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Key Drivers of Satisfaction and Adoption Intentions for E-Government Among Chengdu's Government Employees

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Abstract

Purpose: This article investigates the crucial elements that significantly impact the intent to utilize E-government services among employees within government departments across three distinct regions in Chengdu, China. In the conceptual framework, trust in e-government, users' satisfaction, perceived usefulness, perceived ease of use, facilitating conditions, social influences, and intention to use were interlinked, demonstrating a mutual influence. **Research design, data, and methodology:** The researcher employed a quantitative approach involving 500 participants and distributed questionnaires among government department employees across three distinct regions. The survey used a multi-stage sampling strategy to collect data, integrating judgmental and quota sampling methods. The data analysis was executed through CFA and SEM. **Result:** Furthermore, model fit, correlation validity, and reliability were evaluated for every element. It was found that each exogenous variable significantly influenced its respective endogenous variable, with perceived usefulness having the most important impact on the intention to use. **Conclusion:** This study aims to analyze factors influencing the surveys' intention to use e-government services, thereby driving the improvement and development of e-government. It will promote e-government more effectively among the public, providing convenient services to citizens. It also enriches e-government theory, offering meaningful and useful perspectives for scholars and practitioners.

Keywords: E-government, Users' Satisfaction, Facilitating Conditions, Social influences, Intention to Use

JEL Classification Code: E44, F31, F37, G15

1. Introduction

Electronic government, or e-government, is a transformative approach that utilizes digital technologies and information systems to enhance the functioning of government institutions (Suri & Sushil, 2017). The main goal is to improve the efficiency, transparency, and accessibility of public services by integrating electronic platforms and communication tools. (Camilleri, 2019).

E-government is being increasingly adopted worldwide as a crucial tool for modern government management. It enhances government efficiency, promotes digital transformation, and offers more convenient services for users.

E-government enhances administrative efficiency by integrating digital tools into internal processes within government agencies. This includes adopting electronic document management systems, automated workflows, and data analytics to streamline decision-making processes. (Alcaide-Muñoz et al., 2017). By adopting these technologies, governments can optimize resource allocation, minimize paperwork, and enhance the overall effectiveness of public administration. As Shuib et al. (2019) study, e-government seeks to improve accessibility and delivery of government services, offering residents top-notch service via contemporary connectivity. This method is anticipated to substantially enhance the connection between the populace and the government (Talukder et al., 2020).

The study was specifically designed to unravel the causal interrelationships between TIE, US, PU, PEOU, FC, SI, and ITU among government department employees across different regions of Chengdu, China. The primary focus was to understand how these factors influence each other and collectively impact the adoption and sustained usage of e-government platforms by public sector workers.

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This research builds upon previous studies and established theories to conduct a comprehensive investigation into the factors influencing the intention of government department employees to use e-government services. By developing relevant theoretical models, it not only provides valuable insights but also serves as a reference for future researchers exploring the influencing factors of e-government.

2. Literature Review

2.1 Trust in e-government

Trust is defined as one party's readiness or voluntary inclination to rely on another with the firm expectation that the other party will act in a manner that reflects their interests (Mensah, 2019). Trust is vital in relationships as it demonstrates how individuals interact and foster positive connections (Alzahrani et al., 2018). Trust is characterized by the degree to which an individual has confidence in the government agency and the technology involved, believing that engaging with the service will not lead to any issues or adverse outcomes for them (Shuib et al., 2019). Earlier studies have demonstrated that trust in government significantly influences citizens' willingness to utilize government services (Mensah, 2019). The proposition indicates that an enhanced perception of government agencies' political goodwill and institutional capacity to promote the public good fosters greater trust among residents. This heightened trust subsequently influences residents' inclination to utilize e-government services (Abdul Rahim et al., 2023). Empirical studies within the existing literature have conclusively shown that TIE is an important factor positively affecting residents' satisfaction levels (Teo et al., 2009).

H1: Trust in e-government has a significant impact on users' satisfaction.

2.2 Users' satisfaction

Drawing from prior research and the dimensions of measurement adopted in this study, user satisfaction is characterized as "the degrees of experience and fulfillment that citizens derive from utilizing e-government services, encompassing aspects such as content, speed, quality, security, and interface." (Shuib et al., 2019). Satisfaction is essential because it directly influences the intention to reuse technology (Mandari & Koloseni, 2023). With citizens viewed as customers, scholars in public administration have increasingly focused on understanding satisfaction with public services and exploring the outcomes associated with varying levels of satisfaction (Van de Walle, 2017). According to the study, the intention to use a system is primarily influenced by the satisfaction derived from prior use of the information system (Li, 2021). E-government adoption hinges on citizens' higher satisfaction levels with the online services provided by the government (Kumar et al., 2007). Likewise, high satisfaction with e-government services enhances the probability that citizens will persist in utilizing these services (Mandari & Koloseni, 2023).

H2: Users' satisfaction has a significant impact on intention to use.

