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Research on E-Government and Digital Capacity of Vietnamese Civil Servants and Citizens

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Abstract

Current state administration is strongly influenced by the trends of digital social development after the fourth industrial revolution (revolution 4.0) was initiated. Accordingly, state agencies at all levels have changed their management methods based on the application of digital technology, forming and developing e-government in countries. The basic characteristics of e-government are operations in the digital environment, based on digital technology and digital data, posing digital capacity requirements for civil servants and citizens when participating in state administration processes: Civil servants perform public duties and interact with citizens in the digital environment; citizens participate in giving opinions and criticism of policies, requesting administrative records and interacting with the government in the digital environment. When civil servants and citizens have basic and necessary digital capacity, transactions, interactions and performance of public duties in the digital environment will be effective, helping to save time and costs for both the government and the people. This study focuses on analyzing the characteristics of e-government and the requirements for digital capacity of civil servants and citizens to identify and explain the significance of developing digital civil servants and digital citizens to meet the requirements of e-government development. Based on the theoretical framework, the author surveyed 200 commune-level civil servants of 20 selected communes in Da Nang city. The survey results show that the digital capacity of citizens is assessed at a low level; in addition, the digital capacity of civil servants still needs to be improved to operate e-government effectively. From the conclusion of that study, the author discusses appropriate policy solutions to develop digital civil servants and population in the context of Vietnam.

Keywords: E-government; Digital capacity; Digital civil servant; Digital citizen.

1. Introduction

The 4.0 revolution was initiated in 2016 and applied in social activities, creating many breakthroughs for the development of the world. In that context, Vietnam also quickly approached and adapted to the explosive development of the 4.0 revolution to change the way of managing social development, building and operating e-government to better serve the people.

In 2019, the Party proposed policies and strategies to proactively participate in the 4.0 revolution: "The core content of Vietnam's policy to proactively participate in the 4.0 revolution is to promote the development of science and technology; promote national digital transformation, focusing on developing the digital economy, building smart cities, e-government, and moving towards digital government" (CPV, 2019). In 2020, the Prime Minister issued a national digital transformation program, which affirmed the content: "Developing digital government, improving the effectiveness and efficiency of state management; developing digital economy, improving the competitiveness of the economy; developing digital society, narrowing the digital gap" (PM, 2020). These policies and strategies have been implemented and have had positive results, helping to shift the direction of social development governance towards modernity on the basis of applying digital technology.

In 2025, inheriting the achievements from digital transformation and developing e-government, Vietnam will continue to strongly reform, streamline the state apparatus, abolish district-level localities; establish two-level local governments, including 34 provincial-level localities and 3,321 commune-level localities (GN, 2025), reduce 47% of provincial-level administrative units and about 67% of commune-level administrative units. Many tasks of the current commune-level government are taken over from the tasks of the previous district-level government, increasing the pressure on the commune level in building and operating e-government to better serve the people. Therefore, learning about e-government and issues related to e-government is necessary, attracting the attention of many researchers and attracting the author's attention in this study.

2. Literature review

E-government is a new form of management, being built and widely applied in national and local governance. MIC (2021) defines e-government as a government that applies information technology to improve the effectiveness and efficiency of operations, and better serve the people; in other words, this is the process of computerizing government activities. Explaining further about e-government, MIC (2021) emphasizes the "four No" factors: Ability to hold meetings without meeting; paperless document processing; contactless administrative procedure settlement (the government provides online services to people on the basis of each time people declare information when requesting online services); cashless payments.

With a similar perspective and approach, VNN (2023) asserts that e-government is a general term for web-based services from government agencies; in e-government, the government uses information technology, especially the Internet to support government activities, engage citizens and provide government services; interactions can be carried out in the form of citizens accessing information, accessing records, or making payments and many other activities via the world-wide-web... And therefore, according to Chi, H.T.K. (2023), e-government has changed the way organizations operate and removed organizational barriers, promoting citizen-centric solutions with the goal of providing citizens with a single access point to government agencies to perform all online transactions quickly and conveniently. Or as, Tam, D.T. (2023) explained that e-government contributes to realizing the roadmap of reducing paperwork, time, and costs in the inspection and supervision process; not only shortening space and time, creating the ability to effectively control risks, but also performing the role of state management with optimal efficiency.

