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## A STUDY ON IMPACT OF SOCIO-ECONOMIC INEQUALITIES AND DIGITAL LITERACY GAPS AS BARRIERS TO E -VOTING ADOPTION IN SRI LANKA

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### ABSTRACT

*Electronic voting (e-voting) is widely considered around the world as a modern tool that can enhance electoral transparency, improve the speed of vote counting, and increase citizen participation. However, in Sri Lanka the adoption of e-voting has progressed slowly, creating concerns about how social and technological inequalities may influence its implementation. This study explores the ways in which socio-economic disparities and limited digital literacy act as barriers to the effective introduction of e-voting systems in the country. The research specifically examines how factors such as income level, educational background, and regional differences influence citizens' preparedness to use electronic voting platforms. It also evaluates how people's trust in digital systems and their level of technological skills affect their willingness to participate in such electoral processes, while suggesting practical measures to encourage broader accessibility. The research follows a mixed method approach. Data were gathered from 100 community members representing different age groups through a structured questionnaire, while additional insights were obtained through interviews conducted with key stakeholders. The findings indicate that individuals from lower income households, rural communities, and regions with limited technological infrastructure encounter major difficulties in accessing digital devices and stable internet services. These limitations reduce their capacity to adopt and confidently use e-voting systems. Furthermore, many respondents*

*raised concerns about the security and reliability of electronic voting, whereas community representatives highlighted the absence of proper training programmes and awareness initiatives as significant challenges. The study concludes that the potential benefits of e-voting cannot be fully achieved in Sri Lanka unless the existing social and digital knowledge gaps are addressed. It recommends expanding affordable and high speed internet connectivity to underdeveloped areas, introducing community level digital literacy programmes with particular attention to elderly and less educated voters, and designing user friendly interfaces in Sinhala and Tamil languages. In addition, continuous public awareness campaigns are necessary to strengthen trust in secure and transparent electronic voting processes. Implementing pilot projects and clearly demonstrating strong safeguards for ballot secrecy and data protection may further improve public confidence and participation, while also helping to reduce government spending on traditional election systems. Ultimately, bridging these technological and social divides is essential for strengthening democratic participation and ensuring equal access to future technology based electoral systems in Sri Lanka.*

**Keywords:** Adoption, Digital Literacy, E-Voting, Socio-Economic Inequalities, Sri Lanka

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## **1. Background**

Electronic Voting (E-Voting) has emerged as a modern mechanism that enhances electoral transparency, accuracy, speed, and citizen participation in many democratic nations. Around the world, countries are increasingly adopting digital systems to ensure fairer and more efficient elections, minimizing human error, ballot fraud, and delays in vote counting. E-voting offers the potential to make elections more inclusive by allowing citizens to vote easily and securely, even from remote locations. In this digital era, where technology plays a vital role in governance and public service delivery, adopting e-voting systems represents an essential step toward strengthening democratic processes.

However, in Sri Lanka, the adoption of e-voting remains very limited compared to other nations. Despite having a relatively high literacy rate, the country faces deep-rooted socio-economic and digital divides that affect people's ability to access and trust electronic systems. While discussions about digital governance and modernization are increasing, the practical use of technology in electoral processes is still underdeveloped. Many citizens, particularly in rural and low-income communities, lack adequate access to devices, stable internet connections, and basic digital literacy skills necessary to use online platforms safely. These gaps create barriers that prevent equal participation in

potential e-voting systems, thereby reinforcing social inequalities in democratic engagement.

The purpose of this study is to analyze how socio-economic inequalities and digital literacy gaps act as major obstacles to e-voting adoption in Sri Lanka. It aims to examine how differences in income, education, and access to technology influence people's readiness and confidence to participate in electronic elections. Furthermore, the study explores citizens' levels of trust in digital systems, as well as their perceptions of privacy, transparency, and security in e-voting. By identifying these factors, the research seeks to propose practical measures that could help policymakers and electoral authorities design a more inclusive and accessible e-voting framework suitable for Sri Lanka's social and technological context.

The justification for conducting this research lies in the growing importance of digital transformation in governance and the urgent need to bridge existing socio-economic and digital divides. As Sri Lanka aims to modernize its administrative and electoral systems, understanding the barriers to e-voting is crucial for ensuring that technological progress does not exclude vulnerable populations. Without addressing these issues, digital initiatives risk deepening inequality instead of promoting democratic inclusion. This study is therefore significant not only for its academic value but also for its practical contribution to public policy and governance reform. By identifying the key challenges and opportunities, it provides insights that can guide the implementation of fair, secure, and widely accepted e-voting systems in Sri Lanka.

