

# Factors Influencing the Development and Implementation of e-Government Services in China

Yang Zongpu & Ku Hasnita Ku Samsu

Department of Government and Civilization Studies, Faculty of Human Ecology  
Universiti Putra Malaysia  
Email: hasnita@upm.edu.my

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## Abstract

Information and communication technology (ICT) rapidly transforms global government service delivery through modernized infrastructure. As an economic giant, China recognizes the need to centralize operations and enhance service delivery through e-government services. While e-government services have gained significant momentum globally, the specific factors that influence the development and implementation of these services in the Chinese context need to be explored. Therefore, this research investigates the factors driving the development and implementation of e-government services in China. Quantitative methods were employed, involving 200 participants actively engaged in e-government initiatives. A purposive sampling technique was used during the data collection to specifically get the responses from targeted relevant government officials and users. Descriptive statistics analysis was employed to analyze collected data. Variables such as trust in e-government, policy coherence, service effectiveness, and user satisfaction were measured. The findings of this study reveal that trust, policy coherence, service effectiveness, and user satisfaction are key factors influencing the development and adoption of e-government services in China. This research provides insights into China's efforts to establish a digital government and contributes to the global understanding of e-government development.

**Keywords:** E-government, Public Policy, Information and Communication Technology (ICT), Good Governance, Government Services

## Introduction

Globalization has transformed how governments function in the interconnected world, with information and communication technology (ITC) playing a pivotal role in shaping operations. This is referred to as the era of digital transformation. Service delivery to the citizens has been centralized, making it easy to access and encouraging transparency and efficiency. All this has been brought about by implementing e-government platforms requiring high-tech ICT

infrastructure. To simplify government operations, increase openness, and boost participation from the public, electronic government (or "e-government") uses online resources. This has revolutionized government operations, enhanced service delivery, and fostered citizen engagement. E-government's importance has skyrocketed as governments worldwide have begun to see the value of tech-driven solutions. As a world leader in technology development, China has advanced significantly in using various electronic government service delivery types like Online Tax Filing, Smart City Initiatives, Online Judicial Services, e-learning, and Digital Healthcare Services (Lee-Geiller & Lee, 2019).

While e-government services have gained significant momentum globally, the specific factors that influence the development and implementation of these services in the Chinese context still need to be explored in depth. Although the existing research on e-government provides valuable insights, there need to be more comprehensive studies that specifically examine the driving forces behind the development and implementation of e-government services in China (Alkrajji & Ameen, 2022). Before the emergence of widespread e-government services in China, several studies had been done on the developments and challenges in this area. Liu et al (2020) conducted a comparative study on e-government development and challenges in China. Their research highlighted the progress in establishing digital platforms, online service delivery, and citizen participation. However, it also identified challenges related to data security, infrastructure development, and institutional coordination. Their study also evaluated the performance of e-government services across different regions in China using a performance index. Their findings influenced e-government development, emphasizing online service availability, service quality, and information transparency. The findings identified significant factors influencing adopting and implementing e-government initiatives in Chinese county governments. Finally, Wang et al (2022) explored the institutional perspective of e-government development in China. Their research examined the role of government agencies, laws and regulations, and inter-organizational networks in shaping the e-government landscape. These studies collectively contribute to our understanding of the early stages of Chinese e-government, highlighting the challenges and factors influencing its e-government development before its widespread popularity in the country.

The e-government's promise to revolutionize government operations, service delivery, and public involvement has gained widespread recognition recently. This has led several nations to make substantial efforts towards establishing e-government programs. The Chinese economy has been growing significantly for the past decades. Therefore, the government has prioritized improving governance, boosting administrative efficiency, and expanding transparency via e-government services (Wang et al., 2022). China's e-government services cover a broad spectrum, from digital document management and online public service portals to electronic payment systems and innovative city projects. Several factors have influenced China in the adoption of e-government transformation. Managing the requirements of China's massive population and ensuring effective service delivery requires creative approaches, which are especially needed inside China's administrative structure due to its size and complexity (Lee-Geiller & Lee, 2019). The Chinese government understands that e-government has the potential to promote the country's economic growth, influence foreign investment, and global competitiveness. Using modern ICT, China hopes to close the digital gap, widen citizen engagement, and enhance smooth and easy communication between the government and its people.

