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The role of e-government in increasing transparency and accountability of public administration in the digital era

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Abstract: This research aims to explore the role of e-government in increasing transparency and accountability in public administration in the digital era. As digital technology develops, governments around the world are increasingly adopting e-government solutions to improve public services, strengthen public trust, and simplify administrative processes. This study investigates how the integration of information and communication technology (ICT) in public administration can drive greater transparency and accountability, which are essential elements of good governance. A mixed-methods approach is used to provide a comprehensive understanding of the impact of e-government initiatives. The qualitative component involves in-depth interviews with government officials, policymakers, and e-government project leaders in various sectors to understand the challenges and successes in the implementation of digital government solutions. The quantitative aspect uses a survey of 500 public sector employees and citizens in countries with advanced e-government systems to assess perceptions regarding transparency and accountability in digital services. The study found that the implementation of e-government platforms has brought significant improvements in transparency, with 70% of respondents reporting better access to public information and government data. In addition, accountability has been strengthened as digital platforms facilitate more efficient monitoring and auditing of public sector activities. However, challenges such as the digital literacy gap, concerns about data security, and the digital divide are identified as barriers to maximizing the potential of e-government. The study concludes that e-government plays an important role in improving transparency and accountability in public administration by enabling better access to information and facilitating a more transparent decision-making process. The study recommends further investments in digital infrastructure, capacity building for government officials, and public education to address existing challenges. These findings emphasize the importance of digital inclusivity and the need for a comprehensive strategy to ensure equal access to e-government services across all segments of society.

Keywords: *Accountability, Digital Governance, E-Government, ICT, Public Administration, Public Trust, Transparency.*

1. Introduction

In the increasingly advanced digital era, the implementation of e-government has become the main key in public administration reform around the world [1]. E-government refers to the use of information and communication technology (ICT) by the government to provide public services online, manage administrative data, and facilitate communication with the public [2]. One of the main goals of the implementation of e-government is to increase transparency and accountability in public administration, which are two important pillars to realize good governance. Transparency refers to the public's ability to access information related to public financial policies, decisions, and management. Meanwhile, accountability refers to the obligation of

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governments to account for their actions and decisions to the community, as well as ensuring that the public services provided are in accordance with the standards that have been set [3, 4].

E-Government refers to the use of Information and Communication Technology (ICT) by the government to provide services to the community, manage public administration data, and improve communication between the government and citizens [5]. E-government not only focuses on providing public services online, but also includes data management, internal government business processes, and more transparent ways of decision-making [6]. The use of technology such as the internet, mobile applications, and cloud-based systems has allowed the government to expand the range of services and increase effectiveness in providing information and services to the public. This, in turn, facilitates interaction between citizens and government agencies, facilitates faster processes, and reduces excessive bureaucracy [7, 8].

E-government has several key components that are interrelated and work together to create a more efficient and transparent system of government [9]. These components include digital government services, public data management, and public participation in the government process. Digital government services include the implementation of platforms such as e-government portals that allow people to access public services such as tax payments, permit applications, or online health service registration. Public data management focuses on collecting, processing, and presenting data related to government policies, budgets, and government activities to the public to ensure transparency. Meanwhile, community participation can be facilitated through mechanisms such as online forums, digital surveys, or public complaint platforms that give voice to the public in government decision-making [10-12].

One of the biggest advantages of implementing e-government is increased transparency and accountability in public administration [13]. With the existence of digital platforms, information that was previously difficult to access by the public can now be obtained easily. For example, government budgets, public policies, and financial reports can now be published online, allowing the public to monitor and assess government performance more effectively. In addition, e-government can speed up the public service process. Services that previously took days or weeks, such as applying for permits or handling paperwork, can be processed in a matter of hours or even minutes [14]. This not only increases efficiency, but also provides convenience to people who no longer need to visit government offices in person to get services [15, 16].