Many recent studies have shown that building and operating e-government really brings many benefits, and according to Trung, N.S. (2022), digital transformation and building e-government help save time and costs for both government agencies and people. Because, when the work processes of agencies in the system are operated stably in the digital technology environment, leaders make decisions more quickly and accurately thanks to the timely and transparent reporting system, optimizing the work productivity of civil servants; and these things not only help increase the efficiency of the agency's operations, but also improve the professionalism of the agency and civil servants. On the other hand, when government agencies take advantage of digital technology platforms, it will reduce a lot of time and costs (traditional costs, arising costs) for people when they need services, request service provision from government agencies. That helps the service provision activities of government agencies not only meet the needs of the people in a timely manner, but also increase the prestige and professionalism in the provision of public services; increase the responsibility and work efficiency of civil servants. With that meaning, the construction and operation of e-government also helps change the experience of people with the services provided by government agencies, change business processes, change the model and method of operation of government agencies.

Thus, the above studies all emphasize the content of e-government, which is the application of information technology to government activities, providing public services, and performing government activities on a digital platform. The construction and operation of e-government creates breakthrough values, improves operational efficiency, transparency, accountability, and interaction between the government and the people; allowing people to conduct administrative transactions online, access policy information, and contribute opinions without having to go directly to government agencies. That is, in the traditional way, civil servants

handle work with administrative documents and communicate directly; in the way of operating e-government, civil servants handle work mainly with electronic documents and communicate online in the digital environment; the process of handling work online gradually replaces the traditional form of handling work of government agencies. With that meaning, the scale “E-Government” (EG) developed in this study implies the following contents: Government activities are designed and operated securely on a digital platform (EG1); Governments carry out work in a digital environment to create breakthrough values, efficiency, and transparency in local governance (EG2); People can conveniently exploit digital data and interact with the government in a digital environment (EG3).

From the nature of e-government, it is the application of information technology to government activities, providing public services, and performing government activities on a digital platform. Therefore, a digital platform is a necessary factor to implement e-government, including: Digital technology (artificial intelligence, internet of things, big data, cloud computing, etc.); digital data (data formed through digitizing documents using information technology applications - the process of modernizing and converting conventional systems to digital systems). However, to operate and transform digital technology to create new values that e-government aims for, the subject implementing it is an important and decisive factor. That is, people with the necessary qualities and capacities, not only policy implementers (civil servants), but also policy beneficiaries (people). They need to meet the basic and necessary requirements of digital knowledge and skills (Digital capacity of civil servants; Digital capacity of citizens) to interact and resolve administrative record requests in the digital environment and in modern terms, they are digital civil servants and digital citizens (Trung, N.S., 2022), specifically:

- Firstly, civil servants are the subjects implementing the goal of digital government, performing public duties in the digital environment. To carry out that mission, civil servants must be equipped with basic and necessary digital knowledge and skills; at the same time, they must proactively, regularly update and supplement digital knowledge and skills to transact, interact and perform assigned tasks in the digital environment (advising, implementing work; directing, operating, inspecting, supervising work; guiding people, handling people's records in the digital environment). In fact, e-government is a new issue, unprecedented in history, but it is an opportunity for breakthrough development in state administration. The construction and operation of e-government has put government agencies in a position to build a team of civil servants with digital capacity, changing the working habits of civil servants from the real environment to the digital environment, both meeting professional work requirements and creating satisfaction for people when receiving requests and handling documents in the digital environment. Therefore, the scale "Civil servants’ digital capacity" (CS) is summarized with basic contents, including: Civil servants are equipped and updated with basic digital knowledge and skills necessary to work and interact in the digital environment (CS1); Civil servants carry out professional work, receive requests and process people's records in the digital environment to ensure quality and progress (CS2); Civil servants guide people, transact with people in the digital environment, creating trust and satisfaction of people (CS3).

