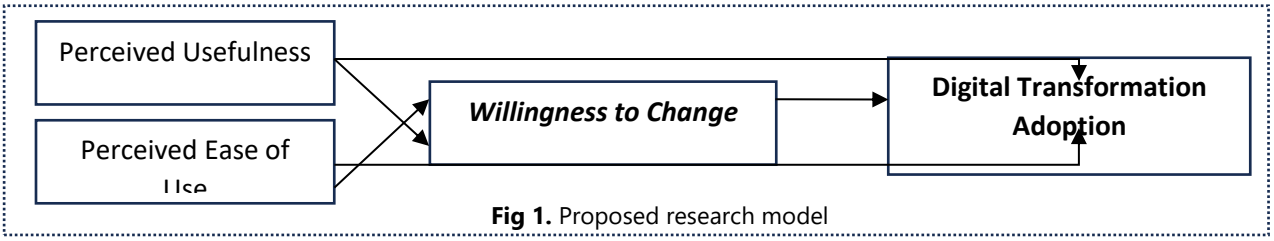

Fig 1. Proposed research model

3. Research methodology

This study employs a quantitative research design to investigate the relationships between perceived usefulness (PU), perceived ease of use (PEOU), willingness to change (WC), and digital transformation adoption (DTA) within state-owned organizations. The research design encompasses scale development, data collection method and statistical analysis using the Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the proposed hypotheses.

To collect the data for research, a structured questionnaire was employed. All research scales are adapted from previous publications of other authors. However, the selected scales must related to the digital services adoption. In which the perceived usefulness scale was sourced from Wu & Wang (2006), Sun et al. (2014), and Alalwan et al. (2018), whereas the perceived ease of use (PEOU) was adopted from Venkatesh et al. (2003), Bawack and Kamdjoug (2019) and Schwarz et al. (2019). The measure of willingness to change was adopted from the studies of Armenakis & Harris (2009), Herscovitch & Meyer (2002) and Holt et al. (2007). The Digital Transformation Adoption scale is developed from the scales of Westerman et al. (2011) and Nguyen & Tran (2022).

The back-translation technique was used to develop the survey and ensure the culture–context adaptation. The convenience sampling method was used to choose the target audience. Only state organizations that implemented the digital transformation were selected to conduct the investigation. After contacting and initial screening, the study approached 20 state organizations and surveyed 200 managers and staff at those organizations, with 1/3 of the total being top managers, 2/3 being middle-level managers, and the rest of 1/3 being staff. Actually, in state organizations, the top managers only play the role of the strategy proposition; however, all of their directions come from the middle-level managers, and of course, the middle-level managers are key persons in digital transformation implementation.

4. Results and Analysis

4.1. Measurement Model

The proposed model underwent rigorous analysis and interpretation using SMART PLS 4.0 software. This comprehensive approach involved several critical steps to ensure the validity and reliability of the measurements and the structural model.

To begin with, the study assessed the suitability of the measurements. This process involved evaluating the reliability of individual measures and scrutinizing the discriminant validity of the constructs. As suggested by Hair et al. (2014), if the outer loadings of observed variables exceed the threshold of 0.70, they are considered acceptable. In line with this criterion, two items, namely PEU3 and DTA3, were removed from the initial scale due to their outer loading values falling below 0.70.

Furthermore, the study examined the reliability of the measurement model using two commonly employed metrics: Composite Reliability (CR) and Cronbach's Alpha (CA). Following the guidelines outlined by Hair et al. (2017), the CA values ranged from 0.786 to 0.825, while the CR values spanned from 0.770 to 0.884. These values provide strong evidence of the reliability of the measurement model, as they all exceed the recommended threshold of 0.7.

Moreover, the study evaluated the Average Variance Extracted (AVE) values of the constructs. AVE values greater than 0.5 are indicative of a high level of reliability for the constructs, surpassing the recommended threshold. This further reinforces the reliability of the measurement model.