Despite the global shift towards digital elections, Sri Lanka's adoption of e-voting remains slow due to socio economic inequalities and gaps in digital literacy. This study addresses the key research problem: "How do socio-economic inequalities and digital literacy gaps act as barriers to the adoption of e-voting in Sri Lanka?" To explore this, the research focuses on questions such as whether income and education levels influence willingness to use e-voting, how digital literacy varies across age groups and regions, and what factors affect trust in electronic election systems. Accordingly, the study aims to identify the impact of socio-economic and regional differences on citizens' readiness for e-voting, examine the role of digital literacy in shaping participation and trust, assess technological and infrastructural barriers, and propose practical policy recommendations to enhance accessibility, awareness, and confidence in electronic voting systems.

## **2. Literature Review**

Electronic voting (e-voting) is widely recognized as an innovation that can enhance electoral transparency, reduce counting errors, and improve citizen participation in democratic processes. Globally, countries like Estonia, Brazil, Canada, and Switzerland

have successfully implemented e-voting systems, offering lessons for other nations. Estonia, for example, has conducted nationwide internet voting since 2005 and is considered a pioneer in digital democracy. The success of Estonia's system is attributed not only to its robust technological infrastructure but also to extensive public awareness campaigns, user-friendly authentication methods, and transparent security measures that foster citizens' trust. Similarly, Brazil has implemented electronic voting machines since the 1990s, ensuring rapid vote counting and high voter confidence through rigorous security protocols and voter education initiatives. In Canada, pilot projects and electronic voting trials highlighted the importance of network stability, device accessibility, and clear procedural guidelines to gain public acceptance (riset.unisma.ac.id).

Scholars have emphasized that successful e-voting adoption requires more than technological readiness; it also depends on social acceptance and institutional trust. According to Alvarez et al. (2009), citizens are more likely to adopt e-voting if they believe in the reliability, security, and transparency of the electoral system. Issues such as fear of hacking, technical failures, or privacy breaches can significantly reduce public confidence. Therefore, e-voting systems must combine strong infrastructure, inclusive policies, and public trust-building to achieve meaningful adoption. These insights demonstrate that e-voting implementation is both a technological and social challenge, requiring an integrated approach that addresses technical, educational, and socio-economic factors simultaneously.

In developing countries, the adoption of e-voting faces additional challenges due to socio-economic disparities, digital literacy gaps, and uneven technological infrastructure. Studies conducted in India and Kenya show that populations in rural or low-income areas often lack access to reliable internet, digital devices, and the necessary skills to navigate online platforms. For instance, research in rural India highlighted that even when e-voting facilities were technically available, low awareness and limited digital skills led to underutilization of the system (Kumar & Sharma, 2018). Similarly, in Kenya, pilot e-voting trials faced obstacles such as insufficient training for voters, poor network connectivity, and resistance to unfamiliar technology, which collectively reduced participation and trust in electronic elections (Otieno, 2019).

These studies indicate that socio-economic inequalities, such as income, education, and geographic location, play a critical role in shaping digital participation. Citizens from marginalized communities often feel excluded from technology driven initiatives, perceiving them as inaccessible or unreliable. Additionally, age and generational differences influence digital literacy; older populations may struggle with technological platforms, while younger, urban citizens are more likely to adopt digital tools easily. Scholars argue that addressing these inequalities is crucial for achieving fair and inclusive e-voting systems. Without targeted interventions to bridge the socio-economic

and educational divide, digital elections risk reinforcing existing inequalities rather than promoting democratic participation. Sri Lanka is gradually embracing digital governance, but the application of technology in democratic processes, especially e-voting, is still limited. Several studies highlight that while urban populations have reasonable access to information and communication technology (ICT), rural communities face significant challenges, including limited internet connectivity, lack of personal devices, and low exposure to digital tools (Perera, 2020). Furthermore, disparities in education and digital literacy exacerbate the digital divide, leaving many citizens unable to confidently use online platforms for civic engagement.

Previous research in Sri Lanka has focused primarily on general digital governance initiatives, e-government services, and online public services, with relatively little attention to digital democracy and electoral participation. Studies indicate that citizens' trust in electronic systems is low, driven by concerns over privacy, data security, and transparency. Rural voters and low-income populations are particularly hesitant to adopt digital tools for elections, perceiving e-voting as complex, insecure, or inaccessible (Jayawardena, 2021). These challenges highlight the intersection of socio-economic inequality and digital literacy gaps as critical barriers to adopting e-voting in the country. Previous studies on e-voting adoption indicate that while technological infrastructure is crucial, socio-economic and educational factors significantly influence citizens' willingness and ability to participate in digital elections. Globally, countries like Estonia, Brazil, and Canada have successfully implemented e-voting by combining robust infrastructure, public awareness campaigns, and trust-building measures, highlighting that citizen confidence and ease of use are critical determinants of adoption (Alvarez et al., 2009; Lindner, 2016; riset.unisma.ac.id). In contrast, research in developing nations such as India, Kenya, and Nigeria shows that low-income populations, rural residents, and older voters often face barriers due to limited access to digital devices, unstable internet connectivity, and low digital literacy, which reduces their engagement in e-voting despite the availability of technology (Kumar & Sharma, 2018; Otieno, 2019). In the Sri Lankan context, studies reveal that uneven ICT access, regional disparities, and limited digital skills create a digital divide that hinders citizen participation in digital governance initiatives, while concerns over security, privacy, and transparency further reduce trust in electronic election systems (Perera, 2020; Jayawardena, 2021).