Although China has made great strides in developing and implementing e-government services, some particular difficulties and constraints affect its use in the Chinese context. In addition to technology infrastructure and cybersecurity worries, cultural, sociological, and political variables may have a role (Lee-Geiller & Lee, 2019). To create successful e-government plans that meet the requirements and ambitions of the Chinese people, policymakers, government agencies, and scholars must thoroughly understand these aspects. Therefore, it is crucial to perform a study investigating the causes that call for introducing e-government services in China (Alkrajji & Ameen, 2022). Hence, this research examines the factors influencing the development and implementation of e-government services in China and investigates the effect and influence of governmental policies and regulations on the implementation and utilization of e-government services in China.

### **Literature Review**

The government has been implementing e-government services in China since the early 2000s. Various theoretical frameworks have influenced adopting and implementing e-government services in China. The Technology Acceptance Model (TAM) has been widely applied in research on e-government adoption in China. According to the model, individuals' acceptance of technology is determined by their perceived usefulness and ease of use. In the context of government e-services in China, perceived usefulness is often related to the extent to which these services meet citizens' needs and expectations. In a recent study by Alkrajji and Ameen (2022) on young citizens' loyalty towards government e-services in China, perceived usefulness, trust, and satisfaction were significant determinants of young citizens' loyalty. Specifically, citizens who perceived e-government services as helpful, trustworthy, and satisfactory were likely to be loyal to the government and use the services in the future (Alkrajji & Ameen, 2022). The TAM offers a helpful framework for comprehending the elements that affect the acceptance and use of e-government in China and emphasizes the significance of creating practical and user-friendly services.

The adoption and execution of e-government services in China have been explained using Theory. This Theory offers a helpful framework for comprehending how new technologies are embraced and distributed in China, where innovation is rapidly changing. The characteristics of an innovation, such as how beneficial and straightforward it is seen to be, are crucial elements in determining how widely it is adopted. According to a study by Wang et al (2022), innovation success is significantly influenced by the communication channels utilized to promote it, such as the government's communication strategy. Last but not least, the acceptance of the innovation is significantly influenced by the social structure in which it is employed, including backing from the government and user feedback. Institutional Theory has been instrumental in understanding the adoption and implementation of e-government services in China due to the country's complex institutional environment. In China, the government plays a dominant role in shaping and regulating the technology industry, which affects the adoption of e-government services. It is crucial to consider the government's legitimacy and demands to determine the adoption and implementation of e-government services (Twizeyimana & Andersson, 2019). According to the research of Twizeyimana and Andersson (2019), the Chinese government's ambition to modernize and enhance public services prompted the adoption of e-government services. E-government services have also been adopted and implemented in China due to citizen demands to raise the calibre and accessibility of public services.

A conceptual approach for evaluating government websites in the context of democratic e-governance is put forth by Lee-Geiller and Lee (2019). Although China is not mainly discussed in the study, the authors remark that several nations, including China, have invested a lot of time and money into building up their capacity for e-governance through the creation of official websites (Lee-Geiller & Lee, 2019). The study highlights the importance of evaluating government websites based on their effectiveness in facilitating citizen participation, transparency, and accountability, which are all critical components of democratic e-governance. Regarding previous studies specifically focused on e-government in China, Twizeyimana and Andersson (2019) conducted a literature review on the public value of e-government in China. The study highlighted the challenges and opportunities facing e-government development in China, including issues related to infrastructure, citizen participation, and government capacity (Twizeyimana & Andersson, 2019). The authors noted that e-government has the potential to provide significant public value by increasing efficiency, improving service quality, and enhancing transparency and accountability. However, they emphasized the need for continued research to understand better how e-government can be effectively implemented and leveraged in China. Another study by Wang et al (2022) examined the adoption stages of local government chatbots in China. The study found that adopting chatbots was influenced by perceived usefulness and ease of use, government support, and user feedback (Wang et al., 2022). The authors noted that chatbot improves government service delivery and efficiency. Still, they highlighted the need for continued research to understand better the factors that influence their adoption and effectiveness. Finally, Alkrajji and Ameen (2022) examined the impact of service quality, trust, and satisfaction on young citizen loyalty toward government e-services in China. The study found that these factors were significant determinants of young citizens' loyalty towards e-services and highlighted the importance of improving service quality and building trust to enhance citizen engagement with e-government in China.