Although e-government offers many advantages, its implementation is not without challenges. One of the main challenges is the digital divide that exists in many countries, both developed and developing countries. Most developing countries still face limited access to adequate internet, as well as a lack of supporting technological infrastructure. This can hinder citizens from accessing government services online. In addition, there are also issues related to data security and privacy. The use of technology to store personal and sensitive data poses a risk of data leakage and potential misuse. For this reason, the development of e-government requires special attention to personal data protection regulations and increasing the capacity of technological infrastructure so that it can reach all levels of society evenly and safely.

Although many countries have implemented e-government systems, major challenges remain in the effort to achieve them effectively. Many countries, both developed and developing, still face issues related to digital literacy, technology access gaps, and data security that can hinder the full utilization of e-government platforms. According to the Vally and Spreen [17] almost 60% of the global population is still limited in internet access that can be used to interact with governments online. In addition, a study by the Canton [18] revealed that although e-government has great potential to increase transparency, most government digital platforms in many countries have not been fully adopted or used efficiently by the public. In addition, the success of e-government in increasing transparency and accountability is also influenced by other factors, such as the government's organizational structure, policy support, and public participation in the use of digital technology [19, 20].

For this reason, it is important to understand the extent to which e-government can improve both aspects and what are the factors that affect its implementation [21]. This study aims to dig deeper into the role of e-government in increasing transparency and accountability in public administration by using a mixed-methods approach. This research will analyze how the use of digital technology can improve public access to information, increase public engagement, and accelerate a more transparent and accountable

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decision-making process. In addition, this study aims to identify the challenges faced by the government in the implementation of e-government, as well as provide recommendations to overcome these obstacles.

This research has high relevance considering the importance of transparency and accountability in governance, especially in the digital era. The results of this research are expected to provide new insights for the government, policymakers, and the public on how e-government can be used to improve the quality of public services. In addition, this research is also expected to contribute to the development of e-government theory and digital government theory that is more applicable and relevant to the needs of the community. In a mixed-method approach, this study combines qualitative and quantitative methods to provide a more comprehensive picture of the role of e-government in improving transparency and accountability. The qualitative part of the research will include in-depth interviews with government officials, e-government project leaders, and information and communication technology experts. Meanwhile, the quantitative section will use surveys to collect data from the public and government employees who are directly involved in the use of the e-government platform.

As a relevant implementation example, Estonia is often cited as a pioneer in the successful implementation of e-government [22]. The country has successfully utilized the e-government system to increase transparency in the management of public data and the electoral system, as well as to facilitate interaction between citizens and the government. Through the e-Estonia platform, almost all government services are available digitally, including tax, education, and healthcare, providing easier and more transparent access to the public [23]. In addition, Singapore is also a successful example, where the Smart Nation Initiative implemented by the country's government allows citizens to utilize digital technology in various aspects of life, including more transparent and accountable public services [24, 25].

This article will continue with a discussion of the theoretical background regarding e-government, transparency, and accountability. Furthermore, the research method used will be explained in detail, followed by analysis of results and discussion related to findings obtained from qualitative and quantitative data. This article will then conclude with conclusions and recommendations for more effective e-government policies in the future.

2. Methodology

This study uses a mixed-methods approach to examine the role of e-government in increasing transparency and accountability of public administration in the digital era. The mixed method approach was chosen because it can provide a more comprehensive picture by combining qualitative and quantitative data. Thus, this research not only produces an objective statistical analysis, but also makes it possible to understand the context, perceptions, and experiences of stakeholders regarding the application of e-government in public administration [26].

2.1. Qualitative Research Design

The qualitative approach in this study involves in-depth interviews with government officials involved in the implementation of e-government, including e-government platform managers and officials who handle public policies related to transparency and accountability. This interview aims to explore the understanding of the challenges, opportunities, and impacts of e-government in the context of public administration. In this interview, researchers will ask about the factors that affect the successful implementation of e-government, the problems faced, and how the application of digital technology can increase openness and accountability in the decision-making process and public services. In addition to interviews with government officials, the researcher also conducted interviews with information technology experts, to understand the technical aspects and challenges in building and maintaining e-government infrastructure.