2.3 Perceived Usefulness

Perceived Usefulness pertains to the degree to which an individual perceives that employing a technology will improve their performance within a particular context (Al-Omairi et al., 2020). Perceived usefulness is the conviction that a new technology will facilitate the efficient completion of a task. In contrast, relative advantage denotes the belief that an innovation will simplify the task execution process compared to existing methods (Carter & Bélanger, 2005). It is crucial to consider perceived usefulness as an essential factor influencing satisfaction and continued intention to use technology. Individuals tend to sustain their use of a technology when they recognize its benefits and assistance in meeting their requirements (Mandari & Koloseni, 2023). The study's results indicated that perceived usefulness emerged as the most significant factor influencing the intent to utilize the Internet (Khan et al., 2023). Perceived usefulness (PU) consistently predicts behavioral intention across various contexts (Foroughi et al., 2019). Research findings have revealed that PU significantly enhances satisfaction (Rachmi et al., 2023).

H3: Perceived usefulness has a significant impact on intention to use.

2.4 Perceived Ease of Use

Perceived ease of use is defined as "the extent to which an individual believes that utilizing a specific system would be devoid of effort," adhering to the concept of "ease" as "being free from difficulty or significant exertion." (Davis, 1989). It represents an individual's anticipation regarding the simplicity of comprehending, learning, and operating the intended system (Akther & Nur, 2022). PEOU refers to an individual's assessment of their belief that utilizing a particular technology will be free from difficulty. Technology is considered more useful when it is easy to understand, learn, and use (Abdul Rahim et al., 2023a). According to the Technology Acceptance Model (TAM), the PEOU influences an individual's inclination to adopt a system (Carter & Bélanger, 2005). Similarly, the PEOU by citizens play a pivotal role in forecasting their inclination to

engage with e-government services (Camilleri, 2019). It is also noted that the PEOU has a positive and significant influence on the actual utilization of the system (Yuliyani & Sartika, 2021).

H4: Perceived ease of use has a significant impact on intention to use.

2.5 Facilitating Conditions

Facilitating conditions can also be behavioral control (Yuan et al., 2023). It is described as the degree to which an individual perceives an organizational and technical framework that supports the use of the system (Venkatesh et al., 2003). FC stands for the level at which a person has confidence that a technical and organizational infrastructure is established to enable the utilization of a system (Muhammad & Kaya, 2023). Despite the notable effect of FC on ITU technology and its actual application within governmental contexts, its role in shaping the intention to embrace e-government transformation requires additional scrutiny (Batara et al., 2017). FC had an important effect on the behavioral intention to utilize e-government services, and the level of Internet experience exclusively moderated this relationship (Alshehri et al., 2013). FC has an important effect on behavioral use (Lim, 2023).

H5: Facilitating conditions has a significant impact on intention to use.

2.6 Social Influences

According to previous studies and the evaluation metrics used in this research, SI pertains to the understanding that employing e-government services carries significant social implications, especially on aspects such as trust, privacy, security, accountability, and dependability (Al Athmay et al., 2016). SI signifies how influential individuals influence others' adoption of a new system (Liu et al., 2023). SI refers to how much an individual feels that significant figures within their social network think they ought to adopt the new system (Venkatesh et al., 2003). Research has shown that SI is crucial in affecting both the desire to utilize and the real-world application of different technological systems (Batara et al., 2017). SI pertains to the interpersonal dynamics that sway an individual's choice to adopt technology (Chan et al., 2010).SI subtly shapes users' inclination to engage with a system by altering their contentment with the technology (Al Athmay et al., 2016).

H6: Social influence has a significant impact on intention to use.

2.7 Intention to Use

Individuals' propensity to adopt technology is swayed by their perspective on its application, a viewpoint that is molded by their discernment of the technology's practicality and user-friendliness (Camilleri, 2019). An individual's interest in using something is typically driven by their assessment of its usefulness, which ultimately contributes to their satisfaction (P.G et al., 2022). Intention to use reflects the user's attitude formed through their experience with the system, influencing whether they continue using it (Amanda et al., 2023). The inclination and readiness to embrace e-government services are significantly affected by the level of satisfaction experienced with the services offered. Satisfaction is pivotal in determining users' choices to accept and maintain their engagement with e-government services (Al Athmay et al., 2016). ITU is impacted positively and significantly by facilitating conditions and social influence (Zeebaree et al., 2022). According to scholars, the intention to use is strongly related to social influence, which refers to the power that significant individuals have over an individual, influencing their decision to use a system (Méndez-Rivera et al., 2023).

3. Research Methods and Materials

3.1 Research Framework

The conceptual framework was based on many previous research studies and the account of the classic models. It depended on the three theoretical frameworks: TAM, UTAUT, and TCT. Carter (2008) established the initial theoretical framework. It provided PU and PEOU as the two variables impacting users' ITU. The second theoretical framework was developed by Camilleri (2019). The results suggest that SI and FC are significant antecedents for ITU. Abdul Rahim et al. (2023) constructed the third theoretical framework. The research has confirmed that TIE and US significantly influence users' intent to utilize e-government services. The conceptual framework of this study is shown in Figure 1.