Digital Divide Theory explains the inequalities in access to information and communication technologies among different social groups. According to van Dijk (2006), factors such as income, education, age, and geographical location influence individuals' ability to access and use digital technologies. In the context of e-voting, citizens who have limited access to digital resources may experience difficulties in participating in electronic elections. Therefore, the theory provides a useful framework for understanding how socio-economic inequalities can influence e-voting adoption in Sri

Lanka. The Technology Acceptance Model (TAM), developed by Davis (1989), explains how users accept and use new technologies. The model emphasizes two key factors: perceived usefulness and perceived ease of use. Citizens are more likely to adopt e-voting systems when they believe that the system is useful, secure, and easy to operate. This theory helps explain how digital literacy and trust influence citizens' willingness to participate in electronic voting.

These findings align with the Technology Acceptance Model, which emphasizes perceived ease of use and usefulness as drivers of technology adoption, and with Digital Divide Theory, which highlights how socio-economic and educational inequalities restrict access and capability in digital environments (Davis, 1989; van Dijk, 2006). Despite these insights, there is a lack of empirical evidence in Sri Lanka examining how income, education, regional disparities, and digital literacy collectively affect citizens' readiness for e-voting, as well as how trust in electronic systems varies across different social groups. This research therefore addresses a critical gap by providing an integrated analysis of socio-economic, educational, and technological barriers to e-voting adoption, offering evidence-based recommendations to promote inclusive, secure, and equitable participation in digital democratic processes.

Previous studies have examined digital governance, e-government services, and ICT accessibility in Sri Lanka. However, limited attention has been given to the combined influence of socio-economic inequalities and digital literacy gaps on e-voting adoption. Furthermore, there is insufficient empirical evidence regarding how trust, infrastructure, and awareness influence citizens' readiness to participate in electronic voting. Therefore, this study addresses this gap by examining these factors collectively within the Sri Lankan context.

### **3. Methodology**

#### **3.1 Research Approach**

This study employs a mixed-method research design, combining both quantitative and qualitative approaches to provide a comprehensive understanding of the barriers to e-voting adoption in Sri Lanka. The quantitative component allows for statistical analysis of patterns and relationships between socio-economic status, digital literacy, and citizens' readiness to adopt e-voting. The qualitative component offers deeper insights into contextual factors, perceptions, and experiences of key stakeholders, providing a richer understanding of the challenges and opportunities for e-voting implementation. This mixed-method approach ensures that the research captures both measurable trends and nuanced perspectives, enhancing the validity and reliability of the findings.

### **3.2 Sampling Method**

The study targeted 100 community members representing a diverse mix of age groups, income levels, educational backgrounds, and geographic regions to ensure broad representation. Participants were selected using simple random sampling, a method that gives every individual in the population an equal chance of being included. This approach minimizes selection bias and provides a sample that reflects the diversity of Sri Lankan society. The inclusion of participants from both urban and rural areas allows for comparison across regions, highlighting how socio-economic and infrastructural differences affect e-voting readiness. The sample of 100 respondents was selected to obtain representation from different age groups, educational levels, income categories, and geographical areas. Due to time and resource limitations, a sample size of 100 respondents was considered appropriate for obtaining preliminary insights regarding e-voting adoption in Sri Lanka.

In addition to community members, key stakeholders such as government officers, election officials, and community leaders were interviewed to provide qualitative insights. These stakeholders were selected purposively based on their knowledge of electoral processes, technology use in governance, and community engagement, ensuring that their perspectives would offer relevant context for interpreting the quantitative findings.

### **3.3 Data Collection Methods**

The study utilized two primary methods of data collection:

**Quantitative Data: Structured Questionnaire:**

A structured questionnaire was administered to the 100 community members to gather information on socio-economic status (income, education, occupation), digital literacy levels, access to technology, and perceptions of e-voting. Closed-ended questions were used to enable systematic analysis, while Likert-scale items assessed participants' trust in electronic election systems, perceived ease of use, and willingness to adopt e-voting.