2.2. Quantitative Research Design

The quantitative approach is carried out through surveys distributed to the public and government employees who are directly involved in the use of the e-government platform. The survey aims to collect data on people's perceptions of ease of access to e-government services, how effectively they feel the platform

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increases transparency in public administration, and how well the government can account for its decisions and policies through digital systems. In addition, the survey also measures the level of technology adoption by the public, the factors that affect their participation, as well as the obstacles they face in using e-government services.

2.3. Data Collection Techniques

Qualitative and quantitative data were collected in parallel. For the qualitative part, the interviews are conducted in a semi-structured manner with officials and experts, which allows for flexibility in digging deeper information. Each interview was recorded and analyzed using thematic analysis techniques, to identify key themes related to the implementation of e-government and its impact on transparency and accountability [27-29].

For the quantitative part, the survey was distributed online and in print format to a representative sample of people living in different regions. The survey uses the Likert scale to measure respondents' perceptions and opinions towards e-government, which is then analyzed using descriptive and inferential statistical techniques to identify patterns, correlations, and differences between groups of respondents.

2.4. Research Sample

The research sample consisted of two main groups: government officials and e-government users. The sample size for in-depth interviews is around 15-20 people, consisting of officials at the ministry level and government agencies that manage the e-government system, as well as information technology experts who are competent in this field. For the survey, the sample consisted of 500 respondents from the community who use the e-government platform, with variations in age, education level, and geographical location. Sampling was carried out purposively for interviews, and randomly for surveys, in order to obtain representative results [30, 31].

2.5. Data Analysis

Qualitative data obtained from the interviews will be analyzed using thematic analysis, which allows researchers to identify patterns, issues, and perspectives that emerge in the informants' responses. Quantitative data obtained from the survey will be analyzed using descriptive statistics to describe the characteristics of respondents and their perception of e-government, as well as correlation and regression tests to identify factors that affect the effectiveness of e-government implementation in increasing transparency and accountability. The combination of these qualitative and quantitative results will provide deeper insights into the challenges and successes of e-government in various government contexts [32-34].

2.6. Validity and Reliability

To ensure the validity and reliability of the research, the researcher will triangulate the data by comparing the interview results with the findings from the survey, as well as validate the interview results through discussions with key informants after the interview is over. In addition, the survey will be tested first on a small sample to ensure consistency and clarity of the questions. The use of two different data collection methods will also increase the reliability of the research results.

Through a mixed-methods approach, this study is expected to provide a holistic understanding of how e-government can improve transparency and accountability in public administration, as well as identify key factors that affect its successful implementation. The results of this study are expected to provide strategic recommendations for the government in optimizing the use of digital technology to improve public services and good governance [35-37].

3. Result and Discussion

In this section, the results of research using a mixed method approach will be analyzed and discussed. This study aims to examine how the implementation of e-government can increase transparency and accountability in public administration. The results of the study came from two types of data, namely

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qualitative data obtained from in-depth interviews and quantitative data obtained from surveys of the community and government employees. The analysis was carried out to identify the main themes, patterns, and correlations that emerged from the two types of data.

3.1. Qualitative Interview Results

This study collects qualitative data through in-depth interviews with various parties directly related to the implementation of e-government, including government officials, information technology experts, and e-government project leaders. The purpose of this interview is to gain a deeper understanding of the potential of e-government in increasing transparency and accountability in public administration, as well as the challenges faced in its implementation.

3.1.1. Access to Public Information and Transparency

Most of the government officials interviewed stated that the digital technology applied in e-government provides easy access to public information that was previously difficult for the public to reach. One of the most frequently cited examples is access to government budget data. Previously, many people had difficulty knowing how much budget was allocated to a sector, or how public funds were managed and spent. With the e-government platform, data related to budget expenditures, project auction processes, and election results are now publicly available and can be accessed directly by the public through websites or digital applications provided by the government.