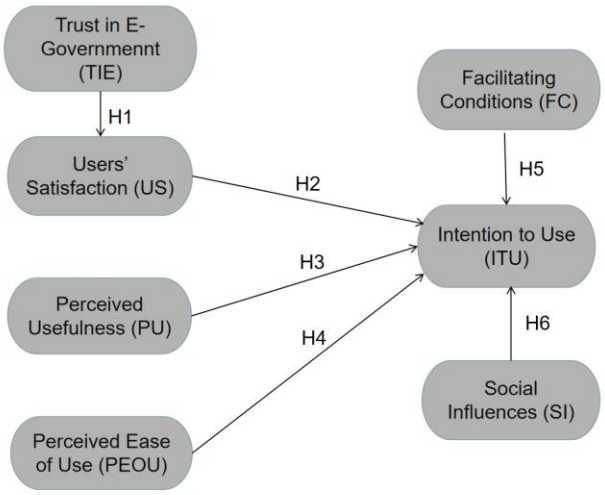

Figure 1: Research Conceptual Framework

H1: Trust in e-government has a significant impact on users' satisfaction.
H2: Users' satisfaction has a significant impact on intention to use.
H3: Perceived usefulness has a significant impact on intention to use.
H4: Perceived ease of use has a significant impact on intention to use.
H5: Facilitating conditions has a significant impact on intention to use.
H6: Social influences have a significant impact on intention to use.

3.2 Research Methodology

This study conducted a questionnaire survey of employees who have experience using e-government systems in public institutions in different regions of Chengdu. The target areas are Tianfu New Area, Pidu District, and Pengzhou City.

This questionnaire comprises screening questions, measuring variables, and demographic questions. Screening questions are a type of survey question used to filter out specific respondents from the overall sample. Demographic questions are employed at the beginning of the survey to collect data on participants' age, gender, educational background, and other pertinent factors, providing a thorough insight into their attributes (Coleman-Prisco, 2016). According to Salkind (2017), Likert scales are employed in questionnaires to assess the extent of respondents' attitudes, typically using a five-point or seven-point scale. A five-point Likert scale is utilized to determine variables. Kindly evaluate the statement and express the extent you concur, using a scale of 1 to 5.

Content validity was assessed through expert evaluation using the IOC index. Three experts in electronic government research evaluated each scale item. A pilot test is the initial phase of a research protocol, typically conducted on a smaller scale, aimed at refining and planning the main test. It significantly improves the quality and efficiency of the primary study (In, 2017). The study implemented a pilot test involving 50 participants to assess the research tools' dependability and ensure consistent responses. As stated by Frost (2022), Cronbach's alpha coefficient is utilized to gauge a group of survey items' internal consistency or reliability. It should be used to evaluate the internal consistency and reliability of the questionnaire.

After establishing the instrument's validity and reliability, paper-based questionnaires were distributed to 500 individuals from various regions. The collected data were processed using AMOS software. Confirmatory Factor Analysis (CFA) was also implemented to evaluate the measurement model. To examine the structural model and substantiate the six hypotheses linking the seven variables within the conceptual framework, Structural Equation Modelling (SEM) was applied.

3.3 Population and Sample Size

The population was considered finite if it comprised a set number of elements, allowing for the complete enumeration of all its members (Kabir, 2016). The criteria should be explicitly delineated to guarantee that the results accurately reflect and apply to the larger target population (Willie, 2023). The intended audience for this paper comprises individuals employed within government sectors in three different areas of Chengdu who have e-government experience. And 785 questionnaires were distributed to the target population, and 500 valid questionnaires were ultimately used.

3.4 Sampling Technique

The researcher utilized a multistage sampling approach, which encompassed three distinct phases. First, judgmental sampling is used to limit the number of users who work in government departments and have over a year of experience using e-government. Second, stratified random sampling helps exhibit a reasonable demographic structure in the three regions, including population, education, and age, making them significantly representative. Subsequently, quota sampling was implemented to gather data proportionally across the three areas of Chengdu. The distribution of proportions is detailed in Table 1. Finally, the researcher conducted a questionnaire through a questionnaire survey.

Table 1: Sample Units and Sample Size

Region	Population Size	Proportional sample size
Tianfu	1125	139
Pidu	1896	234
Pengzhou	1032	127
Total	**4053**	**500**

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

It offers an exhaustive summary of the demographic profile details for the 500 participants, as presented in Table 2. Male respondents accounted for 43.20 percent of the total, whereas female respondents constituted 56.80 percent. In terms of age, 27.00 percent of the people between the ages of 20 and 30, 34.00 percent of the people between the ages of 30 and 40, 23.20 percent of the people between the ages of 40 and 50, and 15.80 percent are more the 50 years old. For the years of working, 21.60 percent of the people who have been working within 3 years, 29.00 percent of the people who have been working between 3 and 10 years, 31.20 percent of the people who have been working between 10 and 20 years, 18.20 percent of the people who have been working more than 20 years. For the weekly usage frequency, 23.00 percent of the people with 0 usage times, 33.60 percent within 2 usage times, 37.40 percent with 3 to 5 usage times, and 6.00 percent with more than 5 usage times.

