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Original Research

Research on E-Government Adoption in Environmental Governance from the Perspective of Public Participation: Empirical Analysis Based on 31 Provinces in China

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Abstract

Currently, the application of the Internet and new media platforms is more convenient for people's life and environmental governance. Based on Unified Theory of Acceptance and Use of Technology and Technology Acceptance Model, this study explores the impact mechanism and effect path of public E-government adoption in China, and constructs a new theoretical framework. The empirical analysis results show that: (1) Public expectation has a significant positive impact on their E-government adoption behavior. Performance expectancy can enhance the public's favorable impression of the E-government platform. Effort expectancy can make the public realize that the E-government platform can be flexibly used to solve the problems around us with the minimal effort. (2) The perception of use plays a partial mediating role between public expectation and adoption behavior. Perceived usefulness affects public participation in environmental governance by affecting performance expectancy, and the perceived ease of use affects adoption behavior by affecting effort expectancy, which indicates that different perception of use has different transmission paths. (3) The platform service quality and public trust has a positive moderating effect between public expectation and E-government adoption behavior. Specifically, the better service quality, the stronger the positive impact of performance expectancy on E-government adoption behavior. The stronger public trust, the stronger the positive impact of effort expectancy on E-government adoption.

Keywords: E-government adoption, environmental governance, public participation, empirical analysis

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Research Background

In recent years, with the widespread application of technology platforms and new media, countries around the world are promoting the development of environmental governance on E-government. China's environmental governance has also entered a new stage, which is mainly reflected in the wide application of "Internet +" platforms, such as environmental government affairs microblog and WeChat. The opening of government affairs microblog and WeChat not only provides effective ways for environmental protection departments of the government to information disclosure, pollution governance and public service, but also builds a good platform for making suggestions, providing advice, participating in politics, discussing politics, interacting between the government and the public, supervising and showing complaints [1]. Especially in the post-epidemic era, the application of the Internet and new media platforms is more convenient for people's life. The public began to actively use a variety of E-government platforms to participate in environmental governance. With the rapid development of the Internet era, government affairs new media have gradually replaced the traditional methods of petitioning and making calls, and have become a relatively fast and effective channel for public participation. However, in the process of environmental governance, the collision of traditional methods and online platforms does face many dilemmas. How to improve public participation through government affairs new media is a problem that requires high long-term attention.

Currently, the environmental governance departments of 31 provinces in Chinese mainland have set up their own government affairs microblog and WeChat platforms. China National Bureau of Statistics regularly inspect and spot check the governance e-government platforms of the governments. In 2022, comprehensive inspections of government affairs new media, such as microblog and WeChat, were carried out by finishing the form of monthly list, with the sample qualified rate of 100%. The overall situation of government websites and government affairs new media is good, but the maintenance and operation efforts still need to be further improved. First of all, the guarantee mechanism for the contents of websites needs to be perfected, some of which still have problems such as delayed information updating and interactive response. Secondly, the level of interpretation on policies needs to be improved, some of which have the problems such as less pertinence, single modality and insufficient interpretation. Moreover, the column for the release and interpretation of data on some websites still needs to be standardized, and the way and process of querying services are not convenient and fast enough. Thirdly, some new media accounts have poor vitality, low number of releases and views, and their influence is limited. There is a mechanical forwarding, the awareness of interactive operation needs to be strengthened, and the user activity needs to be mined [2]. In this context, it is necessary to comprehensively evaluate the adoption willingness and behavior of citizens on the E-government platform in the environmental governance, and analyze the influencing factors, so as to promote the optimal design of the e-government platform, improve the effect of public participation, and promote the sustainable development of economy and society.

Literature Review and Research Hypotheses

In the past, there were many studies on E-government adoption, with a very rich theoretical basis, mainly including Innovation Diffusion Theory (IDT), Social cognitive theory (SCT), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), and Unified Theory of Acceptance and Use of Technology (UTAUT), DeLone & McLean IS Success Model (D & M), Trust Theory (TT), etc. The main representative views of each theory are shown in Table 1. By comprehensively sorting out the above theories and combining the innovative practice of the E-government

Table1. Main theory and representative views.