As an illustration, government officials from developed countries such as Estonia and Singapore mentioned that the e-government platform they implemented allows the public to monitor the use of state funds in real-time. In Estonia, for example, every government transaction related to the budget can be seen by the public, from spending to the purchase of goods and services. The public auction process in Singapore is also digitally accessible, allowing citizens to evaluate transparency in the procurement of goods and services. This, according to them, has reduced the likelihood of corruption, abuse of authority, and budget manipulation.

However, despite the huge potential for transparency, many officials also revealed that public awareness of e-government is still relatively low, especially in developing countries.

One official from Indonesia said, "Even though digital systems are available, we still face difficulties in bringing technology closer to the community. Many citizens do not know how to access government platforms or do not feel comfortable using them."

This shows that there is a gap in understanding between the government that provides digital platforms and people who are not fully familiar with the technology.

3.1.2. Challenges of Digital Literacy and Internet Access

Most officials also highlighted the issue of digital literacy as one of the main challenges that hinder the effective implementation of e-government. Many citizens, especially in rural or remote areas, have not been able to fully access and use e-government platforms optimally. The provision of digital training at the village or community level is still considered very limited.

According to an official in a remote area in Indonesia, "People in our village do not know much about e-government services. They are more comfortable using conventional methods to deal with government."

In addition, internet access is a significant problem. In many developing countries, although governments have provided e-government systems, the limited and uneven internet access, especially in remote areas, is a major obstacle. Based on data obtained from the Vally and Spreen [17] 60% of the global population is still hampered in internet access, which prevents people from taking full advantage of e-government services.

An official in charge of e-government systems in the Southeast Asian region said, "Although our app is ready to use, many people in remote areas do not have the devices to access digital platforms, or even do not have a stable internet connection."

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3.1.3. Data Security and Privacy Protection

Data security is one of the important issues that was also raised in this interview. Many government officials expressed concerns regarding the protection of personal data and the potential for information leaks that may occur. For example, a data security expert from a government technology agency revealed,

"In many e-government systems, especially those that concern citizens' personal information, such as ID card data or financial information, we must ensure that our systems are completely safe and protected from cyberattacks."

Another expert added that the government must commit to adopting security standards that are in line with the latest technological developments to avoid potential risks.

"The rise of cybercrime and attacks targeting government data makes data protection one of the most crucial aspects," said an official who handles information security policy at a ministry.

Therefore, there is an urgent need to strengthen security infrastructure in e-government implementation, including the use of data encryption, two-factor authentication, and continuous auditing and monitoring of digital platforms.

3.1.4. Administrative Efficiency and Speed of Decision Making

Most interviews with information technology experts show that e-government can improve administrative efficiency and speed of decision-making. Technologies such as cloud computing and big data make it easier for governments to manage, analyze, and share data more efficiently. For example, an expert in the field of cloud computing stated,

"By using a cloud-based system, data can be stored and accessed more quickly, allowing for more timely and evidence-based decision-making."

The application of big data analytics also helps the government in analyzing public behavior, budget consumption patterns, or even identifying areas that need more attention in public services.

"By utilizing big data, the government can be more responsive to the needs of the community and improve the quality of public services," said a technology expert who focuses on digital government.

However, a number of officials also emphasized the importance of careful policy planning and adequate infrastructure preparation to ensure optimal implementation. "The success of e-government depends not only on technology, but also on organizational readiness and structured policy support," said an official involved in the e-government project.

3.1.5. Recommendations for Successful E-Government Implementation

From this interview, it can be concluded that to increase the effectiveness of e-government in improving transparency and accountability, several important steps need to be taken by the government. Digital education is the main key to improving people's digital literacy, especially in remote areas. Community-based training programs can be very helpful in increasing public understanding of the benefits and ways to use e-government platforms.

In addition, efforts to overcome the problem of internet access can be made by strengthening technological infrastructure in underdeveloped areas, including by collaborating with internet service providers to expand the network to areas that have not yet been reached. Data security must also be a top priority in the development of e-government. The government needs to ensure that the e-government platform used meets high security standards and is equipped with adequate data protection mechanisms.