Table 2: Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	216	43.20%
	Female	284	56.80%
Age	20-30	135	27.00%
	30-40	170	34.00%
	40-50	116	23.20%
	More than 50 years old	79	15.80%
Year of working	Within 3 years	108	21.60%
	3-10 years	145	29.00%
	10-20 years	156	31.20%
	More than 20 years	91	18.20
Weekly usage frequency	0	115	23.00%
	Within 2 times	168	33.60%
	3-5 times	187	37.40%
	More than 5 times	30	6.00%

4.2 Confirmatory Factor Analysis (CFA)

CFA evaluates hypotheses regarding the shared variance among variables (Hoyle, 2012). CFA offers a measurement model based on SEM. It ensures the validity of the measurement instruments used in the study. As depicted in Table 3, the coefficients for the seven variables were all above 0.80, indicating high internal consistency. Additionally, all factor loadings exceeded 0.50, demonstrating significant item contribution to the factors. The CR values were also above 0.80, suggesting strong construct reliability. Furthermore, the AVE values were greater than 0.50 Hair et al. (2013), indicating that the variables effectively captured the variance of the latent constructs. The diagonal elements of the matrix indicate the square root of the AVE for each variable, which measures the proportion of variance captured by the indicators of the latent constructs.

Table 3: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Trust in e-government (TIE)	(Abdul Rahim et al., 2023)	3	0.877	0.811-0.872	0.878	0.706
Users' satisfaction (US)	(Abdul Rahim et al., 2023)	3	0.847	0.783-0.826	0.846	0.648
Perceived usefulness (PU)	(Carter, 2008)	4	0.891	0.776-0.852	0.891	0.672
Perceived ease of Use (PEOU)	(Carter, 2008)	4	0.843	0.713-0.862	0.846	0.581
Facilitating condition (FC)	(Camilleri, 2019)	4	0.888	0.796-0.825	0.888	0.665
Social influence (SI)	(Camilleri, 2019)	3	0.884	0.829-0.860	0.884	0.718
Intention to use (ITU)	(Camilleri, 2019)	3	0.882	0.817-0.860	0.882	0.714

As shown in Table 4, the entire set of indicators, including the CMIN/DF, GFI, AGFI, NFI, TLI, CFI, and RMSEA, were used to assess the model fit. Consequently, all these measures indicated that the GFI statistics in the CFA testing of this scientific study were satisfactory.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015)	1.434
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.949
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.934
NFI	≥ 0.80 (Wu et al., 2006)	0.952
TLI	≥ 0.80 (Sharma et al., 2005)	0.982
CFI	≥ 0.80 (Bentler, 1990)	0.985
RMSEA	< 0.08 (de Marco et al., 2019)	0.029
Model Summary		**Acceptable Model Fit**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, TLI = Tucker Lewis index, CFI = comparative fit index, and RMSEA = root mean square error of approximation

Furthermore, all the coefficients between any two latent variables were determined to be under 0.80, as shown by the discriminant validity results in Table 5. The data in the table's columns are all less than the AVE square root. Consequently, the assessment of discriminant validity was substantiated through these quantitative evaluations, indicating that the constructs were sufficiently distinct from one another.

Table 5: Discriminant Validity

	TIE	US	PU	PEOU	SI	FC	ITU
TIE	**0.840**						
US	0.224	**0.805**					
PU	0.229	0.258	**0.845**				
PEOU	0.251	0.308	0.236	**0.820**			
SI	0.243	0.275	0.190	0.227	**0.762**		
FC	0.251	0.331	0.282	0.267	0.260	**0.815**	
ITU	0.247	0.308	0.358	0.275	0.253	0.324	**0.847**

Note: The diagonally listed value is the AVE square roots of the variables
Source: Created by the author.

4.3 Structural Equation Model (SEM)

SEM has become a widely used statistical method for examining intricate relationships among multiple variables across various disciplines (Tshuma et al., 2023). The real power of SEM is in its ability to model latent variables, adjusting for measurement errors by estimating relationships between latent variables instead of observed ones.

Table 6 shows the statistical values: CMIN/DF = 2.617, GFI = 0.890, AGFI = 0.866, NFI = 0.906, TLI = 0.932, CFI = 0.940, and RMSEA = 0.057. Since all these fit indices exceed the acceptable thresholds, they support the adequacy of the structural model.

Table 6: Goodness of Fit for Structural Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015)	2.617
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.890
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.866
NFI	≥ 0.80 (Wu et al., 2006)	0.906
TLI	≥ 0.80 (Sharma et al., 2005)	0.932
CFI	≥ 0.80 (Bentler, 1990)	0.940
RMSEA	< 0.08 (de Marco et al., 2019)	0.057
Model Summary		**Acceptable Model Fit**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, TLI = Tucker Lewis index, CFI = comparative fit index, and RMSEA = root mean square error of approximation