Despite the numerous studies on e-government in China, some research gaps still need to be addressed; more lack of attention to the function of social media is the first research gap in China's adoption and implementation of e-government. Even though social media sites like WeChat and Weibo are widely used, it needed to be known how they can affect e-government services. Social media can advance e-government initiatives, boost citizen-government communication, and increase public involvement in decision-making processes (Zeng et al., 2022). More investigation is required to determine how social media platforms may be included in Chinese e-government policies and how they can improve the efficacy and efficiency of online services. The second area of research that needs to be addressed for e-government adoption and implementation in China is examining rural areas, difficulties, and hindrances.

Although there has been some research on adopting e-government in metropolitan areas, rural areas may encounter difficulties due to limited Internet connectivity, low levels of digital literacy, and language hurdles. According to Longmei et al (2019), it is crucial to comprehend these issues to create targeted policies and strategies that will guarantee that all individuals, regardless of their geographic location or socioeconomic position, may use e-government services. The third area of study need is the requirement to look at how e-government services affect citizen participation and engagement. E-government services can increase citizen involvement in decision-making procedures and transparency and accountability in government (Du et al., 2021). There needs to be studies on the natural effect of e-government

services on citizen involvement and participation. Du et al (2021) state that additional research is required to comprehend the variables affecting citizen engagement with e-government services and to investigate how e-government services might be created to improve citizen participation in decision-making processes. Finally, Xian et al (2021) argue that there needs to be more research on the potential ethical and privacy issues posed by adopting developing technologies in China's e-government services like artificial intelligence and big data. While these technologies can enhance the efficacy and efficiency of e-government services, they also bring up significant ethical and privacy problems (Xian et al., 2021).

Campbell et al (2020) provide insights into the complexities and simplicity of purposive sampling through research case examples. The study emphasizes that purposive sampling is considered a non-probability sampling method but is more complex. The authors showcase the versatility of purposive sampling by presenting diverse case studies that utilize this technique in nursing research. The case examples illustrate how researchers can purposefully select participants based on specific characteristics or criteria relevant to the research objectives. Campbell et al (2020) highlight the flexibility of purposive sampling in accommodating diverse research designs and contexts, ultimately shedding light on the effectiveness of this method in generating rich and focused data.

Palinkas et al (2015) focus on using purposive sampling in mixed-method implementation research, particularly in mental health services. The study emphasizes the importance of purposive sampling in capturing in-depth and contextually relevant information. The authors advocate for the deliberate selection of study participants based on their expertise, experiences, or unique perspectives on implementing mental health programs. Palinkas et al (2015) argue that researchers can gain a deeper understanding of the complexities and challenges of implementing interventions by purposefully sampling individuals with specific knowledge or involvement in the implementation process. The study highlights the value of purposive sampling in mixed-method research, where combining qualitative and quantitative data is essential for comprehensive analysis and informed decision-making.

### **Significance of the Study**

Identifying the factors influencing the development and implementation of e-government services in China is paramount for various reasons. First, identifying these factors enables policymakers and government agencies to improve service delivery by optimizing the design and accessibility of e-government services (Wang et al., 2022). This creates an understanding of the strengths and weaknesses, which can focus on enhancing efficiency and user experience, resulting in more citizen-centric service delivery. Secondly, it may be a key pillar to facilitate the efficient allocation of resources, ensuring that investments are directed towards e-government platforms that will have the most significant impact (Xian et al., 2021). Identifying the factors establishes a baseline for formulating e-government policies tailored to address specific challenges and capitalize on opportunities unique to China's context (Polyakova & Meserole, 2019).