Theory	Representative views
IDT	In the optimization and innovation diffusion of E-government platform, the factors affecting public adoption include comparative advantage, compatibility, complexity, observability, and feasibility [3-5].
SCT	The public E-government adoption behavior is mainly influenced by cognition and self-efficacy, and behaviors of every people is a rational [6-7].
TPB	The public E-government adoption behavior is determined by attitude, subjective norms and perceived behavior control [8-9].
TAM	PU and PEU can affect public E-government adoption intention and use behavior by influencing attitude [10-11].
UTAUT	PER, EE, social impact, and convenience conditions are the key factors that affect the individual acceptance and use of a certain technology [12-15].
D&M	Information quality, system quality and service quality will have an impact on user satisfaction and use intention [16-18].
TT	Trust in the government and technology will affect whether citizens adopt the E-government platform [19-23].

platform of environmental governance in China, in this paper, the impact of public expectation and perception of use on public adoption behavior, and the service quality and individual trust of the platform as regulatory variables were mainly analyzed. Among them, public expectation includes performance expectancy (PER) and effort expectancy (EE), and perception of use includes perceived usefulness (PU) and perceived ease of use (PEU).

Impact of Public Expectation on E-government Adoption Practices

In this study, public expectation in the environmental governance includes PER and EE. The former refers to the public feeling of "the use of e-government platform to meet their expectations to participate in environmental governance", the more public expectation is met, the higher performance is expected. The latter refers to the public think of "using E-government platform to participate in environmental governance", the less effort, the simpler the operation, the higher the EE [24-26]. Previous studies have found that the higher the public expectation of performance, the greater the motivation to participate in environmental governance. The higher the public EE, the simpler the way to participate in environmental governance E-government platforms [27-29]. Therefore, this study proposes the following research hypotheses:

H1 Public PER has a positive impact on adoption behavior

H2 Public EE has a positive impact on adoption behavior

Impact of Perception of Use on Adoption Behavior

Technology Acceptance Model (TAM) holds that the public perception of use of E-government platforms will directly affect their acceptance of information systems. Perception of use includes PU and PEU. PU reflects the extent to which an individual can improve their work performance by using a certain information system, and PEU reflects an individual perception of ease of using this information system [30]. When PU is relatively strong, the public will often actively use the e-government platform to participate in environmental governance. When the public PEU is relatively strong, they feel less resistance to use. Therefore, we propose the following research hypotheses:

H3 PU has a positive impact on adoption behavior

H4 PEU has a positive impact on adoption behavior

Impact of Public Expectation on Perception of Use

In the public participation in environmental governance, public expectation is a premature expectation, while perception of use is the feeling in the experience. In the public decision whether to use the E-government platform, the public expectation and perception of use will have an impact on the willingness to use and use behavior, while the public expectation will also have a certain impact on the perception of use. Specifically, if the public expects higher performance of E-government platforms, the stronger their PU will be. If the public has higher expectations of the efforts of E-government platforms, the stronger their PEU will be [31-33]. Therefore, this study proposes the following research hypotheses:

H5 PER has a positive impact on PU

H6 EE has a positive impact on PEU

Mediating Effect of Perception of Use between Public Expectation and Adoption Behavior

According to the previous analysis, the public expectation will affect the adoption behavior by affecting the perception of use. Thus, perception of use has a mediating influence between public expectation and adoption behavior. Specifically, PER can influence PU, which in turn affects adoption behavior. If the public has high expectations for the performance of the environmental governance E-government platform, it will perceive the effectiveness of government interactive platform, and then positively and actively conduct public participation, and use the e-government platform to deal with various affairs. If the public has high expectations for the efforts of environmental governance E-government platform, it will feel the ease of use of government interactive platform, and it will use the E-government platform for public participation unobstructed and unimpeded [34-36]. Therefore, we propose the following research hypotheses:

H7 PU plays a mediating role between PER and adoption behavior

H8 PEU plays a mediating role between EE and adoption behavior

Moderating Role of Platform Service Quality (PSQ) and Public Trust (PT)