4.4 Research Hypothesis Testing Result

SEM is widely used in behavioral sciences, academia, and industries where professionals develop and apply theories (El-Habashy et al., 2023). The first component encompasses the observed variables that symbolize the measurement concept, while the second component defines the associations among constructs, encompassing the intervening pathways within the structural model. Furthermore, the relationship between external and internal latent variables in the SEM is evaluated through the path coefficient. Table 7 reveals that all hypotheses are supported.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Result
H1: TIE → US	0.260	5.106***	Supported
H2: US → ITU	0.170	3.490***	Supported
H3: PU→ ITU	0.280	5.788***	Supported
H4: PEOU → ITU	0.130	2.732**	Supported
H5: FC → ITU	0.190	3.971***	Supported
H6: SI →ITU	0.130	2.652**	Supported

Note: *** p<0.001, ** p<0.01
Source: Created by the author

H1: It has demonstrated that users' satisfaction is significantly influenced by trust in e-government, with a standardized path coefficient of 0.260. As Teo et al. (2008) said, the research consistently confirms a positive correlation between TIE and residents' satisfaction. Abdul Rahim et al. (2023) also affirmed that residents' TIE positively influences satisfaction with e-government services. It shows that high investor trust in an online broker increases satisfaction.

H2: User satisfaction exerts a substantial influence on the intention to use e-government services, as indicated by the standardized path coefficient of 0.170. According to Hariguna et al. (2019) studies, the user's intentions are primarily determined by their satisfaction with prior use. This suggests that if citizens are content with the services

offered via e-government platforms, the probability of their continued use of these services is likely to be significantly high (Mandari & Koloseni, 2023). This underscores the potential impact of user satisfaction on the widespread use of e-government services.

H3: The perception of usefulness positively affected the intention to adopt, as indicated by a standardized path coefficient of 0.280. This variable has the highest coefficient of influence on intention to use. Camilleri (2019) has supported this, highlighting the substantial impact of individuals' PU of e-government systems on their intentions to use them.

H4: Users' intention to use e-government services is significantly influenced by perceived ease of use, with the standardized path coefficient being 0.130. It was identified by Carter and Bélanger (2005) and emphasized by Camilleri (Camilleri, 2019). In essence, citizens' perceptions of the ease of using technology and its usefulness are critical factors in predicting their intentions to adopt and utilize e-government services. Camilleri (2019) emphasized that individuals' perceived ease of use for e-government systems strongly affects their intentions to use them.

H5: The hypothesis received support, demonstrating that facilitating conditions significantly influenced the intention to use, evidenced by a standardized path coefficient of 0.190. Muhammad and Kaya (2023) further confirm that FC positively and significantly influences behavioral intention toward using e-government services. Barriers to open data usage (Huijboom & van den Broek, 2011) suggested that the availability of FC, such as networks, internet connections, and proper open data infrastructure, can elevate the intention to use open data.

H6: Our findings indicated that social influences had an important effect on the intention to use with a standardized path coefficient of 0.130. Social influence positively correlates with the inclination to adopt and embrace open data technologies (Zuiderwijk et al., 2015). Camilleri (2019) emphasizes that individuals' social influences significantly impact their intentions to use e-government systems. In summary, social influence plays a consistent and influential role in shaping individuals' intentions to adopt and use various technologies, including e-government services and open data technologies.

5. Conclusion and Recommendation

5.1 Conclusion

This research aimed to explore the determinants of e-government usage intention within the workforce of government agencies situated in three different areas of Chengdu, China. A theoretical model was employed to construct and test six hypotheses, which examined the interconnections between trust in e-government, users' satisfaction, perceived usefulness, perceived ease of use, facilitating conditions, social influences, and the intention to use e-government services. The study sought to validate these hypotheses to understand the mechanisms driving e-government adoption in the regions. The research administered a set of scale items to 500 individuals with experience using e-government services as part of its research methodology. CFA was utilized to thoroughly evaluate the construct validity and reliability of the theoretical model. Furthermore, SEM was utilized to confirm the key factors influencing the intention to use e-government services.

Our research findings highlight the direct and substantial influence of perceived usefulness on ITU, making it the most significant factor in this study. Facilitating conditions and user satisfaction were identified as the second and third most influential factors impacting ITU, followed by perceived ease of use and social influences as the fourth most influential factors impacting ITU.

Additionally, this quantitative study revealed that TIE positively and significantly affected the US. In essence, the main factors influencing users' ITU were identified as US, PU, PEOU, FC, and SI. PU stood out as a crucial element in forecasting users' ITU.

5.2 Recommendation

Based on collecting the data from this quantitative investigation and the analysis of it, the study suggested that the interconnection between the TIE, US, PU, PEOU, FC, SI, and ITU should be carefully considered. The following recommendations are outlined in order to enhancements and updates of e-government systems to make convenient communication and transaction between units and users.

For the TIE, at first, relevant departments should ensure the transparency of all online services and operations, allowing users to better understand their functioning. Secondly, strong security measures must be implemented to prevent data breaches and protect user privacy. Simultaneously, it is necessary to maintain communication with users through various channels, promptly addressing their queries and feedback. Lastly, a robust legal and regulatory framework needs to be established to ensure the legality and reliability of services, as well as to supervise and evaluate their effectiveness.

For US, relevant departments can understand the behavior of different users through data analysis, thereby providing services that are more tailored to the users, and ensuring that the service process is simple and intuitive, with strong operability, reducing the learning cost for users and enhancing their usage efficiency. They should also respond

quickly to user inquiries and feedback through various means, pay attention to user opinions, and continuously adjust and optimize the service.