Moreover, a better understanding of the factors influencing public trust and engagement in e-government services fosters an environment where citizens feel comfortable using digital platforms and actively participating in governance processes. By identifying weaknesses given by the respondents, targeted efforts can be made to improve adoption rates and overall

effectiveness (Xian et al., 2021). This research also facilitates international comparisons, allowing China to learn from successful practices in other countries and adopt innovative approaches. Furthermore, the insights gained aid in long-term planning, helping policymakers anticipate future challenges and design strategies to adapt and evolve e-government services accordingly. Ultimately, identifying these factors contributes to increased efficiency, transparency, and accountability in governance, fostering public trust and satisfaction in China's e-government initiatives.

### **Methodology**

The study employs a quantitative research design to explore the factors leading to developing and implementing e-government services in China. This design involves collecting and analyzing numerical data, providing a systematic and objective approach to examining the relationships between variables (Palinkas et al., 2015). These variables are; trust in e-government, policy coherence, service effectiveness, and user satisfaction. By employing a purposive sampling method, the research aims to ensure that the selected participants possess relevant knowledge and experiences related to e-government services in China (Campbell et al., 2020). This approach allows for a targeted and focused exploration of the factors influencing the development and implementation of e-government services. It also helps generate comprehensive and context-specific insights contributing to a deeper understanding of the research phenomenon.

Therefore, this research gathered information from individuals, government officials, and policymakers via surveys and questionnaires. Descriptive statistics such as frequencies, percentages, means, and standard deviations are used to analyze the survey results. Descriptive analysis involves summarizing and presenting data meaningfully and interpretably, allowing researchers to describe the characteristics, patterns, and relationships among the variables of interest (Palinkas et al., 2015). This study's survey instrument used closed-ended questions to thoroughly explore the factors that have been shown to influence the adoption and implementation of e-government in China. The questions focused on significant issues, including confidence, policy uniformity, and technological uptake. The questionnaire employed a 5-Point Likert Scale, with responses ranging from 1 [Completely Disagree] to 5 [Completely Agree].

A total sample size of 200 respondents selected was determined using purposive sampling, a non-random sampling method. The participants were intentionally selected based on their relevance to the research's objectives. Since the researcher aimed to investigate the factors resulting in the development and implementation of e-government services in China, they purposefully included participants actively engaged in e-government initiatives, such as government officials and users with experience in e-government services. The sample aimed to obtain a representative sample that reflects the characteristics and diversity of the target population (Campbell et al., 2020). Another consideration includes practical constraints, which include time, budget, and available resources. Surveying with a larger sample size can be resource-intensive, and 200 participants were deemed manageable within the limitations of the research project (Campbell et al., 2020). Last but not least, statistical power is an important factor to consider. With an appropriate effect size and level of precision, a sample size of 200 can yield statistically meaningful results. Based on previous research, 200 sample sizes are sufficient to address the research objectives (Du et al., 2021). The chosen sample

size of 200 balances representativeness, feasibility, statistical power, and previous research considerations.

In this research, the variables examined include trust in e-government, policy coherence, service effectiveness, and user satisfaction. Data were analyzed using the descriptive data analysis method. According to Palinkas et al., 2015, a descriptive analysis enables the researchers to calculate various measures, such as means, standard deviations, frequencies, and percentages, to describe these variables' central tendencies, variations, and distribution. Collected data was analyzed in Excel and summarized in Table 1 below using descriptive statistical analysis.

**Table 1**  
*Descriptive Statistical Excel Output*

Trust in E-Government		Policy Coherence		Service Effectiveness		User Satisfaction	
Mean	4.4815	Mean	4.0555	Mean	4.3425	Mean	4.2375
Standard Error	0.015581	Standard Error	0.036771	Standard Error	0.027822	Standard Error	0.03217
Median	4.5	Median	4	Median	4.5	Median	4.1
Mode	4.7	Mode	4	Mode	4.7	Mode	4
Standard Deviation	0.220342	Standard Deviation	0.520021	Standard Deviation	0.393469	Standard Deviation	0.454949
Sample Variance	0.048551	Sample Variance	0.270422	Sample Variance	0.154818	Sample Variance	0.206979
Kurtosis	-1.03987	Kurtosis	-0.00737	Kurtosis	2.022037	Kurtosis	0.566114
Skewness	-0.63653	Skewness	-0.13504	Skewness	-1.18293	Skewness	-0.69522
Range	0.6	Range	2	Range	2	Range	2
Minimum	4.1	Minimum	3	Minimum	3	Minimum	3
Maximum	4.7	Maximum	5	Maximum	5	Maximum	5
Sum	896.3	Sum	811.1	Sum	868.5	Sum	847.5
Percentage	89.63%	Percentage	81.11%	Percentage	86.85%	Percentage	84.75%
Count	200	Count	200	Count	200	Count	200