In addition to subjective factors such as public expectation, public attitude and perception of use, internal and external factors such as PSQ and individual trust will also have an impact on the public adoption of E-government in the environmental governance. The service quality of E-government platform includes information quality, technology quality, interactive quality, platform feedback [37]. The better the service quality, the more the public behavior will can be translated into actual adoption behavior. Individual trust includes technology trust and government trust. The higher the PT degree, the more likely the behavior intention will be transformed into the actual environmental governance participation behavior [38]. Therefore, this study proposes the following research hypotheses:

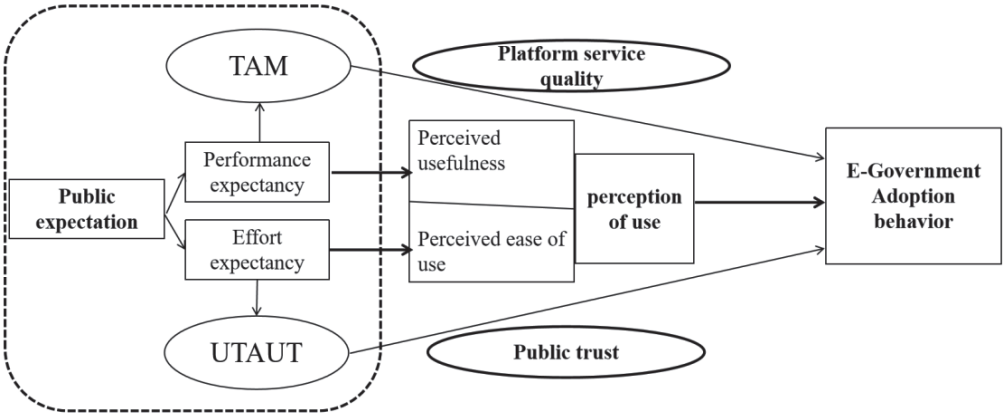

Fig. 1. The conceptual model of this study.

H9 PSQ positively moderates the impact of PER on adoption behavior

H10 PT positively moderates the impact of EE on adoption behavior

Based on those theory and research hypotheses, The conceptual model of this paper is shown in Fig. 1.

Research Design

Variable Design and Data Source

In this study, the data comes from the questionnaire. Questionnaires were distributed on a large scale to multiple subjects of environmental governance to collect data for the empirical study. This included officials of environmental departments, users of environmental governance E-government platforms, and the general public etc. A total of 300 questionnaires were distributed, and 288 were collected. There were 151 males and 137 females, with little difference in number and a relatively balanced gender distribution. The respondents are widely distributed in 31 provinces in China, with 135 people from the eastern region, 83 people from the central region, and 70 people from the western region, and the regional distribution of the population is more in line with the reality of China. And in the eastern region, the level of E-government development is higher. Therefore, the sample is representative and meets the needs of the study. The variable design and questionnaire measurement method are shown in Table 2.

The internal reliability of the questionnaire was used as the standard, and SPSS was used for reliability testing in this study. Firstly, the basic descriptive statistics of each evaluation item, the correlation coefficients of each item were calculated, and a preliminary study of the internal reliability was conducted based on that. Secondly, the internal and external reliability was explored in depth using different reliability indicators. The results showed that the Cronbach's alpha values and standardized coefficients for each dimension and the whole are greater than 0.9, and the reliability is good. The validity test is conducted by using AMOS 21.0, and the results showed that the constitutive reliability (CR) was in good agreement with the Cronbach's coefficient. The normalized factor loadings for all variables are greater than 0.7 and the p-values are significant. The average variance extraction (AVE) of all latent variables are above 0.5, and the validity of this questionnaire is good.