- Second, citizens are customers served in local governance. And in the context of e-government, they need digital capacity to become digital citizens, which means having basic digital knowledge and skills necessary to transact in the digital environment when performing social interactions and participating in the state governance process - participating in the policy process, requesting to resolve administrative records... According to MIC (2021), the factors that form digital citizens are the ability to access digital information sources; the ability to communicate in the digital environment; basic digital skills; buying and selling goods online; ethical standards in the digital environment; physical and psychological protection from the effects of the digital environment; rights and responsibilities in the digital environment; identification and authentication of personal data; privacy in the digital environment. To have digital capacity and become a digital citizen, in addition to the government's training and development support policies, each citizen needs to equip themselves with basic and necessary digital knowledge and skills and constantly update and supplement them to avoid being left behind when the digital society trend develops. Regarding this issue, Tam, D.T. (2023) affirmed that the process of building e-government is only truly successful when each citizen actively participates and enjoys the benefits that e-

government brings, which is the universalization and personalization of services, such as education, health, culture, etc. to each citizen. Therefore, the scale "Citizens' digital capacity" (CC) is built on the basis of inheriting and developing from the above studies, in a general way, including the following contents: People are supported to equip and update digital knowledge and skills and have the ability to access digital information sources (CC1); People have basic digital knowledge and skills and are able to interact with the government in the digital environment when participating in local governance work (CC2); People have basic digital knowledge and skills and are able to request the resolution of administrative records in the digital environment (CC3).

In the context of e-government becoming a development trend, the requirement for digital capacity is a basic and universal content for civil servants and citizens. When every civil servant and citizen has the capacity to use digital technology, the capacity to exploit digital data, the capacity to perform digital transactions, etc., they will be the real subjects participating in local governance through the digital government operation mechanism, which is a conditional factor, but also a factor that has a direct impact on the operation of digital government. With that meaning, this study puts forward the hypothesis: *Civil servants' digital capacity (H1), Citizens' digital capacity (H2) are basic requirements, necessary conditions and have a direct impact on the operation of e-Government.*

From the overview study, the author built a theoretical framework on e-government and the influence of digital capacity (digital civil servants, digital citizens) on e-government operations. The research model includes 02 independent scales/variables "Civil servants' digital capacity" (CS), "Citizens' digital capacity" (CC) and 01 dependent scale/variable "E-Government" (EG). The above scales include 09 observed variables, designed by the author into 09 questions in the survey form and measured by a 5-level Likert scale: 1 - Strongly disagree; 2 - Disagree; 3 - No opinion; 4 - Agree; 5 - Strongly agree (Table 1, Figure 1).

Table 1. Theoretical framework

No	Scales	Encode	Rating levels				
			1	2	3	4	5
I	**Civil servants' digital capacity**	**CS**					
1	Civil servants are equipped and updated with basic digital knowledge and skills necessary to work and interact in the digital environment	CS1					
2	Civil servants carry out professional work, receive requests and process people's records in the digital environment to ensure quality and progress	CS2					
3	Civil servants guide people, transact with people in the digital environment, creating trust and satisfaction of people	CS3					
II	**Citizens' digital capacity**	**CC**					
4	People are supported to equip and update digital knowledge and skills and have the ability to access digital information sources	CC1					
5	People have basic digital knowledge and skills and are able to interact with the government in the digital environment when participating in local governance work	CC2					
6	People have basic digital knowledge and skills and are able to request the resolution of administrative records in the digital	CC3					

No	Scales	Encode	Rating levels				
			1	2	3	4	5
	environment						
III	**E-Government**	**EG**					
7	Government activities are designed and operated securely on a digital platform	EG1					
8	Governments carry out work in a digital environment to create breakthrough values, efficiency, and transparency in local governance	EG2					
9	People can conveniently exploit digital data and interact with the government in a digital environment	EG3					

