COMMITMENT AND TRUST IN E-GOVERNMENT CUSTOMER CITIZEN BEHAVIOR

Assoc.Prof.PhD. Pham Van Tuan* - MSc. Nguyen Hoang Giang**

Nguyen Tu Quyen* - Bui Thi Thanh Tam* - Luu Ha Phuong* - Nguyen Cam Nhung*

Abstract: *This research focuses on decoding the key factors affecting Customers Citizenship Behavior in the context of the increasingly developing e-Government in Vietnam. Through in-depth analysis, the results show that Satisfaction and Commitment play a direct and important role in promoting Citizenship Behavior. Besides, the study also expands the perspective by pointing out four factors that indirectly influence this behavior: Citizenship Empowerment, Satisfaction, Perceived Risk, and Opportunistic Behavior. Based on the above analysis, the research team proposes some solutions to promote effective Citizenship Behavior.*

1. Introduction

E-government is a crucial step towards building a digital and smart government, improving governance capacity, promoting transparency, increasing efficiency, and building trust. Above all, Vietnam is aiming to build e-government as a solution for administrative reform, developing a socialist-oriented market economy, and international integration. E-government focuses on citizens as the center, transforming the traditional "asking-giving" relationship into a "serving-provider service" relationship. It allows citizens to access public services quickly, conveniently, and transparently, making them customers. E-government also helps overcome negative aspects of public service activities, ensuring work is resolved according to regulations, time, and quality. This saves costs in time, effort, and money. E-government improves efficiency and management quality, increasing people's satisfaction with state activities. It is the key to modern administration, contributing to national competitiveness and promotion.

Vietnam has made significant progress in e-government development, ranking 86th in the 2020 E-Government Development Index (EGDI). However, Vietnam still faces challenges such as stagnation, reluctance to innovate, uneven IT skills, and limited ICT infrastructure. To improve e-government, it is essential to raise awareness, train skills, perfect infrastructure, and synchronize ICT systems with human resources and legal basis. Digital transformation is not just about applying technology but also changing human behavior.

2. Literature review

2.1. The concept of digital transformation

"Digital transformation" is often confused with the concept of "Digitalization". "Digitalization" is simply the process of modernization, often associated with converting traditional processes to digital processes (Kohli & Johnson, 2011). Meanwhile, "Digital transformation" means using data obtained from the digitization process, and then applying modern technologies to analyze, transform that data, and create valuable values. In the business model, Solis et al (2014, p. 3) also considered digital transformation as a reorganization, new investments in technology, and business models more effectively engaging digital customers at every touch point in the customer experience lifecycle.

Digital transformation brings benefits to improve the quality of life in numerous fields such as business, administration, healthcare, education, etc. For example, the most recognizable benefits of digital transformation in business are reduced costs, thereby supporting sustainable competitive advantage (Kraus et al., 2021).

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* National Economics University
** Posts and Telecommunications Institute of Technology

In this study, we also agree with the stated views and define digital transformation as: *"The process of overall and comprehensive change of individuals and organizations in the way of living, working, and production based on digital technologies."*

2.2. E-government

E-government refers to the delivery of government-related information and services to citizens by utilizing ICT tools, specifically the Internet and digital platforms (Jain, 2017; Nguyen, 2017).

Many definitions have also been developed based on other aspects of digital government. Coursey & Norris (2010) and Means & Schneider (2000) both emphasized the transactional nature of e-government, as well as highlighted the connecting role of e-government in providing information to related subjects. In addition, more inclusive existing definitions, such as Jain (2017) and Haldenwang (2004) suggest restructuring internal and external relationships with an emphasis on constituency engagement and governance to enhance the delivery quality of public services via digital channels.

To the extent of this research in the context of digital transformation in Vietnam, the following definitions of Nikiforova (2020) will be used to understand and deepen analysis of e-government: *"E-government is the application of information and communications technology, specifically the Internet and digital platforms, in the activities of government at all levels or the media."*

2.3. E-government in Vietnam

In Vietnam, developing an e-Government model has become integral to administrative reform and advancing IT and national communication strategies. According to the Ministry of Public Security, by May 31, 2023, there were 206.4 million records with synchronized processing status on the National Public Service Portal, with 13.7 million records processed online.

However, challenges persist. According to the Vietnam Software and Information Technology Services Association, the country boasts nearly 900,000 workers in the IT sector, including a significant number of engineers specializing in AI, IoT, and Big Data. However, Vietnam's human resources rank low to average in quality, particularly concerning highly specialized workers, as assessed by the World Economic Forum (WEF).