Analysis Results and Hypothesis Verification

Path Analysis and Mediation Effect Test

In this study, SPSS and AMOS software were used to conduct the path analysis and mediating effect tests. According to the correction indicators provided by AMOS, the model is revised twice and the final revised fitting results of the model were more satisfactory, as shown in Table 4. The absolute fitting indicator X^2/df of the model is 1.561, the RMSEA value is 0.038, and the GFI value is 0.856, indicating that the overall fitting results are good. The relative fitting indicators NFI value, CFI value, and TLI value are all greater than 0.95, which indicates a good relative fitting effect. Therefore the path results are scientific and reasonable, and the model is valid. It can be seen from the results in Table 4 that: (1) The performance expectancy has a significant positive impact on adoption behavior, with a standardized path coefficient of 0.317 ($P<0.01$) in the influence paths of public expectation on adoption behavior. The effort expectancy has a significant positive impact on adoption behavior, with a standardized path coefficient of 0.328 ($P<0.01$). Therefore, H1 and H2 are supported by the data results. Compared with performance expectancy, the larger the coefficient of effort expectancy, the stronger the positive impact on adoptive behavior. (2) The perceived usefulness has a significant positive impact on adoption behavior, with

Table 2. Variables and measurement.

Dimension	Variable	Code	Question
E-Government Adoption behavior	EAB	EAB1	I will proactively use e-government platforms to participate in environmental governance.
		EAB2	I often browse and use the Weibo account for the environmental government affairs.
		EAB3	I often browse and use the WeChat account for the environmental government affairs.
Public expectation	Performance expectancy	PER1	I think it is very helpful for me to participate in environmental governance by using E-Government platform.
		PER2	I think it is very helpful for me to participate in environmental governance by using the Microblog of the environmental government affairs.
		PER3	I think it is very helpful for me to participate in environmental governance by using the Wechat of the environmental government affairs.
	Effort expectancy	EE1	It is easier to use E-Government platforms to participate in environmental governance for me.
		EE2	It is easier to use the Microblog of the environmental government affairs for me.
		EE3	It is easier to use the Wechat of the environmental government affairs for me.
Perception of use	Perceived usefulness	PU1	The e-government platforms for environmental governance can provide me with useful information.
		PU2	It is able to provide me with effective services by using the environmental governance E-Government platform.
		PU3	I will use the E-Government platform actively to participate in environmental governance.
	Perceived ease of use	PEU1	I think it is very easy to master the operation skills by using the E-Government platform.
		PEU2	I think it is very easy to master the operating skills by using the Microblog of the environmental government affairs.
		PEU3	I think it is very easy to master the operating skills by using the Wechat of the environmental government affairs.
Platform service quality	Service quality	SQ1	I think it is a good service quality provided by the environmental governance E-Government platform.
		SQ2	I think its information is accurate and timely provided by the environmental governance E-Government platform.
		SQ3	I think it is safe and reliable system provided by the environmental governance E-Government platform.
Individual trust	Public trust	PT1	I think the government is trustworthy.
		PT2	I think the environmental governance government platform is trustworthy.
		PT3	I place great trust in the government platforms for environmental governance.

a standardized path coefficient of 0.419 (P<0.01) in the influence path of perception of use on adoption behavior, the perception of use has a significant positive impact on adoption behavior, with a standardized path coefficient of 0.425 (P<0.01). Therefore, H3 and H4 are supported by those results, and compared with the perception of use, the larger the coefficient of perception of use, the more obvious the positive impact on adoption behavior; (3) The performance expectancy has a significant positive impact on perceived usefulness, with a standardized path coefficient of 0.251 (P<0.01) in the influence path of public expectation on use perception, the effort expectancy has a significant positive impact

Table 3. Validity test.

Variable	Cronbach's Alpha	CR	AVE
EAB	0.918	0.6816	0.558
PER	0.902	0.7146	0.553
EE	0.911	0.8872	0.663
PU	0.936	0.7477	0.528
PEU	0.902	0.8591	0.5047
SQ	0.912	0.7376	0.5698
PT	0.925	0.8362	0.5609

Table 4. Path analysis and hypothesis testing.