Source: Compiled by the author through the review

Research model

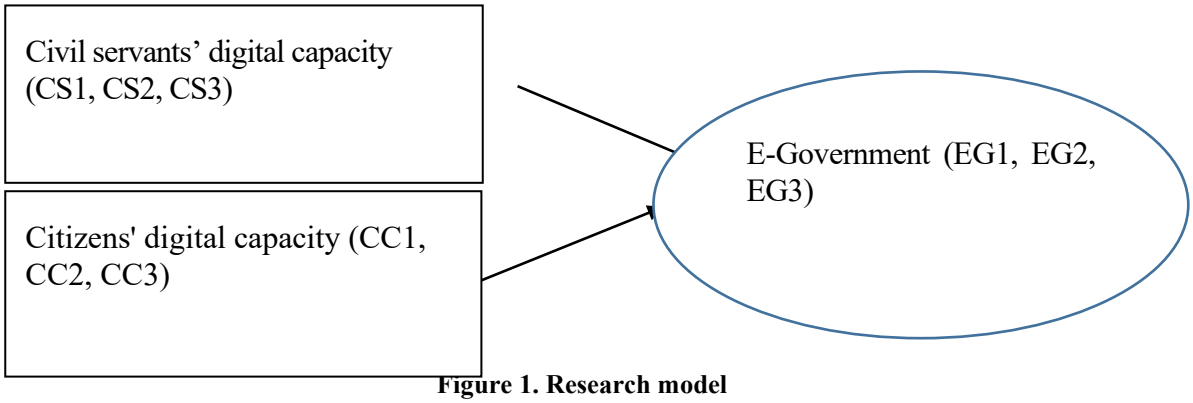

Figure 1. Research model

3. Research methods

To conduct this study, the author used a combination of qualitative and quantitative methods. The qualitative method was implemented through collecting and analyzing secondary data to build a theoretical framework and research model. The quantitative method was implemented through surveys to collect and analyze primary data and draw research conclusions.

The selection of survey samples was conducted based on scientific principles. The theoretical model was built including 3 scales, 9 observation variables and according to Hair, J.F. et al. (2009), the minimum sample size required for exploratory factor analysis and regression analysis for this research model is N = 9*5 = 45.

The author conducted a field survey with a sample size of N = 200 (N > 45) commune-level civil servants of 20 selected communes in Da Nang city - communes in rural, mountainous areas, and difficult conditions of Da Nang city. The survey form was distributed based on preliminary interviews and the consent of the respondents. The results obtained 200/200 valid forms, achieving a response rate of 100%.

4. Research results and discussion

First, the author tested the reliability of the scales and observed variables in the research model to serve as a basis for further analysis. According to Hair, J.F. et al. (2009), scales and observed variables are reliable when

meeting the standard conditions: Cronbach's alpha > 0.6; Corrected Item-Total Correlation > 0.3. The test results show that all 3 scales and 9 observed variables are reliable when meeting the above standard conditions.

Table 2. Statistical results and testing results of the scale

Scales	Observed variables	N	Min	Max	Mean	Std. Deviation	Cronbach' Alpha	Corrected Item-Total Correlation
1. Civil servants' digital capacity (CS)	CS1	200	1	5	4.11	.702	.733	CS1 = .483
	CS2	200	1	5	4.05	.698		CS2 = .535
	CS3	200	1	5	3.99	.716		CS3 = .471
2. Citizens' digital capacity (CC)	CC1	200	1	5	3.97	.741	.677	CC1 = .411
	CC2	200	1	5	3.89	.699		CC2 = .398
	CC3	200	1	5	3.93	.723		CC3 = .433
3. E-Government (EG)	EG1	200	1	5	4.09	.685	.712	EG1 = .557
	EG2	200	1	5	4.00	.706		EG2 = .544
	EG3	200	1	5	3.98	.688		EG3 = .492
Valid N (listwise)		200						

Source: Author's survey results

Data in Table 2 shows that the observations of the scales "Civil servants' digital capacity" (CS), "Citizens' digital capacity" (CC), "E-Government" (EG) are all rated at an average level of Mean ≥ 3.93, statistically significant according to the Likert scale (1-5). Accordingly, the overall assessment opinions are focused/converged and contribute to affirming: (1) the government implements work in the digital environment effectively and safely, creating favorable conditions for people to exploit digital data and interact with the government in the digital environment; (2) civil servants are equipped and updated with basic digital knowledge and skills necessary to implement professional work, interact with people, and resolve people's records in the digital environment; (3) People are supported to equip and update digital knowledge and skills and have the ability to access digital information sources, interact with the government and request to resolve administrative records in the digital environment.