Looking ahead to 2030, Vietnam has set ambitious goals for the establishment of a digital government, including establishing a top-ranking digital government by 2030, focusing on cyber safety, e-Government ranking, and digital infrastructure improvement.

3. Hypothesis development

3.1. Citizen empowerment

Within an organization, Fernandez & Moldogaziev (2011) demonstrated that employee empowerment is positively related to job satisfaction and organizational commitment. Several studies also suggest that empowered employees have higher levels of organizational commitment, as empowered employees may have higher levels of focus at work and are more self-motivated (Avolio et al., 2004). In short, we believe that citizens' commitment is an important result of citizen empowerment.

H1: Citizenship empowerment has a positive impact on relationship commitment

3.2. Satisfaction

In marketing, Brown et al (2005, p. 133) state that it is difficult to imagine a consumer developing a committed relationship without experiencing satisfaction from the exchange with a company. So for citizens to commit to using e-government, or find useful values through conducting online procedures, satisfying citizens in general is an indispensable premise.

H2: Satisfaction has a positive impact on relationship commitment

According to Bowen & Schneider (1985), customers are not only service consumers but also act as "partial employees". When customers are satisfied, they tend to engage in citizenship behaviors, which are voluntary behaviors that contribute to the service delivery process. Research on relationship marketing shows that customers often develop relationships with organizations, not just with specific employees (Berry, 1983, 1995). They feel trust, expectation, and obligation to the entire organization (Hennig Thurau, Gwinner, & Gremler, 2002).

H3: Satisfaction has a positive impact on customer citizenship behavior in the e-government environment

3.3. Perceived risk

Perceived risk is identified as citizens' perception of facing losses when pursuing desirable outcomes (Warketin et al., 2002) and is also an important factor in predicting the level of digital government adoption among citizens (Hung, Chang & Yu, 2006). The relationship between perceived risk and citizens' trust in e-Government has been verified through many empirical studies (Belanger & Carter, 2008; Carter et al., 2016). Carter et al. (2016) confirmed there is

a positive correlation between risk perception and citizens' trust in government. The research by Lee & Song (2013) shows that trust in the organization's capabilities in providing online public services reduces citizens' perceived risks. Practically, conclusions may be influenced by social and cultural factors; but theoretically, it has been proven that perceived risk has a negative effect on citizens' trust in e-Government.

H4: Perceived risk has a negative impact on customers' civic trust in the e-government environment

3.4. Opportunistic behavior

Originally proposed by Dwyer, Schurr & Oh (1987), incorporating trust into distribution channel relationship models provides a distinct perspective for examining opportunism as an explanatory variable. The research team posits that when one party believes that the other party is behaving opportunistically, such perceptions will lead to reduced trust. Instead of positing a direct impact from opportunistic behavior on relationship commitment, we argue that such behavior leads to reduced relationship commitment because partners believe they can no longer trust your relationship.

H5: Opportunistic behavior has a negative impact on customers' civic trust in the e-government environment

3.5. Commitment

Employee commitment is a reflection of their loyalty and dedication to the organization, indicating their investment in its success and development (Luthans, 2007). While some leaders may empower employees passively, others actively foster strong bonds and encourage self-management and leadership skills (Pearce & Sims, 2002). Commitment is considered a pivotal factor shaping the desire to establish enduring relationships with organizations.

*H7: Commitment has a positive impact on citizenship customer behavior*

3.6. Trust

According to Rotter's (1967) original view, trust is considered an individual's expectation and is generalized when others gain trust and confidence. Moorman et al. (1993) believe that trust is the willingness to exchange when two parties trust each other. Similarly, Morgan & Hunt (1994) define trust as confidence in the trustworthiness and integrity of the other party. From Svensson et al.'s (2010) view, trust is the antecedent of commitment. Ganesan & Hess (1997) also point out that commitment in a relationship is the most frequently tested outcome of trust.