With these steps, e-government is expected to have a greater impact in increasing transparency, accountability, and efficiency of public administration, as well as supporting the creation of better governance in the digital era.

3.2. Quantitative Survey Results

The study also involved a quantitative survey conducted on 500 respondents consisting of the general public and government employees to measure their perception of the implementation of e-government in increasing transparency and accountability of public administration. This survey is designed to explore

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information about the extent to which the public and government employees feel that e-government can have a positive impact in improving transparency, accountability, and efficiency of public administration.

3.2.1. Public Perception of Government Transparency

The survey results show that 70% of public respondents feel that the implementation of e-government makes it easier for them to access government information, including information on public policies, budget management, and other administrative procedures. Respondents revealed that e-government platforms, such as public information portals and electronic auction systems, have provided ease of access that was previously difficult to obtain.

One respondent who lives in a big city stated, "Now I can access government budget expenditures and get updates on public projects without having to go to a government office or wait for information in the media."

However, while many feel that public information is now more accessible, there is a significant difference between the perception of transparency and government accountability. About 60% of respondents stated that they feel more confident in assessing government performance thanks to open access to data and policy information. This shows that e-government has increased public trust in the government in terms of transparency. However, the more interesting result is that only about 40% of respondents feel that the government really explains the reasons behind important decisions taken, such as budget allocations, project appointments, or policy changes.

This figure reflects the gap between the transparency provided by e-government platforms and the level of accountability perceived by the public. Although information is available, adequate explanation of the context or reasons behind these policies is still lacking.

One respondent said, "I can see the budget and government projects, but often I don't know why the government chose a particular project or how the decision was made."

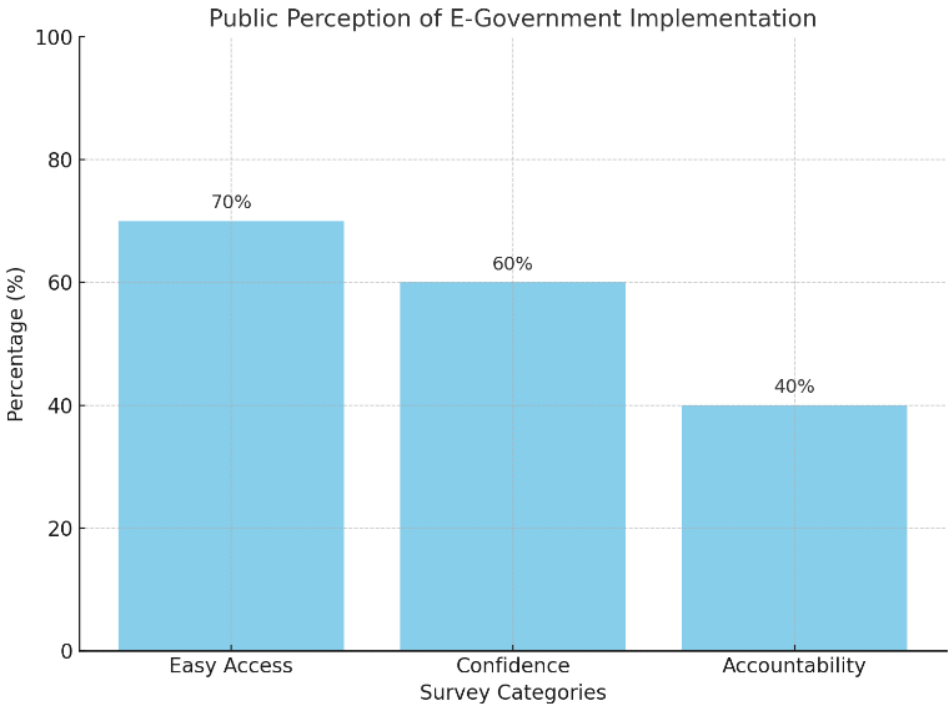

Figure 1.
Public perception of e-government implementation.