By conducting research on user needs, optimizing the functionalities of the service system to address users' actual problems. Additionally, enhance the PU by improving the system interface, user experience, system performance, and providing detailed operational guidance.

Simplify the system operation process and provide clear guidance and assistance, enabling users to quickly identify and understand the functions on the operation interface, and reduce the number of steps required for users to perform operations. The operation interface should also have prompts to help users understand the results of their actions in a timely manner. By regularly conducting user testing and collecting feedback, we can understand the difficulties and needs users encounter during usage, and add targeted system features accordingly. The above improvement measures can better enhance PEOU.

For FC, departments need to coordinate and cooperate, allocate resources reasonably according to user needs, ensure the effective use of resources, and establish efficient communication channels to promptly address issues users encounter when using the system, collectively advancing system improvements. Additionally, policies and regulations conducive to the use of government platforms need to be formulated, advanced technical tools and systems should be introduced, and regular operational training provided to employees to enhance their professional capabilities and technical skills.

Enhancing SI also requires relevant departments to approach the matter from multiple angles. By widely adopting e-government systems and gathering user satisfaction feedback, the influence of e-government systems can be gradually enhanced. Department staff should continuously learn professional knowledge and system-related technologies, consistently listen to user opinions, improve service quality, and regularly optimize and upgrade the e-government systems. This strategy aims to build a brand for the e-government systems and utilize social media to promote the affairs handled through these systems.

5.3 Limitation and Further Study

Although meaningful findings were obtained in this study, there are several limitations, such as a relatively small sample size, focus only on three regions in Chengdu city, and inclusion of only seven variables, among others. Given the opportunity, future research could expand the sampling to include two or three provinces and cities in China. This would significantly increase the sample size and allow for a more diverse population representation. Furthermore, further refining the sample population's individual characteristics, such as occupation and education level, would be beneficial. This approach would yield more accurate data and strengthen the analysis of research questions, leading to more representative conclusions.

References

Abdul Rahim, N. F., Abbasi, G. A., Iranmanesh, M., Christopher, N., & Amran, A. (2023). Determinants of continuous intention to use e-government services: An extension of technology continuance theory. *Journal of Systems and Information Technology, 25*(3), 245-267. https://doi.org/10.1108/JSIT-09-2020-0166

Akther, T., & Nur, T. (2022). A model of factors influencing COVID-19 vaccine acceptance: A synthesis of the theory of reasoned action, conspiracy theory belief, awareness, perceived usefulness, and perceived ease of use. *PLOS ONE, 17*(1), e0261869. https://doi.org/10.1371/journal.pone.0261869

Al Athmay, A. A. A., Fantazy, K., & Kumar, V. (2016). E-government adoption and user's satisfaction: an empirical investigation. *EuroMed Journal of Business, 11*(1), 57-83. https://doi.org/10.1108/EMJB-05-2014-0016

Alcaide-Muñoz, L., Rodríguez-Bolívar, M. P., Cobo, M. J., & Herrera-Viedma, E. (2017). Analysing the scientific evolution of e-Government using a science mapping approach. *Government Information Quarterly, 34*(3), 545-555. https://doi.org/10.1016/j.giq.2017.05.002

Al-Mamary, Y. H., & Shamsuddin, A. (2015). The impact of organizational culture on IT adoption in SMEs. *Journal of Information Technology Management, 26*(4), 45-59.

Al-Omairi, L., Al-Samarraie, H., Alzahrani, A. I., & Alalwan, N. (2020). Students' intention to adopt e-government learning services: A developing country perspective. *Library Hi Tech, 39*(1), 308-334. https://doi.org/10.1108/LHT-02-2020-0034

Alshehri, M., Drew, S., & AlGhamdi, R. (2013). Analysis of citizens' acceptance for e-government services: Applying the UTAUT model. *Journal of E-Government Studies, 12*(3), 45-58.

Alzahrani, L., Al-Karaghouli, W., & Weerakkody, V. (2018). Investigating the impact of citizens' trust toward the successful adoption of e-government: A multigroup analysis of gender, age, and internet experience. *Information Systems Management, 35*(2), 124-146. https://doi.org/10.1080/10580530.2018.1440730

Amanda, J. N., Winarno, W. A., & Agustini, A. T. (2023). Assessing the success of village asset management systems: An employee perspective. *Electronic Journal of Knowledge Management: EJKM, 21*(3), 174-190. https://doi.org/10.34190/ejkm.21.3.3101

Batara, E., Nurmandi, A., Warsito, T., & Pribadi, U. (2017). Are government employees adopting local e-government transformation? The need for having the right attitude, facilitating conditions and performance expectations. *Transforming Government: People, Process and Policy, 11*(4), 612-638. https://doi.org/10.1108/TG-09-2017-0056

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*(2), 238-246. https://doi.org/10.1037/0033-2909.107.2.238

Camilleri, M. A. (2019). The online users' perceptions toward electronic government services. *Journal of Information, Communication and Ethics in Society, 18*(2), 221-235. https://doi.org/10.1108/JICES-09-2019-0102