Path	Coefficients	S.E.	C.R.	P Value	Standardized coefficient	Hypothesis test
EAB←PER	0.317	0.058	6.518	***	0.372	Support H1
EAB←EE	0.328	0.066	6.852	***	0.385	Support H2
PU←PER	0.267	0.036	5.285	***	0.251	Support H5
PEU←EE	0.279	0.039	5.389	***	0.267	Support H6
EAB←PU	0.419	0.082	7.058	***	0.558	Support H3
EAB←PEU	0.425	0.085	7.362	***	0.576	Support H4

Fitting index	X^2	941.532	RMSEA	0.038	CFI	0.952		
	df	603	NFI	0.963	GFI	0.856		
	X^2/df	1.561	TLI	0.981				

Note: *** p<0.01, **p<0.05, *p<0.1.

on perceived usefulness, with a standardized path coefficient of 0.267 (P<0.01). Therefore, H5 and H6 are also supported by the results.

To validate the mediating effect, the model effects were decomposed by using AMOS software based on the Bootstrap method, and the results are shown in Table 5. The data analysis results shown that: (1) the total effect of PER on public adoption behavior is 0.421 (p<0.05), the direct effect is 0.225 (p<0.05), and the indirect effect is 0.196 (p<0.05). It suggests that PER influences public participation behavior in the process of environmental governance in China by affecting PU. Therefore, the research hypothesis H7a of mediating effect is supported. (2) The total effect of EE on public adoption behavior is 0.597 (p<0.05), the direct effect is 0.289 (p<0.05), and the indirect effect is 0.308 (p<0.05). It reflects the positive effect of public expectations on their e-government adoption behavior (EAB), part of which is direct and part of which influences their behavior indirectly by affecting perceptions. Therefore, the research hypothesis of mediating effect has been verified, H7b is also supported.

Moderating Effect

In order to verify the moderating effect of platform service quality (SQ) and public trust (PT), the interaction terms of PER and SQ and the interaction terms of EE and PT were constructed in this study, and the results are shown in Table 6. The results of model 1 shows that PER, EE, SQ, and PT all have a significant positive impact on EAB. It can be seen by comparing model 2 and model 3 that the interaction term between PER and SQ has a significant positive impact on EAB, and the R^2 of model 3 is greater than that of model 2, which indicates that the improvement of platform service quality can enhance the positive impact of PER on EAB. Therefore, H8a has been verified. This is consistent with the actual situation. In practice, the quality of the government E-Government platform is not only related to the construction of the government's own capacity, but also affects the experience sense and enthusiasm of the public by using the E-Government platform. It can be seen by comparing model 4 and model 5 that the interaction term of EE and PT has a significant positive impact on EAB, and the R^2 of model 5 is greater than that of model 4, which indicates that

Table 5. Intermediary effect test and effect decomposition.

Variable	Effect decomposition	Path	Estimator	P Value
PER	Direct effect	PER→EAB	0.225	0.023**
	Indirect effect	PER→PU→EAB	0.196	0.019**
	Total effect		0.421	0.038**
EE	Direct effect	EE→EAB	0.289	0.026**
	Indirect effect	EE→PEU→EAB	0.308	0.027**
	Total effect		0.597	0.035**

Note: *** p<0.01, **p<0.05, *p<0.1.

Table 6. Moderating effect analysis.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
PER	0.263**	0.296**	0.282**			0.252**
EE	0.489***			0.618**	0.528**	0.431***
SQ	0.293*	0.368*	0.305*			0.287*
PT	0.387**			0.396**	0.391**	0.369**
PER*SQ			0.101*			0.085*
EE*PT					0.096**	0.068*
F Value	88.168***	82.518***	85.106***	83.704***	86.521***	89.373***
R^2	0.866	0.817	0.829	0.858	0.861	0.876

Note: *** p<0.01, **p<0.05, *p<0.1.

the addition of PT enhances the positive impact of EE on EAB, in other words, the higher the level of public trust, the more significant the positive impact of EE on EAB. Therefore, the hypothesis H8b is verified. In practice, the higher the public's trust in the government, the stronger the willingness to adopt the E-government platform, which is also in line with the actual situation.

Results and Discussion

The findings of this paper show that:

Public expectation has a significant positive impact on their E-government adoption behavior. To be specific, Performance expectancy can enhance the public's favorable impression of the E-government platform, and promote the public to actively participate in environmental governance by using the E-government platform. Effort expectancy can make the public realize that the E-government platform to participate in environmental governance can be flexibly used to solve the problems around us with the minimal effort. In the practice of environmental governance, the public believes that the use of E-government platforms was helpful for them to solve environmental problems and reflect their own demands, the less effort and cost required, the stronger the willingness to participate, and the more frequent the participation behavior.