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a. Easy Access: Represents 70% of respondents who feel that e-government simplifies access to government information.
b. Confidence: Represents 60% of respondents confident in evaluating government performance due to accessible data.
c. Accountability: Represents 40% of respondents who believe the government provides clear reasons for decisions.

3.2.2. Challenges of Digital Literacy and Data Security

As one of the main challenges faced by the public in utilizing e-government, the survey results also show that digital literacy is a big problem. Only about 45% of respondents feel that they are skilled enough in using digital technology to interact with the government, such as accessing e-government portals, filling out online forms, or applying for public services. One of the more senior respondents commented, "I find it difficult to use this system. I only rely on my children to help access online services." This shows that there is a gap in technological capabilities between the younger generation who are more familiar with technology and the older generation who may not have adequate digital skills.

Digital education and training among the community, especially in remote areas, has become very important. Based on data obtained from the International Telecommunication Union (ITU), 60% of the global population still does not have adequate digital skills to access online services, especially in developing countries. The Indonesian government, for example, reports that although e-government platforms have grown rapidly, 60% of people outside big cities are still not trained enough to make optimal use of these services.

In addition to digital literacy, data security is also a big issue raised by the public in this survey. About 55% of respondents expressed concerns related to how their personal data is used and protected by the government. Issues such as data leaks, system hacks, and misuse of personal information are often cited by respondents as their top concerns. One of the respondents said, "I am worried if my personal data is leaked or misused, because my sensitive data has been entered into the e-government system." This issue was also acknowledged by the State Cyber and Cryptography Agency (BSSN), which reported that attacks on e-government platforms have increased, with personal data and sensitive government documents being the main targets. Therefore, data protection and cybersecurity are the top priorities that need to be addressed by the government.

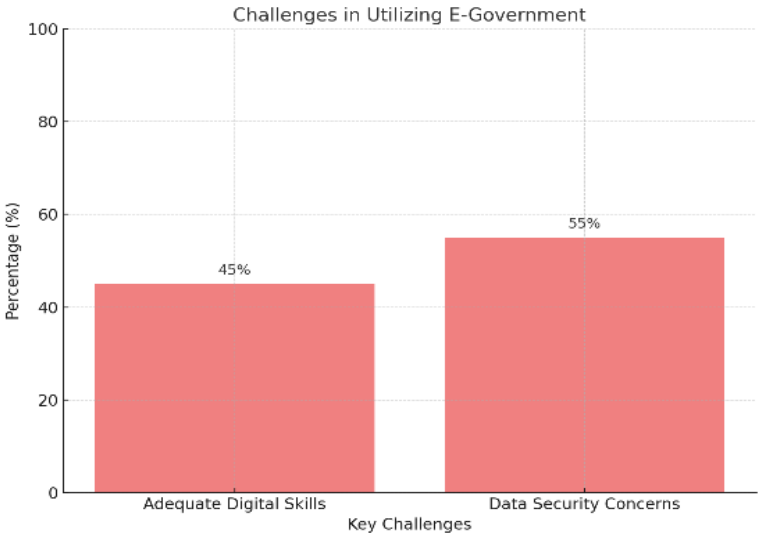

Figure 2.
Challenges In Utilizing E-Government.

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a. Adequate Digital Skills: Only 45% of respondents feel they have sufficient digital skills to interact with e-government systems effectively.
b. Data Security Concerns: 55% of respondents express concerns about how their personal data is used and protected.

This chart visually highlights the critical areas where improvements are needed, including digital literacy and cybersecurity measures, to ensure wider adoption and trust in e-government platforms.