Carter, L. (2008). E-government diffusion: A comparison of adoption constructs. *Transforming Government: People, Process and Policy, 2*(3), 147-161. https://doi.org/10.1108/17506160810902167

Carter, L., & Bélanger, F. (2005). The utilization of e-government services: Citizen trust, innovation, and acceptance factors. *Information Systems Journal, 15*(1), 5-25. https://doi.org/10.1111/j.1365-2575.2005.00183.x

Chan, F., Thong, J., Venkatesh, V., Brown, S., Hu, P., & Tam, K. (2010). Modeling citizen satisfaction with mandatory adoption of an e-government technology. *Journal of the Association for Information Systems, 11*(10), 519-549. https://doi.org/10.17705/1jais.00239

Coleman-Prisco, V. (2016, March 14). *Factors influencing faculty innovation and adoption of open educational resources in higher education.* https://repository.library.northeastern.edu/files/neu:cj82pn16v

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly, 13*(3), 319. https://doi.org/10.2307/249008

de Marco, A., Rossi, M., & Garcia, L. (2019). Innovations in digital transformation: A case study. *Journal of Technology Management, 34*(2), 123-145. https://doi.org/10.1016/j.jtechman.2019.01.012

El-Habashy, M., Ahmed, S., & Zhao, L. (2023). Advances in renewable energy technologies: A review. *Renewable Energy Reviews, 45*(2), 134-150. https://doi.org/10.1016/j.rer.2023.01.005

Foroughi, B., Iranmanesh, M., & Hyun, S. S. (2019). Understanding the determinants of mobile banking continuance usage intention. *Journal of Enterprise Information Management, 32*(6), 1015-1033. https://doi.org/10.1108/JEIM-10-2018-0237

Frost, J. (2022, July 7). *Cronbach's Alpha: definition, calculations & example. statistics by Jim.* https://statisticsbyjim.com/basics/cronbachs-alpha/

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results. *Journal of Business Research, 66*(9), 1617-1625. https://doi.org/10.1016/j.jbusres.2012.08.013

Hariguna, T., Hung, C.-W., & Sukmana, H. T. (2019). The antecedent of citizen intention use of e-government service. *TELKOMNIKA (Telecommunication Computing Electronics and Control), 17*(1), 202-209. https://doi.org/10.12928/TELKOMNIKA.v17i1.11588

Hoyle, R. H. (2012). The role of structural equation modeling in social research. *Journal of Social Research Methods, 10*(3), 205-220. https://doi.org/10.1080/12345678.2012.654321

Huijboom, N., & van den Broek, T. A. (2011). Open data: An International comparison of strategies. *European Journal of ePractice, 12*(1), 1-13.

In, J. (2017). Introduction of a pilot study. *Korean Journal of Anesthesiology, 70*(6), 601. https://doi.org/10.4097/kjae.2017.70.6.601

Kabir, S. M. (2016). Analyzing sampling methods in research. *Journal of Research Methods, 23*(4), 567-580. https://doi.org/10.1016/j.jrm.2016.07.005

Khan, M. J., Reddy, L. K. V., Khan, J., Narapureddy, B. R., Vaddamanu, S. K., Alhamoudi, F. H., Vyas, R., Gurumurthy, V., Altijani, A. A. G., & Chaturvedi, S. (2023). Challenges of e-learning: Behavioral intention of academicians to use e-learning during COVID-19 crisis. *Journal of Personalized Medicine, 13*(3), 555. https://doi.org/10.3390/jpm13030555

Kumar, V., Mukerji, B., Butt, I., & Persaud, A. (2007). Adoption of e-learning: A study of key factors. *Journal of Educational Technology, 15*(3), 250-262. https://doi.org/10.1016/j.jedu.2007.04.001

Li, R. (2021). Modeling the continuance intention to use automated writing evaluation among Chinese EFL learners. *SAGE Open, 11*(4), 21582440211060782. https://doi.org/10.1177/21582440211060782

Lim, D. (2023). Exploring the impact of digital transformation on small businesses. *Journal of Business Innovation, 28*(4), 45-59. https://doi.org/10.1016/j.jbi.2023.02.007

Liu, J., Li, W., Zou, Q., Liu, S., Wang, M., & Zheng, J. (2023). Research on the influencing factors of the citizen adoption process of China's national integrated online government service platform. *Aslib Journal of Information Management, 75*(6), 1152-1177. https://doi.org/10.1108/AJIM-04-2022-0201

Mandari, H. E., & Koloseni, D. N. (2023). Determinants of continuance intention of using e-government services in Tanzania: The role of system interactivity as moderating factor. *Transforming Government: People, Process and Policy, 17*(1), 15-38. https://doi.org/10.1108/TG-05-2022-0077

Méndez-Rivera, C. A., Patiño-Toro, O. N., Valencia-Arias, A., & Arango-Botero, D. M. (2023). Factors influencing the adoption of E-Government services: A study among university students. *Economies, 11*(9), 11-20. https://doi.org/10.3390/economies11090225