H6: Citizens' trust in e-government has a positive impact on commitment

H8: Citizens' trust in e-government has a positive impact on citizen customer behavior

3.7. Commitment and trust as intermediate variables

Figure. The proposed research model
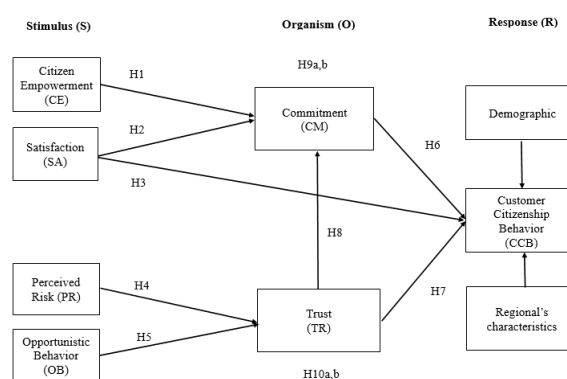
According to Morgan and Hunt's (1994) Commitment-Trust theory, to ensure continuous relational exchange, Trust and Commitment play an important intermediary role in the relationship. Trust and commitment mediate relationships by developing a collaborative environment between stakeholders; helping counteract attractive short-term alternatives; and being cautious about high-risk actions.

H9a: Commitment has an intermediary role in the relationship between Citizenship Empowerment and Citizenship Customer Behavior

H9b: Commitment has an intermediary role in the relationship between Satisfaction and citizenship Customer behavior

H10a: Trust plays an intermediary role in the relationship between data integrity and Citizenship Customer Behavior

H10b: Trust plays an intermediary role in the relationship between Opportunistic Behavior and Citizenship Behavior

4. Methodology

Researchers develop measurement items based on prior research to assess the parameters. These items undergo a pre-test with industry specialists to ensure comprehensiveness and relevance. Then, a pilot test was conducted with 5 citizens to ensure understanding. The official questionnaire was created online using Google Forms and addressed to residents in Hanoi and Ho Chi Minh City in January 2024. Sample calculation was done using Soper's online program (2019) using the parameters "anticipated effect size (0.3), desired

statistical power level (0.95), probability level (0.05), the number of latent variables (7), the number of observed variables (33)" which determined that a minimum of 90 samples were needed for the research. Thus, 1272 questionnaires are deemed entirely appropriate for performing research and data analysis. The data was analyzed using SPSS 26 software and SmartPLS 4 software and analyzed using a two-step analytic approach (Henseler & Chin, 2010). Step 1 is to assess measurement model reliability using outer loadings, Cronbach's alpha, composite reliability, and validity using AVE, cross-loadings, and Fornell-Larcker. Step 2 evaluates the structural model using bootstrapping. Finally, a One-way ANOVA analysis was conducted to determine differences in customers' civic behavior under control variables, including demographic and regional factors.

5. Results

5.1. Descriptive statistics

Out of 1272 samples collected, the number of females was 1140, accounting for 89.6% while just 10.4% were male. The majority are aged 40 - 49, with 712 people, occupying 56%, followed by 28.6% people aged 30 - 39. Most participants reported a monthly income of 8 to 15 million VND (53.5%) and had intermediate computer skills (76.4%). Additionally, 58.5% reported daily internet usage of 1 - 4 hours.

The research aims to analyze customer behavior in the e-Government environment in Vietnam, so the majority of the age group 40 - 49 is appropriate, aligning with their digital proficiency and needs for administrative transactions.

Area classification was divided into industrial zones/key economic regions or not, with 688 participants residing outside these areas, comprising over 54%. 1024 participants (83.3%) exhibit an intermediate level of digital literacy, and 868 reside in areas with relatively advanced digitization of public services (68.2%). Regarding socio-economic status and poverty rate, 1036 residents live in areas with average socio-economic status and poverty rates (81.4%). Additionally, 684 individuals identified the main challenge as limited financial resources (53.8%).

Moreover, the research team also proposed several factors that influence people's intention to use e-government such as the level of coordination between local governments, trust in the government, the level of promotion of e-government and the effectiveness of the aforementioned communication channels. 960 responses gave an "Average" rating (75.5%) in

trust in the government while the factor of the level of coordination and cooperation between levels of government was evaluated more positively at "Good" level in 588 samples (46.2%). Regarding factors related to e-government communication, 1012 citizens noted that the effectiveness of communication channels is being recorded at the "Average" level (79.6%) and 896 people said that the level of promotion needs to be improved about online public services (70.4%).

5.2. Measurement model test-validity and reliability

Table 1 summarizes the results of outer loadings, Cronbach's alpha, Composite reliability, and AVE indexes. The two observed variables OB4 and PR4 with Outer loadings of 0.504 and 0.628, respectively are smaller than 0.7. We should remove these variables and reevaluate the quality of the observed variables a second time. After revaluation, all observed variables have an outer loading above 0.7 (Hair et al. (2014), the observed variables are meaningful and we can proceed to the next steps.