Table 1. Internal Consistency Reliability and Convergent Validity

Constructs	Code (items)	Factor loadings	CA	CR	AVE
Perceived usefulness	PU (4)	0.736 – 0.851	0.815	0.878	0.643
Perceived ease of use	PEOU (5)	0.811 - 0.850	0.825	0.884	0.657
Willingness to change	WC (4)	0.758 – 0.841	0.766	0.770	0.587
Digital transformation adoption	DTA (4)	0.754 – 0.817	0.786	0.875	0.704

To validate the measurement model, the Fornell and Larcker (1981) criterion was employed, which assesses whether the square root of the Average Variance Extracted (AVE) surpasses the correlations between construct pairs in our model. This step is crucial to establish the uniqueness of our constructs. Additionally, we utilized the Heterotrait-Monotrait (HTMT) ratio, as suggested by Henseler et al. (2014), to gauge the similarity between latent variables. A HTMT value below 0.85 indicates discriminant validity, while the values above suggest potential issues, as highlighted by experts like Kline (2016) and Clark & Watson (1995).

The results of Tables 1 and 2 strongly confirm the discriminant validity of our constructs. The square roots of the AVE consistently exceeded the construct correlations, providing robust evidence for their distinctiveness. All HTMT values comfortably remained below the critical 0.85 threshold, leaving no doubt that our constructs meet the stringent requirements for discriminant validity.

Table 2. The Heterotrait-monotrait ratio (HTMT)

	DTA	PEU	PU	WC
DTA				
PEU	0.760			
PU	0.726	0.507		
WC	0.834	0.629	0.755	

The evaluation of the structural model involved the examination of seven relationships formed by seven latent variables. The bootstrapping techniques with 5000 subsamples closely examine p-values and standard errors. Additionally, we checked for multicollinearity, where high correlations between independent variables can affect model independence. Using Collinearity Statistics, we found VIF values ranging from 1.214 to 1.619, all comfortably below the 3.00 threshold, indicating no multicollinearity in our model (Table 3).

Table 3. Collinearity statistics (VIF)

	DTA	PEU	PU	WC
DTA				
PEU	1.381			1.214
PU	1.619			1.214
WC	1.790			

Hair et al. (2016) have provided a valuable method to assess the structural model's quality through the Standardized Root Mean Square Residual (SRMR) value. According to their recommendation, a model is considered fitting the hypothesis when the SRMR value is less than 0.1. This study found that the SRMR value, specifically for the saturated model, was calculated to be 0.077. This value comfortably falls below the 0.1 threshold suggested by Hair et al. (2016). This outcome serves as compelling evidence that our model is well-suited for testing the hypotheses in question.

Table 4. R-square, Q^2 – value, SRMR

	R-square	R-square adjusted	Q^2 (=1-SSE/SSO)	SRMR
DTA	0.585	0.580	0.401	**0.077**
WC	0.441	0.436	0.250	

The R-square (R2) value signifies the extent to which independent variables elucidate the variance in the dependent variable within the regression model. According to Cohen (2013), when the R2 value is equal to or greater than 0.26, it indicates a significant level of explanatory power of the independent variables on the dependent variable. In this study, the R2 values for Digital transformation adoption (DTA) and Willingness to change (WC) were calculated as 0.585 and 0.441, respectively. All of these R2 values exceeded the 0.26 threshold.

Consequently, it can be inferred that approximately 58.5% of the variance in Digital transformation adoption (DTA) is accounted for by Willingness to change, perceived usefulness (PU) and perceived ease of use (PEOU). Moreover, the variables perceived usefulness (PU) and perceived ease of use (PEOU) can elucidate approximately 44.1% of the variance observed in Willingness to change.

The Q2 value serves as an indicator of the predictive capability of independent variables on the dependent variable, in line with the framework proposed by Tenenhaus et al. (2005). The results obtained, as presented in Table 4, demonstrate that the Q2 values for Digital transformation adoption (DTA) and Willingness to change all exceed 0. This suggests that these factors exhibit an acceptable level of prediction accuracy, thus substantiating their suitability in the predictive modeling context.

In line with the guidelines outlined by Gronemus et al. (2010), the examination of path coefficients is crucial in assessing the extent of change in the dependent variable attributable to each independent variable. The statistical significance of these impact paths is determined through the utilization of p-values. When the p-value is less than 0.05, it indicates that the path coefficients attain statistical significance. As depicted in Table 5, it is evident that all path coefficients under scrutiny in this study are statistically significant, as their respective p-values fall below the 0.05 threshold. This underscores the robustness and validity of the relationships between the variables being examined.