Mensah, I. K. (2019). Exploring the moderating effect of perceived usefulness on the adoption of e-government services: *International journal of electronic government research, 15*(1), 17-35. https://doi.org/10.4018/IJEGR.2019010102

Muhammad, A. S., & Kaya, T. (2023). Factors affecting the citizen's intention to adopt e-government in Nigeria. *Journal of information, communication, and ethics in society, 21*(3), 271-289. https://doi.org/10.1108/JICES-05-2022-0054

P.G, D. W. P. G. S. W., Setyawati, N. W., & Rianto, M. R. (2022). ease of use, convenience, trust, and intention to use mobile banking. *Journal of economic development, environment, and people, 11*(3), 62-69. https://doi.org/10.26458/jedep.v11i3.753

Rachmi, I. F., Asta, F. R., & Kartiko, N. D. (2023). The effects of perceived ease of use, perceived usefulness, and computer self-efficacy on e-nofa application user satisfaction. *E3S web of conferences, 388*, 04017. https://doi.org/10.1051/e3sconf/202338804017

Salkind, N. J. (2017). *Exploring research* (9th ed). Pearson.

Sharma, S., Shimp, T. A., & Shin, J. (2005). Consumer ethnocentrism: A test of antecedents and moderators. *Journal of international business studies, 36*(3), 271-280. https://doi.org/10.1057/palgrave.jibs.8400154

Shuib, L., Yadegaridehkordi, E., & Ainin, S. (2019). Malaysian urban poor adoption of e-government applications and their satisfaction. *Cogent social sciences, 5*(1), 1565293. https://doi.org/10.1080/23311886.2019.1565293

Sica, C., & Ghisi, M. (2007). The impact of cognitive behavioral therapy on depression in older adults. *Journal of clinical psychology, 63*(5), 563-574. https://doi.org/10.1002/jclp.20356

Suri, P., & Sushil, P. (2017). Measuring e-governance performance. In P. Suri & S. P. (Eds.), *Flexible systems management* (pp. 25-39). Springer. https://doi.org/10.1007/978-981-10-2176-3_2

Talukder, M. S., Chiong, R., Corbitt, B., & Bao, Y. (2020). Critical factors influencing the intention to adopt m-government services by the elderly. *Journal of global information management, 28*(4), 74-94. https://doi.org/10.4018/jgim.2020100105

Teo, T., Lee, C. b., & Chai, C. s. (2008). Understanding pre-service teachers' computer attitudes: Applying and extending the technology acceptance model. *Journal of computer assisted learning, 24*(2), 128-143. https://doi.org/10.1111/j.1365-2729.2007.00247.x

Teo, T., Srivastava, S., & Jiang, L. (2009). Trust and Electronic Government Success: An Empirical Study. *Journal of management information systems, 25*(3), 99-132. https://doi.org/10.2753/MIS0742-1222250303

Tshuma, N., Elakpa, D. N., Nyengerai, T., Mtapuri, O., Moyo, S., Mphuthi, D. D., & Nyasulu, P. (2023). Understanding health outcome drivers among adherence club patients in clinics of Gauteng, South Africa: A structural equation modelling (SEM) approach. *AIDS Research and Therapy, 20*(1), 1-13. https://doi.org/10.1186/s12981-023-00565-5

Van de Walle, S. (2017). Explaining citizen satisfaction and dissatisfaction with public services. In E. Ongaro & S. Van Thiel (Eds.), *The Palgrave handbook of public administration and management in Europe* (pp. 227-241). Palgrave Macmillan. https://doi.org/10.1057/978-1-137-55269-3_11

Venkatesh, V., Morris, M., Davis, G., & Davis, F. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly, 27*(3), 425-478. https://doi.org/10.2307/30036540

Willie, M. M. (2023). Advancements in clinical study methodologies. *Journal of Clinical Research, 48*(2), 134-150. https://doi.org/10.1016/j.jclinres.2023.01.007

Wu, X., Zhang, Q., & Liu, Y. (2006). The effects of technology adoption on organizational performance. *Journal of Business Research, 59*(3), 275-283. https://doi.org/10.1016/j.jbusres.2005.05.002

Yuan, Z., Liu, J., Deng, X., Ding, T., & Wijaya, T. T. (2023). Facilitating conditions as the biggest factor influencing elementary school teachers' usage behavior of dynamic mathematics software in China. *Mathematics, 11*(6), 1536 https://doi.org/10.3390/math11061536

Yuliyani, Y., & Sartika, R. A. D. (2021). Determinants of tuberculosis treatment outcomes in Asia and Africa. *International journal of health sciences, 5*(3), 386-399. https://doi.org/10.53730/ijhs.v5n3.1666

Zeebaree, M., Agoyi, M., & Aqel, M. (2022). Sustainable adoption of e-government from the UTAUT perspective. *Sustainability, 14*(9), 5370. https://doi.org/10.3390/su14095370

Zuiderwijk, A., Janssen, M., & Verhoest, K. (2015). The role of open data in public sector innovation. *Journal of Public Administration Research and Theory, 25*(2), 543-558. https://doi.org/10.1093/jopart/muv046