The results show that the participants generally scored high on trust in e-government, service effectiveness, and user satisfaction, ranging from 4.2375 to 4.4815 out of 5. Policy coherence received slightly lower scores, with a mean of 4.0555. The data distribution for these variables is relatively symmetrical, as indicated by skewness values close to zero. The kurtosis values suggest that the distributions are less peaked than a normal distribution. The ranges of the variables vary between 0.6 and 2, reflecting the spread of responses. Most participants scored above the midpoint, as evident from the high percentage values in the "Percentage" column.

**Findings**

Several significant factors substantially affect the development and use of e-government services in China. E-government trust, policy coherence, service efficacy, satisfaction trust, consistent policy-making, and widespread use of new technologies play a role. The results indicate the importance of public-government trust in achieving the goals of e-government programs, depicted by a mean of 4.4815. This indicates that the sampled population has 89.63% trust in e-government services. Effective implementation of e-government services is also driven by policy coherence, which ensures consistency and alignment across various

policies with a mean score of 4.0555, meaning there is 86.85% effectiveness of the e-government implementation. The research also shows that continuing technical progress is essential to China's e-government growth, highlighting the significance of technology adoption, which is depicted by user satisfaction with a mean of 4.2375, meaning 84.75% of the sampled population is satisfied by the platforms.

These results provide an overview of how the Chinese people think and feel about e-services based on trust, policy coherence, service efficacy, and satisfaction, all in the context of e-government services. The findings indicate the current status of e-government activities in China, illuminating successful practices and where they can improve the existing e-services by a total mean of over 4.0 with over 80% satisfaction. This is a clear implication that e-government services implemented by the Chinese government are transforming how citizens access government services. These results show the value of including a wide range of demographics, including those with different levels of education and experience using e-government services, in this line. Since trust was a critical element impacting the acceptance and implementation of e-government services, the research stresses the need to focus on developing and sustaining trust between the government and the people. Additionally, policy consistency should be prioritized to guarantee the efficient and successful implementation of e-government programs. These results help guide strategic decisions on where to focus efforts to improve China's e-government.

The authors noted its shortcomings, which included a small sample size and an exclusive emphasis on China. These caveats call for more research into the determinants driving e-government adoption and implementation, ideally with more extensive and varied samples spanning many countries. Further research into similar areas of inquiry, such as the effect of additional factors on acceptance and implementation, is also recommended based on the findings of this study.

## **Discussion**

The discussion of the research findings delves into the implications and insights derived from the descriptive statistics presented for the variables - Trust in E-Government, Policy Coherence, Service Effectiveness, and User Satisfaction. These results provide a comprehensive understanding of the participants' perspectives and shed light on several important aspects of implementing and adopting e-government services in China.

### *Trust in E-Government*

The high mean score (4.4815) for trust in e-government signifies participants' strong confidence in the government's ability to provide reliable and transparent digital services. This is a pivotal factor in the success of e-government initiatives. High trust levels between the government and the public contribute to increased engagement, smoother service delivery, and greater public acceptance of technological advancements in government services. These findings align with the global recognition that trust is a foundational element for effectively implementing e-government services.

### *Policy Coherence*

The mean score of 4.0555 for policy coherence indicates that participants perceive reasonable consistency and alignment across different policies governing e-government services. This suggests that policy-making in this realm is moving in the right direction. Policy coherence is



essential for avoiding confusion, ensuring seamless integration of services, and preventing conflicting regulations. Maintaining a coherent policy framework facilitates coordination and cooperation among various government bodies and helps streamline e-government implementation.

### *Service Effectiveness*

The high mean score (4.3425) for service effectiveness indicates participants' positive perception of the utility and efficiency of e-government services. This is crucial, as the effectiveness of these services directly influences their adoption by the public. Favourable service experiences enhance citizen satisfaction, increased usage, and improve public perception of government efficiency. These results indicate that the implementation of e-government services in China generally meets the participants' expectations, a key factor in the success of any e-government program.