Table 5. Bootstrapping values

	Beta	f2	P values	Hypothesis test
PEU -> DTA	0.338	0.200	0.000	Accepted
PEU -> WC	0.305	0.137	0.000	Accepted
PU -> DTA	0.248	0.092	0.000	Accepted
PU -> WC	0.475	0.333	0.000	Accepted
WC -> DTA	0.344	0.160	0.000	Accepted
PEU -> WC -> DTA	0.105		0.000	Accepted
PU -> WC -> DTA	0.164		0.000	Accepted

The results of our hypothesis testing reveal several significant findings in our study. First, we found a strong positive relationship between Perceived Ease of Use (PEU) and Digital transformation adoption (DTA), with a Beta value of 0.338, suggesting that an increase in PEU leads to a corresponding increase in DTA. This relationship was statistically significant, with a p-value of 0.000, confirming our hypothesis. Similarly, the relationship between PEU and Willingness to change was also positive and significant, with a Beta of 0.305 and a p-value of 0.000.

Additionally, the relationship between Perceived Usefulness (PU) and both DTA and WC was also found to be positive and significant. PU had a Beta of 0.248 in relation to DTA (p-value = 0.000) and a Beta of 0.475 in relation to WC (p-value = 0.000), indicating that higher levels of PU were associated with higher levels of DTA and WC. Furthermore, when examining the relationship between WC and DTA, we found a positive and significant association with a Beta of 0.344 and a p-value of 0.000. Lastly, our findings also support the mediating role of Willingness to change in the relationships between two independent variables of PU and PEU and the DTA. The relationships were indicated by the paths PEU -> WC -> DTA and PU -> WC -> DTA. Both paths were found to be significant with p-values of 0.000, suggesting that the combined effect of perceived ease of use, perceived usefulness, and Willingness to change has a significant impact on Digital transformation adoption (DTA). Overall, our results provide strong evidence to accept the hypotheses associated with these relationships in our study.

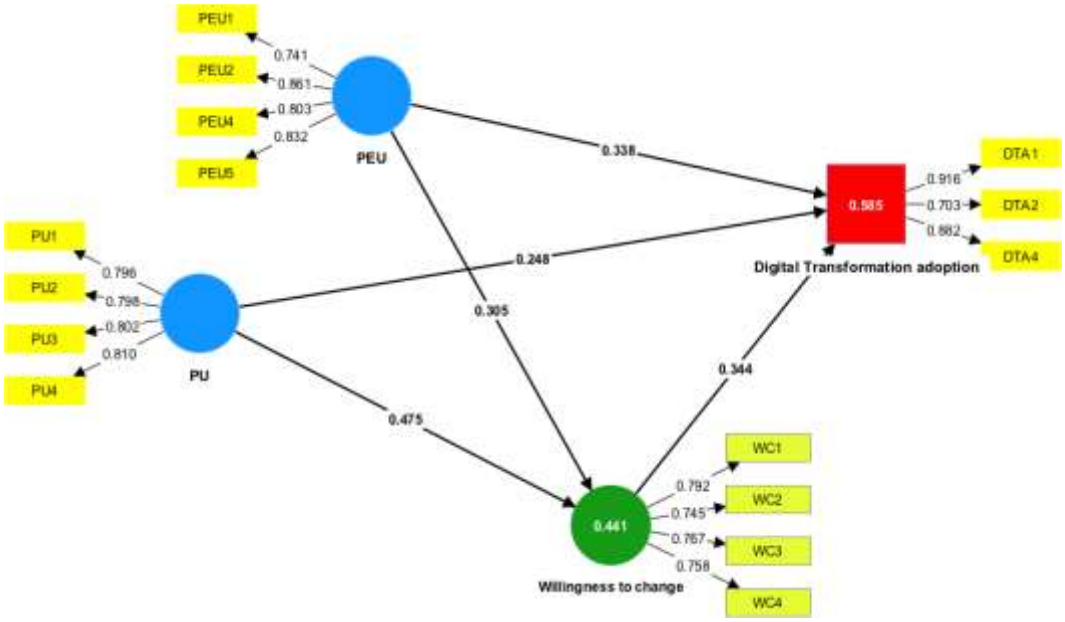

Fig 2. Structural modelling

5. Discussion and Implications

The study investigates the factors influencing Digital Transformation Adoption (DTA) in state-owned organizations in Vietnam, focusing on the role of Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Willingness to Change (WC). The research findings indicate several significant relationships and provide valuable insights into the adoption of digital transformation in this context.