However, observations of the "Citizens' digital capacity" (CC) scale are rated lower than observations of the "Civil servants' digital capacity" (CS) scale. This also contributes to demonstrating that many citizens still do not interact and transact proficiently and effectively in the digital environment. This directly affects the operation of e-government, because citizens and civil servants are the subjects directly participating in the local governance process in the digital environment. In general, building and operating e-government is not the sole responsibility of government agencies, but also the responsibility of each citizen, requiring the synchronous participation of the entire social system. The goal of e-government is to serve the people, so in addition to developing digital civil servants, when each citizen becomes a digital citizen, e-government can be successfully built and operated. However, in reality in Vietnam today, the issue of developing digital civil servants and digital citizens is assessed unevenly, with differences in many localities. This issue has been pointed out by many recent studies, expressed through two aspects:

- Firstly, the digital knowledge and skills of the majority of civil servants are equipped at a basic level to promptly adapt to the current digital transformation trend (2021-2025), while digital technology is developing rapidly; and the proportion of elderly civil servants (over 50 years old) is still high (about 30%), the acquisition of digital knowledge and skills is slower and more difficult. In general, Hoan, D.M. (2024) assessed that local civil servants at the commune level have basic digital capacity, but at a low level, shown in 4 contents: Capacity to create digital content; Capacity to exploit digital information and data; Capacity to conduct digital transactions; Capacity to use digital technology. The reason for this situation is that many civil servants have not proactively updated and

supplemented their digital knowledge and skills to develop digital capacity; Training and fostering policies are still ineffective in encouraging civil servants to proactively study to update and supplement digital knowledge and skills to serve professional work in the digital environment. From another perspective, the study of Khanh, T.T.B. (2025) concluded that the digital capacity of commune-level civil servants is still low, limited in both the capacity to use digital technology, the capacity to exploit digital data and the capacity to perform digital transactions. They need to be trained and fostered to equip, update and supplement digital knowledge and skills to meet the requirements of public service activities in the context of a digital society; many civil servants are limited in their ability to apply digital knowledge and skills to solve professional work, handle people's records to ensure the progress and quality of assigned work; many civil servants have not yet interacted and transacted proficiently in the digital environment and processed work quickly and accurately, meeting the requirements and creating satisfaction of the people.

- Second, the digital knowledge and skills of the majority of people, especially people in rural and mountainous areas, are very limited in terms of exploiting and using digital data to conduct digital transactions. Localities have mainly developed digital capacity for civil servants, without specific and effective policies to develop digital citizens. In 2024, Da Nang city is one of the few localities taking the lead in promulgating a digital citizen capacity framework. This is a big step forward in Da Nang's digital transformation strategy, creating a solid foundation for building a smart city in the future. Da Nang's digital citizen capacity framework includes 5 areas: Information and data; communication and collaboration; digital content creation; protection and safety; digital environment; details with 17 component digital capacities and 173 assessment criteria. This is the basis for building a modern digital citizen community, where everyone can participate and contribute to the development of society, an important premise for Da Nang to become one of the smart and sustainable cities (MST, 2024).

E-government is built and operated on the basis of applying digital technology, creating new values in the direction of establishing a new management and organizational model in state administration activities. And the above reality is a management issue, posing challenges in developing human resources of the country and localities, requiring practical solutions. The survey results show the limitations in digital capacity of citizens compared to civil servants. However, e-government is a new issue in Vietnam, built and operated since 2020 when the Prime Minister issued the National Digital Transformation Program (PM, 2020), and the majority of civil servants have not been trained in information technology, but only trained to equip and update digital knowledge and skills when implementing the digital transformation program. Therefore, in the long term, the development of digital knowledge and skills for civil servants still needs to be implemented to improve the digital capacity of the human resources performing public duties.

With the standard test value, all 3 scales and 9 observed variables in the research model continue to be used to perform the next analysis. The author analyzes the exploratory factor with Varimax rotation to preliminarily assess the unidimensionality, convergent value, discriminant value of the scales and test the suitability of the theoretical model.

Table 3. Total Variance Explained

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.774
Bartlett's Test of Sphericity	Approx. Chi-Square	1532.718
	df	36
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.964	44.043	44.043	3.964	44.043	44.043	2.754	30.595	30.595
2	2.699	29.991	74.034	2.699	29.991	74.034	2.599	28.872	59.467
3	1.100	12.224	86.258	1.100	12.224	86.258	2.411	26.791	86.258
4	.360	4.004	90.262						
5	.298	3.313	93.575						
6	.224	2.491	96.066						
7	.173	1.923	97.989						
8	.107	1.189	99.178						
10	.074	.822	100.000						
Extraction Method: Principal Component Analysis.									