Table 1. Reliability and validity test

Construct	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
CCB	0.938	0.953	0.802
CE	0.865	0.908	0.712
CM	0.900	0.930	0.769
OB	0.912	0.906	0.666
PR	0.905	0.926	0.644
SA	0.907	0.935	0.783
TR	0.876	0.915	0.728

Cronbach's alpha values ranged from 0.865 to 0.938, and CR composite reliability ranged from 0.908 to 0.953. The results show that the outcome measurement models do not have reliability problems as they exceed the recommended 0.7 (Hair et al., 2014). The results of the AVE show convergent validity. Values range from 0.692 to 0.802, which is higher than the recommended value of 0.5 (Hair et al., 2017; Bagozzi & Yi, 1988).

Table 2. HTMT ratio

	CCB	CE	CM	OB	PR	SA	TR
CCB							
CE	0.341						
CM	0.741	0.431					
OB	0.089	0.065	0.119				
PR	0.288	0.122	0.319	0.075			
SA	0.813	0.287	0.530	0.130	0.306		
TR	0.613	0.345	0.592	0.062	0.492	0.415	

It is recommended that values above 0.90 represent a lack of discriminant validity (Henseler et al., 2015). Furthermore, the confidence interval of HTMT must not include the value 1. Based on the results see that all HTMT values are less than 0.9, so discriminant validity is guaranteed.

5.3. Structural equation modeling

The results show that the independent variables of CM, TR, and CCB do not have collinearity because all VIF < 3 (Hair et al., 2018).

Table 3. Structural equation model results

Endogenous variables	Commitment (CM)		Trust (TR)		Customer Citizenship Behavior (CCB)	
	Adjusted R² = 0.416		Adjusted R² = 0.204		Adjusted R² = 0.734	
Predictor variables	VIF	f^2	VIF	f^2	VIF	f^2
Citizen Empowerment (CE)	1.140	0.061				
Satisfaction (SA)	1.201	0.129			1.350	0.798
Perceived Risk PR)			1.001	0.250		
Opportunistic Behavior (OB)			1,001	0.006		
Commitment (CM)					1.618	0.245
Trust (TR)	1.242	0.177			1.440	0.091

The adjusted R-squared values in Table 3 reveal a substantial explanatory power of the model for the endogenous constructs. Customer Citizenship Behavior (CCB) exhibits the highest explanatory power (0.734), 73.4% of its variance is explained by the model. Trust (TR) shows a moderate explanatory power (0.204), accounting for 20.4% of its variance. Commitment (CM) demonstrates an intermediate explanatory power (0.416), explaining 41.6% of its variance. Notably, the high R-squared value for CCB suggests a strong fit of the model in predicting customer citizenship behavior.

Exogenous variable influence on trust and commitment

The exogenous latent variables collectively explain 41.6% of the variance in Commitment (adjusted R² = 0.416). The effect size (f^2) values indicate a weak influence of Citizen Empowerment (CE, f^2 = 0.061) and Satisfaction (SA, f^2 = 0.129) on Commitment, while Trust (TR) exerts a moderate influence (f^2 = 0.177). Similarly, exogenous variables explain 20.4% of the variance in Trust (adjusted R² = 0.204). The effect size (f^2) value suggests a significant impact of Perceived Risk (PR, f^2 = 0.250) on Trust, while Opportunistic Behavior (OB, f^2 = 0.006) has a negligible effect.

Exogenous construct influence on citizenship behavior (CCB):

The exogenous latent variables collectively explain a substantial 73.4% of the variance in Customer Citizenship Behavior (CCB). Satisfaction (SA) exhibits the strongest influence on CCB (effect size f^2 = 0.798), suggesting a large impact. Commitment (CM) demonstrates a moderate effect size (f^2 = 0.245), while Trust (TR) also exhibits a moderate effect size (f^2 = 0.091).

Table 4. Hypotheses testing of the proposed theoretical model

Hypotheses	Relationships	Coefficients	P- Values	Conclusion
H1	CE → CM	0.201	0.000	Supported
H2	SA → CM	0.300	0.000	Supported
H3	SA → CCB	0.534	0.000	Supported
H4	PR → TR	-0.446	0.000	Supported
H5	OB → TR	-0.071	0.233	Not Supported
H6	TR → CM	0.358	0.000	Supported
H7	CM → CCB	0.324	0.000	Supported
H8	TR → CCB	0.187	0.000	Supported
H9a	CE → CM → CCB	0.065	0.010	Supported
H9b	SA → CM → CCB	0.097	0.000	Supported
H10a	PR → TR → CCB	-0.083	0.000	Supported
H10b	OB → TR → CCB	-0.013	0.258	Not Supported

Table 4 presents the bootstrapping analysis results for path coefficients. All relationships with p-values of 0.000 show strong evidence, while the path coefficient for the OB -> TR relationship has a non-significant p-value of 0.233 (p-value > 0.05), and OB → TR → CCB relationship has a non-significant p-value of 0.258 (p-value > 0.05) suggesting that the effect of OB on TR and CCB are not statistically significant in the model. This non-significant finding could be due to data noise or sampling error.