Firstly, the study confirms that both Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) have a positive and significant impact on Digital Transformation Adoption (DTA). This means that when employees perceive digital tools as user-friendly and beneficial to their job performance and organizational goals, they are more likely to embrace digital transformation initiatives.

Secondly, the study reveals a positive and significant relationship between Perceived Ease of Use (PEOU) and Willingness to Change (WC). When employees find digital technologies easy to use, they are more willing to adapt to change within their organization.

Thirdly, the research establishes a positive and significant link between Perceived Usefulness (PU) and Willingness to Change (WC). When employees perceive that digital transformation initiatives align with organizational goals and can improve public service delivery or streamline administrative processes, they are more inclined to support and actively participate in these initiatives.

Furthermore, the study demonstrates that Willingness to Change (WC) plays a mediating role in the relationships between Perceived Ease of Use (PEOU) and Digital Transformation Adoption (DTA), as well as between Perceived Usefulness (PU) and Digital Transformation Adoption (DTA). This indicates that WC amplifies the positive impact of PEOU and PU on DTA, emphasizing the importance of cultivating a workforce open to change in driving successful digital transformation.

In conclusion, this study sheds light on the factors influencing digital transformation adoption in state-owned organizations, providing valuable insights for both researchers and practitioners in the field of digital transformation. It underscores the importance of considering employee perceptions, attitudes, and willingness to change as critical drivers of successful digital transformation initiatives.

5.1 Theoretical Implications

The research contributes to the theoretical understanding of digital transformation adoption in state-owned organizations by emphasizing the significance of PU, PEOU, and WC. It highlights the interconnectedness of these factors in shaping the adoption process. Additionally, the study reinforces the applicability of the Technology Acceptance Model (TAM) constructs, PU and PEOU, in the context of state entities. Moreover, the inclusion of WC as a mediating factor expands the understanding of the role of employee attitudes and intentions in driving digital transformation.

5.2 Practical Implications

The findings have practical implications for state-owned organizations in Vietnam and beyond:

- **Training using digital tools**: Organizations should invest in training programs to ensure that employees are proficient in using digital tools. Additionally, efforts should be made to select and implement user-friendly technologies to enhance PEOU.
- **Alignment with Organizational Goals:** Digital transformation initiatives should be clearly aligned with the organization's goals and mission. Employees should understand how these initiatives contribute to improved public service delivery and administrative efficiency.
- **Change Management:** Effective change management strategies should be employed to foster Willingness to Change (WC) among employees. This includes creating a culture that values experimentation and agility over stability.
- **Holistic Approach:** Organizations should consider the holistic nature of digital transformation, encompassing technological, organizational, and cultural dimensions. Addressing these dimensions collectively can lead to successful digital transformation.

6. Conclusion

This study offers valuable insights into the key factors influencing digital transformation adoption in state-owned organizations in Vietnam. The research findings reveal that Perceived Usefulness, Perceived Ease of Use, and Willingness to Change play significant roles in shaping the digital transformation process. Specifically, the results confirm that when employees perceive digital technologies as beneficial and easy to use, they are more likely to support and participate in digital transformation initiatives. Moreover, willingness to change emerges as a critical mediating factor that amplifies the impact of perceived usefulness and perceived ease of use on digital transformation adoption. These relationships underscore the need for a multifaceted approach when implementing digital transformation in state entities. Technological, organizational, and cultural dimensions must be addressed collectively to cultivate an environment conducive to change. The study provides a foundation for further research while offering practical implications for practitioners seeking to effectively navigate digital transformation.

While producing valuable findings, this study has certain limitations that provide avenues for future research. Firstly, it utilizes a cross-sectional research design involving data collected at a single point in time. A longitudinal study tracking changes over an extended period could provide richer insights. Secondly, the research relies solely on quantitative analysis of survey data. The inclusion of qualitative methods like interviews and focus groups could help gain a more nuanced understanding of the issues. Additionally, the sample is limited to Vietnam. Expanding the research to other cultural and organizational contexts could enhance generalizability. Comparative analyses across countries could reveal new perspectives.

Future studies could also benefit from exploring additional factors influencing digital transformation beyond perceived usefulness, ease of use and willingness to change. For instance, top management commitment, training, and communication have been highlighted as potential drivers in previous literature.

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