Source: Author's survey results

Table 4. Rotated Component Matrix

Rotated Component Matrix[a]				
Scales	Observed variables	Component		
		1	2	3
1 Civil servants' digital capacity (CS)	CS1	.845		
	CS2	.850		
	CS3	.781		
2. Citizens' digital capacity (CC)	CC1		.764	
	CC2		.743	
	CC3		.738	
3. E-Government (EG)	EG1			.887
	EG2			.875
	EG3			.854
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 5 iterations.				

Source: Author's survey results

Survey data shows: KMO = 0.774 > 0.5, confirming that exploratory factor analysis is appropriate for the data set; Bartlett's test has an observed significance level of Sig. = 0.000 < 0.05, showing that the observed variables have a linear correlation with the representative factor; Total Variance Explained with Cumulative % = 86.258% > 50%, showing that 86.258% of the variation of the representative factors is explained by the observed variables (Table 3). The observed variables all have Factor Loading > 0.5 (Table 4), showing that the observed variables have good statistical significance.

Initial Eigenvalues have a stopping point at 3 factors with Eigenvalues > 1 (Table 3), showing that the observed variables are extracted into 03 factors corresponding to the 03 initial factors. Thus, the original research model is kept intact and is scientifically appropriate; affirming the suitability of the theoretical research model on digital government, digital capacity of civil servants, digital capacity of citizens, with 3 scales, 9 observed variables as built.

With the above exploratory factor analysis results, all 3 scales and 9 observed variables have good reliability and statistical significance. Continue to perform multivariate regression analysis to examine the relationship between the scales in the research model: 02 independent scales/variables "Civil servants' digital capacity" (CS), "Citizens' digital capacity" (CC) and 01 dependent scale/variable "E-Government" (EG).

Table 5. Multivariate regression results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
		B	Std. Error	Beta			
1	(Constant)	1.042	.221		10.629	.000	
	1. Civil servants' digital capacity (CS)	.513	.364	.504	9.487	.000	1.843
	2. Citizens' digital capacity (CC)	.426	.313	.397	8.735	.000	1.839
a. Dependent Variable: E-Government (EG)							
R^2 = 0.748; Durbin-Watson = 2.008							

Source: Author's survey results

The data in Table 5 shows that:

+ R2 = 0.748, confirming that the scales "Civil servants' digital capacity" (CS), "Citizens' digital capacity" (CC) explain 74.8% of the variation in the scale "E-Government" (EG); VIF = 1.843 and VIF = 1.839 (1 < VIF < 2), showing that the regression model does not have multicollinearity; Durbin-Watson = 2.008 (1 < d < 3), showing that the regression model does not have autocorrelation, confirming that the scales "Civil servants' digital capacity" (CS), "Citizens' digital capacity" (CC) are independent and have the same impact on the scale "E-Government" (EG), confirming the suitability of the theoretical research model with the survey data set.

+ The regression coefficients of the two independent variables "Civil servants' digital capacity" (CS), "Citizens' digital capacity" (CC) are both statistically significant Sig. = 0.000 (Sig. < 0.05) and have positive values: B(CS) = 0.513 and B(CC) = 0.426, confirming the positive relationship between the two independent variables "Civil servants' digital capacity" (CS), "Citizens' digital capacity" (CC) and 01 dependent variable "E-Government" (EG); hypotheses H1, H2 are accepted; the initial research model continues to be confirmed to be appropriate.

Based on the generalized regression model of Hair, J.F. et al. (2009): Y = Bo + B1*X1 + B2*X2 + … + Bi*Xi + e, the author determined the multivariate regression model of this study as follows: EG = 1.042 + 0.513*CS + 0.426*CC

From the above regression model, it can be seen that the correlation level of independent variables and dependent variables in decreasing order is: "Civil servants' digital capacity" (CS), "Citizens' digital capacity" (CC). The results of the regression analysis (Table 5) together with the analyzed statistical results (Table 2), this study contributes to further confirming the empirical results in Vietnam, that:

- E-government is being operated safely on the basis of digital knowledge and skills of civil servants and citizens; facilitating people to exploit digital data and interact with the government in the digital environment.