The perception of use plays a partial mediating role between public expectation and adoption behavior. Perceived usefulness affects public participation in environmental governance by affecting performance expectancy, and the perceived ease of use affects adoption behavior by affecting effort expectancy, which indicates that different perception of use have different transmission paths. In practice, the public thinks that the more useful the E-government platform, the higher its performance expectations. On the contrary, the higher the performance expectation, the stronger the perception of the usefulness of the E-government platform. The public thinks the easier-to-use E-government platform, the higher the expectation of efforts and the stronger the willingness to participate. On the contrary, the higher the effort expectancy, the stronger the public's perception of the ease of use of the E-government platform, which will encourage the public to actively participate in environmental governance by using the E-government platforms.

The platform service quality and public trust have a positive moderating effect between public expectation and E-government adoption behavior. Specifically, the better the platform service quality, the stronger the positive impact of performance expectancy on E-government adoption behavior [39]. The stronger the public trust, the stronger the positive impact of effort expectancy on E-government adoption, which shown that the improvement of the service quality of the government E-government platform and the enhancement of public trust can attract more people to actively solve environmental problems, reflect their own needs and participate in environmental governance by using the E-government platform.

Conclusions and Suggestions

The empirical results in this study shown that the public E-government adoption behavior was affected by both subjective and objective factors in the process of environmental governance, which includes public expectation, perception of use, platform quality and public trust. Different influencing factors have different influence paths. This paper puts forward the following countermeasures and suggestions:

1. Strengthening the technological governance capabilities of the government and enhancing public expectations.

Public expectation will significantly affect their participation in environmental governance. Therefore, it is necessary to strengthen the technological governance capabilities of the government and enhance public expectations. Environmental protection departments should actively use modern information

technology, build platforms for various channels, and improve the convenience and accessibility of the public to participate in environmental governance by using E-government platforms. The government in China has begun to try to use new media platforms such as government Microblog, Wechat and Tiktok to conduct online politics in the practice of environmental governance. In the future, it is necessary to pay attention to the convergence between various platforms. At the same time, different platforms also have their own characteristics. It is necessary to pay attention to the upgrade, transformation and gradual debugging of the platform according to the needs of the public, and constantly improve various E-government platforms.

2. Promoting E-government platform and reducing the difficulty of use

The perception of use also affect public E-government adoption behavior. Perceived usefulness and perceived ease of use are both key influencing factors. The perceived usefulness affects the public E-government adoption behavior by affecting the perception of use. This is because it is necessary to reduce the difficulty of using the E-government platform in the process of promoting the E-government platform, so that every public can be aware of the effectiveness and ease of use of the E-government platform in the process of participating in environmental governance. Only in this way can the public be encouraged to actively solve practical problems by using the E-government platform. The public can be encouraged to record environmental pollution phenomena and make environmental appeals by taking photos, uploading videos, leaving messages, etc. in the process of environmental governance.

3. Improving the service quality of E-government platforms and enhancing public trust

The service quality and public trust of E-government platform can strengthen the positive impact of public expectation on E-government adoption behavior. Therefore, the government departments should improve the service quality of E-government platform, strengthen communication and feedback with the public, truly solve the problems reported by the public, and meet the environmental demands of the public. Only in this way can the public trust be enhanced, and the public can be encouraged to actively participate in environmental governance behaviors, so as to form a virtuous circle. E-government platform is just a tool for technological governance. Only by truly solving environmental problems can environmental governance performance be improved. Therefore, the government environmental protection departments should establish service awareness and improve service quality.

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Conflicts of Interest

The authors declare no conflicts of interest.