### *User Satisfaction*

The mean score of 4.2375 for user satisfaction reflects a high level of contentment among participants with the e-government services they interact with. This is a critical metric, as user satisfaction is a powerful indicator of the overall success of e-government initiatives. Satisfied users are more likely to continue using e-government services, spread positive word-of-mouth, and engage actively in digital interactions with the government. This result underscores the importance of user-centric design and continuous improvement efforts to maintain high levels of user satisfaction.

The discussion of these findings underscores the positive sentiments of participants toward trust, policy coherence, service effectiveness, and user satisfaction in the context of e-government services in China. These high mean scores reflect a favourable environment for developing, implementing, and accepting e-government services. This study's results provide valuable insights for policymakers and government officials, emphasizing the significance of building and maintaining trust, ensuring coherent policies, delivering effective services, and prioritizing user satisfaction to drive the success of e-government initiatives.

### **Conclusion**

In conclusion, this research study investigated the factors influencing the development and implementation of e-government services in China. Through the examination of various variables, including trust in e-government, policy coherence, technology adoption, service effectiveness, and user satisfaction, valuable insights have been gained. Several suggestions may be made based on the findings of the quantitative research study that looked at the introduction and growth of e-government in China. The first stage is to advocate for the Chinese government to create a thorough structure before launching e-government. The desired outcomes and the strategies to achieve them should be laid out in detail inside the framework. Efficient and successful e-government operations may be ensured with the help of a framework supported by relevant rules and regulations (Lee-Geiller & Lee, 2019). It is advised that the Chinese government invest in the required technological infrastructure to ensure that e-government can be successfully implemented and welcomed. It can be necessary to introduce new digital platforms, upgrade current ones, or offer technical support.

Additionally, it is advised that the Chinese government invest in developing the skills of its citizens and authorities in digital transformation. It may be required to supply them through

online training modules and seminars to optimize the benefits of e-government services and ensure that citizens and government workers have the knowledge and skills to use them successfully (Polyakova & Meserole, 2019). Additionally, it is advised that the Chinese government implement measures to raise people; acquaintance with and participation in e-government. A few strategies may be used to encourage more individuals to use government-run websites through public promotion and financial incentives.

The Chinese government periodically evaluates the effectiveness of the e-government initiatives it authorizes and implements. It may be necessary to build up evaluation processes that monitor the progress of e-government programs and highlight areas where they might be improved to achieve this (Alkrajji & Ameen, 2022). Such procedures will ensure that e-government operations are carried out in line with existing laws and regulations, and they will also provide valuable information that can be used to influence decision-making and the creation of future policies. Several suggestions for moving forward with e-government projects in China were made due to the quantitative research study on the subject's reception and adoption in the country. A few examples are creating a comprehensive framework of e-government, providing the necessary technological infrastructure investments in capacity building and training, encouraging public participation and awareness, and conducting periodic reviews and assessments of progress (Lee-Geiller & Lee, 2019). By using such protocols, e-government operations will be carried out responsibly, effectively, and efficiently.

The study's quantitative technique made it simple to collect numerical data. The data was then examined using descriptive and inferential statistics, and the findings were shared using various presentation techniques. The research concluded that trust and policy alignment significantly impact e-government adoption and implementation in China (Xiaoyan et al., 2022). The findings supported prior research that trust and policy congruence are crucial for e-government programs' success. The investigation's findings supported these hypotheses and equally notable study's findings' implications for advancing events of China's e-government goal. In response, legislation was enacted to make the environment friendlier to e-government activities, and efforts were redoubled to foster public confidence in e-government services. It has been proposed, for example, that researchers study the role of other variables in adopting and implementing e-government by utilizing larger samples and in other countries.

As a result, this research has offered a thorough assessment of the elements that have influenced China's receptivity to and adoption of e-government (Gao et al., 2021). The findings have substantial ramifications for the present e-government program being implemented in China and suggest areas for additional research. As a result, our research has greatly advanced the body of knowledge in the field and revealed previously underappreciated aspects of China's e-government development.

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