3.2.3. Government Employees' Perception of Efficiency and Accountability

The results of a survey involving government employees showed that the majority of them felt that the implementation of e-government had a positive impact on administrative efficiency and internal accountability. About 85% of employees stated that the e-government system makes it easier to manage data and speeds up administrative processes that previously took a long time. Data that previously had to be managed manually can now be processed faster using an integrated digital platform, reducing the likelihood of errors and supporting more accurate decision-making. An employee from the Finance Office revealed that the process of verifying budget data, which used to take days, now only takes a few hours thanks to the e-government system connected to cloud computing. The technology also allows governments to access and analyze data at scale more efficiently, support transparency, and increase accountability in decision-making.

However, there are still several challenges faced by employees in making the most of e-government. One of the main challenges is the lack of adequate technical training. About 70% of employees revealed that they need additional training to understand and optimize the use of e-government systems. An employee from the State Administration Department stated, "We need more training to understand this system in depth. Without sufficient training, it is difficult for us to make optimal use of existing functions." Another challenge is related to the technological infrastructure gap, where 50% of employees, especially in rural areas, complain of slow internet connections and outdated hardware. This problem hinders them from implementing e-government effectively in their regions, so the impact is uneven across regions.

In addition, 60% of employees identified the lack of integration between different digital systems in various government agencies as a major obstacle to the implementation of e-government. An unintegrated system causes efficiency to be hampered, as employees have to access and process data from different platforms. However, there is optimism emerging from the survey results, where 75% of employees feel that the use of e-government has improved the quality of decision-making. Technologies such as big data analytics and cloud computing allow governments to manage large amounts of data and use that information to make faster, evidence-based decisions. This has a positive impact on bureaucratic efficiency and creates more accountable governance.

However, in order for this positive impact to be felt evenly, the government needs to focus on increasing employee training and investment in technology infrastructure, especially in areas that are still underdeveloped. Technical training programs and efforts to improve internet connections in rural areas are urgently needed to ensure that all government employees are able to make effective use of e-government. By addressing these challenges, e-government can become a more powerful tool to improve transparency, accountability, and administrative efficiency at various levels of government.

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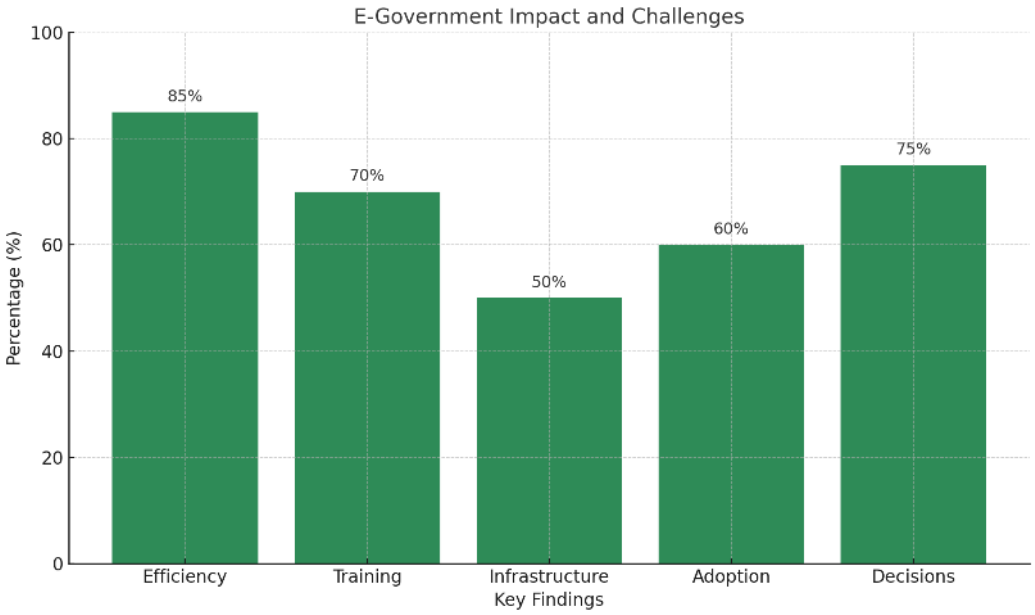

Figure 3.
E-Government impact and challenges.