The PLS-SEM model's predictive power was evaluated using Stone and Geisser's (1974) Q² index. All variables showed positive Q² values, indicating the model's ability to predict latent variables. Hair et al. (2019) found that Q² values are higher than 0; 0.25 and 0.50 indicating small, medium, and large predictive goodness. The CCB indicator demonstrated strong predictive capability (Q² = 0.571), while the CM indicator showed average prediction (Q² = 0.306). The TR indicator exhibited weak predictive capacity (Q² = 0.190), indicating the model needs improvement in its ability to predict latent variables.

5.4. Differences in Customer Citizenship Behavior according to Demographic and Regional Characteristics

The study analyzed Customer Citizenship Behavior across various value groups using Levene's test, F-test and Post-hoc test results. The study found that Customer Citizenship Behavior (CCB) was consistent across genders, income levels, employment status, and computer skills. However, age and urban residency showed variations in CCB, with older and urban residents displaying more CCB. No differences were observed in CCB related to regional economic status, digitalization, socio-economic status, poverty, communication about e-Government, or management challenges. Yet, regions with better inter-departmental coordination and higher government trust reported increased CCB. Essentially, while personal demographics had little impact on CCB,

the regional government's functionality and trust levels did influence it.

6. Discussion

Based on the meaning of standardized regression coefficients, the order of factors affecting Customer Citizenship Behavior is Commitment, Trust, Citizenship Empowerment, Satisfaction, Perceived Risk, and Opportunistic Behavior. Commitment has the strongest impact on Citizenship Behavior, while Opportunistic Behavior has the weakest. Satisfaction has a direct and indirect positive impact on Citizenship Behavior, but the relationship decreases when Commitment is present. Commitment mediates the relationship between Satisfaction and Citizenship Behavior, indicating its influence on citizen engagement.

Commitment is the most significant factor influencing customer citizenship behavior in e-Government environments, as it promotes citizen engagement, allowing access to information and services, and participation in government decision-making. Trust in e-Government also positively influences citizen behavior, with lower levels than Citizen Empowerment. Trust is passive and depends on the quality of services and government activities, leading to higher intentions to use services. However, high perceived risk in e-government services can decrease trust, undermining the government's ability to protect information and interests. Research by Li (2021) and Belanger & Carter (2008) agree that trust and perceived risk are negatively correlated, with high trust minimizing potential risks while high perceived risk reduces trust. Opportunistic behavior does not affect citizens' trust in e-government, as not all people are aware of it. Factors such as education level, life experience, and access to information sources can also shape perceptions of opportunistic behavior.

The study found no significant differences in customer citizenship behavior across genders, income groups, employment, or computer skills. However, it revealed variations among residents, with older age groups and urbanized individuals more likely to exhibit this behavior. Regional characteristics, such as digital level, socio-economic status, and e-Government effectiveness, did not affect customer citizenship behavior. Customer citizenship behavior, in particular, increased when collaboration among government agencies and confidence in the government were better.

7. Conclusion

7.1. Recommendations for citizens

Increase Commitment and Civic Empowerment: Citizens should actively participate in e-Government services and activities by providing feedback,

participating in online activities and decision-making processes.

Promote innovation and learning: Citizens should continuously improve information technology skills to confidently interact with e-Government and stay updated with the latest features and innovations.

Practice Active Citizenship Behavior: Citizens should spread awareness of e-Government among communities and help others utilize online services by responding to challenges and suggesting solutions.

7.2. Recommendations for Vietnamese Government

Strengthen civic engagement and empowerment: Government agencies should develop policies and documents that encourage citizen commitment, establish mechanisms for public monitoring and participation in policy decisions, and ensure legal frameworks for data protection.

Increase satisfaction and trust: Governments should invest in improving the quality of online public services, handle citizens' needs transparently and efficiently, and simplify administrative procedures.

Manage perceived risk: Governments should prioritize personal information and security, stabilize open data, and ensure government transparency and fairness.

Facilitate citizenship behavior: Governments should create online communities for citizen engagement, gather feedback through meetings and surveys, and ensure e-Government reflects community needs.

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