- People are supported to equip and update digital knowledge and skills and have the ability to access digital information sources, interact with the government and request to resolve administrative records in the digital environment. However, there are limitations in the digital capacity of people compared to civil servants; many people still do not interact and transact proficiently and effectively in the digital environment, directly affecting the operation of e-government, because people and civil servants are the subjects directly participating in the local governance process in the digital environment.

- Civil servants are equipped and updated with basic digital knowledge and skills necessary to carry out professional work, interact with people, and handle people's records in the digital environment; the digital capacity of civil servants is assessed at a higher level. However, e-government is a new issue in Vietnam; most civil servants have not been trained in information technology, but are only trained to equip and update digital knowledge and skills when implementing the digital transformation program. Therefore, in the long term, the development of digital knowledge and skills for civil servants still needs to be implemented to improve the digital capacity of the human resources performing public duties.

In terms of management, construction and operation of e-government, it is to transform the operating model of state agencies based on digital technology and digital data platforms. As mentioned above, digital platforms (digital technology and digital data) are necessary factors to implement e-government. However, the subject implementing it is an important and decisive factor, which is the digital capacity of civil servants and the digital capacity of citizens.

Society is constantly moving, the 4.0 revolution requires the integration of technology and the exploitation of big data in digital form so that government agencies can best perform their tasks of social development management. Therefore, e-government is an objective trend and every civil servant and every citizen, if they do not adapt, will inevitably fall behind. This poses both regular and strategic requirements and solutions for each locality to always maintain and develop digital resources (digital civil servants, digital citizens) to meet the requirements of the 4.0 revolution. On that basis, this study suggests a number of solutions to develop the digital capacity of civil servants and the digital capacity of citizens, which are explained below.

- Firstly, for civil servants, as the subjects operating e-government to perform public duties in the digital environment, they must be equipped with basic and necessary digital knowledge and skills; in addition, they need to proactively and regularly update this knowledge and skills to successfully complete assigned tasks in the digital environment. To maintain and develop digital civil servants to meet the requirements of building and operating e-government, the solution that needs attention is:

(1) Agencies and localities review job positions and organize training and fostering of digital knowledge and skills in a timely manner according to job position requirements so that civil servants can update, supplement and apply digital knowledge and skills to effectively solve professional tasks according to their management sectors and fields. This solution is short-term in nature, applied to civil servants working in government agencies to adapt to digital transformation and build and operate e-government in the current period. This training helps them to form, update, supplement and develop digital knowledge and skills to serve professional

work in public service activities, helping them to promote their professional capacity and adapt to the trend of digital technology development when digital technology and e-government are new and unprecedented issues.

(2) In the long term, agencies and localities should develop and implement digital competency criteria for civil servants right from the recruitment, job placement and annual quality assessment of civil servants; implement digital competency training policies for job positions related to the technology sector to create a team of experts and human resources with digital skills to both do advisory work and be able to carry out internal training tasks on digital competency. E-government is a popular trend, so digital knowledge and skills are both basic and demanding requirements for civil servants. Individuals with digital knowledge and skills, when recruited to become civil servants, will be the subjects performing public service activities in the digital environment, and will be an important factor in helping the work of government agencies to be favorable, thereby responding most quickly and best to the requirements of the people; public service activities are guaranteed to be effective and efficient. In that sense, e-government is a new issue, a new trend, but it is a great opportunity for countries and localities to develop e-government to serve the people. Vietnam is also in that trend, and e-government has put state agencies in a position to build a team of digital civil servants, changing the working habits of civil servants from the real environment to the digital environment.

- Second, for the people, as policy beneficiaries, as customers served according to the goal of developing e-government, they need to grasp information, equip and update digital knowledge and skills to become subjects participating in the digital society. The solution that needs attention is that agencies and localities actively organize communication about e-government, support people to learn, update and supplement basic digital knowledge and skills to adapt to the trend of developing a digital society. In the long term, the Ministry of Education and Training in coordination with sectors and localities needs to soon research and implement a program to popularize digital knowledge and skills, becoming standard educational and training content applied appropriately to each level of education. That will create initiative for localities to develop digital human resources to implement development goals.

Thus, building and operating e-government is a common task, requiring active participation from the state and the people. Only when each civil servant and each citizen becomes a digital workforce can e-government be successfully built and operated. And thus, the solution to develop digital civil servants and digital citizens is meaningful in both the short and long term.

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