Here is the chart summarizing the revised key findings from the government employee survey:

a. Increased Efficiency (85%): Most employees reported improved administrative efficiency due to e-government.
b. Need for Training (70%): A significant percentage emphasized the need for additional training to use e-government systems effectively.
c. Inadequate Infrastructure (50%): Employees, particularly in rural areas, cited outdated infrastructure as a major challenge.
d. Adoption Challenges (60%): Lack of integration among digital systems was identified as a barrier to effective implementation.
e. Improved Decision-Making (75%): Employees acknowledged faster and data-driven decision-making through e-government technologies.

This visualization highlights the successes and challenges associated with e-government implementation.

3.3. Analysis of Findings

Transparency: Based on the results of interviews and surveys, the implementation of e-government has been proven to increase transparency in public administration. The e-government platform provides the public with easier access to important information, such as financial data, policies, and budget management results. However, despite the availability of this information, public awareness of e-government is still limited, which can reduce its positive impact on increasing transparency. In addition, although information is accessible digitally, some respondents feel that not all information is explained in detail, which lowers the level of trust in government accountability.

Accountability: E-government has the potential to increase accountability by providing more open data, but many feel that there is a lack of policy explanation and clarity of reasons behind government decisions. This can be seen from the survey results which show that despite increased transparency, only a few respondents feel confident that the government is fully responsible for the decisions taken. One of the factors that affects this is the limitation of two-way communication between the government and the public through digital platforms.

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Implementation Challenges: Although e-government provides many benefits, the challenges in its implementation cannot be ignored. The digital divide, especially related to internet access and digital literacy, is a major problem in many countries, especially in more remote areas. In addition, data security that has not been fully guaranteed adds to the public's uncertainty and distrust of the e-government system.

Overall, this study shows that e-government can improve transparency and accountability in public administration, but there are a number of challenges that must be overcome in order for its implementation to be more effective. Digital education and strengthening technology infrastructure are key factors to ensure that e-government can truly have a positive impact in improving governance. Therefore, it is important for the government to provide training to the public and government employees and strengthen the data security system to encourage public participation in the maximum use of the e-government platform.

4. Conclusion

The results of the study show that e-government has a significant role in increasing transparency, which can be seen from the ease of access to information related to policies, budgets, and administrative procedures. Around 70% of public respondents stated that e-government makes it easier to access public information, while 60% feel more confident in assessing government performance. However, only 40% of respondents considered the government to be sufficiently accountable in explaining the reasons behind important decisions, indicating a gap between transparency and accountability.

From the perspective of government employees, this study finds that e-government has improved administrative efficiency, especially in data management and decision-making. As many as 85% of employees report that administrative processes have become faster with digital platforms, and 75% feel that decision-making has become more accurate thanks to technologies such as cloud computing and big data. However, challenges such as lack of technical training (70%) and inadequate infrastructure (50%), especially in rural areas, remain the main obstacles to the optimal implementation of e-government. In addition, 60% of employees also noted that the lack of integration between digital systems in various government agencies is an important challenge that needs to be overcome immediately.

The issue of data security is also a major concern. About 55% of public respondents expressed concerns about the protection of their personal data, reflecting the importance of strengthening cybersecurity systems on e-government platforms. Other challenges such as the digital divide, especially among undertrained communities or those in remote areas, highlight the need for broader digital education and training.

Based on these findings, it can be concluded that while e-government has great potential to improve transparency, efficiency, and accountability, its success largely depends on several key factors. These factors include increasing digital literacy, providing technical training for employees, investing in technology infrastructure, and strengthening data security systems. The government also needs to ensure that the e-government system is designed to encourage better two-way communication between the government and the public, so that accountability can be significantly improved.

Overall, e-government can be a very effective tool to encourage more transparent and accountable governance, if the challenges can be overcome with the right strategy. The results of this study are expected to be a reference for the government and stakeholders in designing policies and programs that support the successful implementation of e-government in the future

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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