References

1. YANG R., CHEN J., WANG C., DONG Y. The Influence Mechanism and Path Effects of Pro-Environmental Behavior: Empirical Study Based on the Structural Equation Modeling. Polish Journal of Environmental Studies, **31** (4), 146989,**2022**.
2. LIANG S., LU H. Adoption of E-government services: an empirical study of the online tax filing system in Taiwan. Online Information Review, **37** (3), 424,**2022**.
3. GUPTA K.P., SINGH S., BHASKAR P. Citizen adoption of e-government: A literature review and conceptual framework. Electronic Government an International Journal, **12** (2), 160,**2016**.
4. ALMAIAH M.A., NASEREDDIN Y. Factors influencing the adoption of e-government services among Jordanian citizens, Electronic Government an International Journal, **16** (3), 236, **2020**.
5. ABDELHAKIM D., IDOUGHI D. Citizen Adoption of Mobile and Customizable E-Government Services: A Literature Review and Conceptual Framework. International Journal of Information Systems in the Service Sector, **13** (1), 31, **2021**.
6. RANA N.P., DWIVEDI Y.K. Citizen's adoption of an E-government system: Validating extended social cognitive theory (SCT). Government Information Quarterly, **32** (02), 172, **2015**.
7. TSAI, CHUNG HUNG. Integrating Social Capital Theory, Social Cognitive Theory, and the Technology Acceptance Model to Explore a Behavioral Model of Telehealth Systems. International Journal of Environmental Research and Public Health, **11** (5), 4905, **2014**.
8. CHEN C., CHAO W. Habitual or reasoned? Using the theory of planned behavior, technology acceptance model, and habit to examine switching intentions toward public transit. Transportation Research Part F Traffic Psychology & Behaviour, **14** (2), 128, **2011**.
9. TIAN H., ZHANG J., LI J. The relationship between pro-environmental attitude and employee green behavior: the role of motivational states and green work climate perceptions. Environmental Science and Pollution Research, **27** (7), 7341, **2019**.
10. MENSAH I.K., LUO C. Exploring Factors Determining Chinese College Students' Satisfaction With E-Government Services: The Technology Acceptance Model (TAM) Approach. Information Resources Management Journal, **34** (3), 1, **2021**.
11. CARTER L., WEERAKKODY V., PHILIPS B., DWIVEDI Y.K. Citizen Adoption of E-Government Services: Exploring Citizen Perceptions of Online Services in the United States and United Kingdom. Information Systems Management, **24** (02), 124, **2016**.
12. RODRIGUES G., SARAVDEEN J., BALASUBRAMANIAN S. Factors that Influence Consumer Adoption of E-government Services in the UAE: A UTAUT Model Perspective, **15** (4), 18, **2016**.
13. MANSOORI K.A., SARABDEEN J., TCHANTCHANE A.L. Investigating Emirati citizens' adoption of E-government services in Abu Dhabi using modified

UTAUT mode. Information technology & people, **31** (02), 455, **2018**.
14. ZEEBAREE M., AGOYI M., AQEL M., LI M.S. Sustainable Adoption of E-Government from the UTAUT Perspective. Sustainability, **14** (7), 5370, **2022**.
15. RODRIGUES G., SARABDEEN J., BALASUBRAMANIAN S. Factors that Influence Consumer Adoption of E-government Services in the UAE: A UTAUT Model Perspective. Journal of Internet Commerce, **15** (1), 18, **2016**.
16. JASIMUDDIN S.M., MISHRA N., NASSER A. Modelling the factors that influence the acceptance of digital technologies in e-government services in the UAE: a PLS-SEM Approach. Production Planning and Control, **28** (16), 1307, **2017**.
17. VEERAMOOTOO N., NUNKOO R., DWIVEDI Y.K. What determines success of an E-government service? Validation of an integrative model of e-filing continuance usage. Government Information Quarterly, **35** (2), 161, **2018**.
18. PUSP J., SHAREEFUL I. E-Government Maturity Model for Sustainable E-Government Services from the Perspective of Developing Countries. Sustainability, **10** (6), 1882, **2018**.
19. KIM J.B. Political efficacy, community collective efficacy, trust and extroversion in the information society: Differences between online and offline civic/political activities. Government Information Quarterly, **32** (1), 43, **2015**.
20. ISAAC K.M., SAMUEL ADAMS. A comparative analysis of the impact of political trust on the adoption of E-Government services. International Journal of Public Administration, **43** (08), 682, **2020**.
21. UNDIPHIR B., PHIR J. Assessing Factors Affecting the Adoption of E-Government Services in Developing Countries for Transport Sector, amidst the Covid-19 Pandemic. Communications and Network, **14** (2), 69, **2022**.
22. SABANI A. Investigating the influence of transparency on the adoption of e-Government in Indonesia. Journal of Science and Technology Policy Management, **12** (2), 1, **2020**.
23. CHIPETA J., NGOYI L. A Review of E-Government Development in Africa: A Case of Zambia. Journal of E-Government Studies and Best Practices. Journal of E-Government Studies and Best Practices, **20** (18), 1,**2018**.
24. ISAAC K.M., ZENG G, LUO C. E-Government Services Adoption: An Extension of the Unified Model of Electronic Government Adoption. SAGE Open, **10** (2), 1, **2020**.
25. LI W. The Role of Trust and Risk in Citizens' E-Government Services Adoption: A Perspective of the Extended UTAUT Model. Sustainability, **13** (14), 7671, **2021**.
26. KAUR J., KAUR S., SYAN A.S., SHARMA R. Factors Influencing the Adoption of Payment Banks in India Using an Extended TAM. Asia-Pacific Journal of Management Research and Innovation, **16** (4), 309, **2021**.
27. MAZNORBALIA A.S., AWALLUDDIN M.A. Users Acceptance of E-Government System in Sintok, Malaysia: Applying the UTAUT Model. Policy & Governance Review, **5** (1), 66, **2021**.
28. ALABBOODI A.S., SHABAN N.S. The adoption of E-government services in the Iraqi higher education context: An application of the UTAUT model in the university of Baghdad. Indian Journal of Applied Research, **5** (5), 130, **2019**.
29. MENSAH I.K. Impact of Performance Expectancy, Effort Expectancy, and Citizen Trust on the Adoption of Electronic Voting System in Ghana. International Journal of Electronic Government Research, **16** (2), 19, **2020**.
30. KIM S., LEE J. E-Participation, Transparency, and Trust in Local Government. Public Administration Review, **72** (6), 819, **2012**.
31. ISAAC K.M. Factors Influencing the Intention of University Students to Adopt and Use E-Government Services: An Empirical Evidence in China. SAGE Open, **9** (2), 1, **2019**.
32. ALI H., ALI T., MATAR Z., JAWAD F. Citizens' Acceptance and Readiness towards Adopting E-Participation Tools in Kingdom of Bahrain. International Journal for Infonomics, **8** (2), 1029, **2015**.
33. SAPARUDIN M., AGUS R, AHMAD R., SULTAN M.A. Exploring the Role of Trust in Mobile-Banking Use by Indonesian Customer Using Unified Theory of Acceptance and Usage Technology. International Journal of Financial Research, **11** (2), 51, **2020**.
34. MUNADIL K., ABDULLAH KAID How robust is the UTAUT theory in explaining the usage intention of e-government services in an unstable security context: A study in Iraq. Electronic Government an International Journal, **15** (1), 1, **2019**.
35. JAISWAL M., KAR A.K. The Acceptance of Electronic Voting Machines in India: A UTAUT approach. Electronic Government an International Journal, **14** (3), 255, **2018**.
36. BERLILANA, HARIGUNA T., NURFAIZAH. Understanding of Public Behavioral Intent to Use E-Government Service: An Extended of Unified Theory of Acceptance Use of Technology and Information System Quality. Procedia Computer Science, **124**, 585, **2017**.
37. SOONG K., AHMAD E.M., TAN K. Factors influencing Malaysian small and medium enterprises adoption of electronic government procurement. Journal of Public Procurement, **20** (1), 38, **2020**.
38. SAWALHA S., JAMAL M.A., SHANAB E. The influence of utilising Facebook on e-government adoption. Electronic Government an International Journal, **15** (1), 1, **2019**.
39. ZHENG Y., YANG R. Environmental regulation, public participation and happiness: empirical research based on Chinese general social survey of 2015.Applied Ecology and Environmental Research, **17** (4), 9317, **2019**.