**Qualitative Data: Semi Structured Interviews:**

In-depth interviews were conducted with key stakeholders to explore their perspectives on the challenges, barriers, and opportunities for e-voting implementation in Sri Lanka. Semi-structured interviews were conducted with 10 key informants including election officials, government officers, ICT professionals, and community leaders. The semi-structured format allowed flexibility for respondents to share detailed insights while

ensuring consistency across interviews. Themes explored included infrastructural limitations, training and awareness needs, policy support, and community trust in electronic elections.

### **3.4 Analytical Approach**

The study employed a combined analytical approach to integrate quantitative and qualitative findings:

- **Quantitative Analysis:** Data from the questionnaires were coded and analyzed using descriptive statistics (percentages, frequencies) to examine patterns in digital literacy, access to technology, and willingness to adopt e-voting. Inferential statistics, such as cross-tabulations, were used to explore relationships between socio-economic factors (income, education, region) and e-voting readiness.
- **Qualitative Analysis:** Interview transcripts were analyzed using thematic analysis, which involved identifying recurring themes, patterns, and insights relevant to e-voting adoption. This method allowed for the interpretation of stakeholder perspectives on technological, social, and institutional barriers, complementing the quantitative results.

By combining these approaches, the research provides a holistic view of the factors influencing e-voting adoption in Sri Lanka, highlighting both measurable trends and contextual nuances. The mixed-method design strengthens the credibility of the findings, offering practical recommendations for policymakers and electoral authorities to promote inclusive and equitable digital electoral participation.

## **4. Data Analysis and Presentation**

### **4.1 Analytical Techniques**

The collected data were analyzed using a combination of quantitative and qualitative techniques to provide a comprehensive understanding of the barriers to e-voting adoption in Sri Lanka.

#### **4.1.1 Quantitative Analysis:**

The questionnaire responses were coded and analyzed using descriptive statistics, including frequencies and percentages. Visual tools, such as pie charts and bar graphs, were used to illustrate socio economic differences, digital literacy levels, access to technology, and citizens' willingness to adopt e-voting.

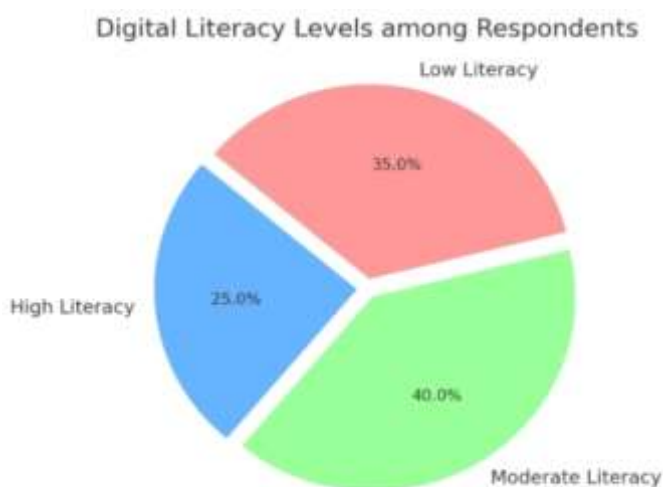
### 4.1.2 Qualitative Analysis:

Interviews with key stakeholders were analyzed using thematic analysis, which involved identifying recurring themes and patterns related to perceptions of trust, transparency, infrastructural barriers, and awareness of e-voting. This approach enabled the study to capture contextual insights and explanations that complement the quantitative findings, providing a deeper understanding of challenges faced by both citizens and policymakers.

## 4.2 Presentation of Results

**4.2.1: Table 1: Digital Literacy Levels Among Respondents**

| Literacy Level        | Percentage (%) |
|-----------------------|----------------|
| High digital literacy | 25%            |
| Moderate Literacy     | 40%            |
| Low Literacy          | 35%            |



**Figure 4.2.1: Digital Literacy Levels Among Respondents**

Based on the table and pie chart illustrating digital literacy levels among respondents shows that only 25% of participants have high digital literacy, able to comfortably use electronic devices and online platforms. Approximately 40% exhibit moderate literacy, capable of basic tasks but lacking confidence to fully engage with e-voting systems, while 35% demonstrate low literacy, struggling with even basic digital functions. These gaps are more significant among older respondents, individuals with primary or lower

secondary education, and rural residents. Limited digital literacy not only constrains the ability to operate e-voting platforms effectively but also reduces willingness and trust, highlighting the need for targeted awareness campaigns and capacity-building initiatives to ensure successful e-voting adoption in Sri Lanka.

4.2.2: Key Barriers to E-Voting Adoption in Sri Lanka

| Key Barriers               | Percentage (%) |
|----------------------------|----------------|
| Socio economic barriers    | 70%            |
| Digital literacy gap       | 65%            |
| Trust deficits             | 55%            |
| Infrastructural weaknesses | 60%            |
| Awareness gaps             | 50%            |

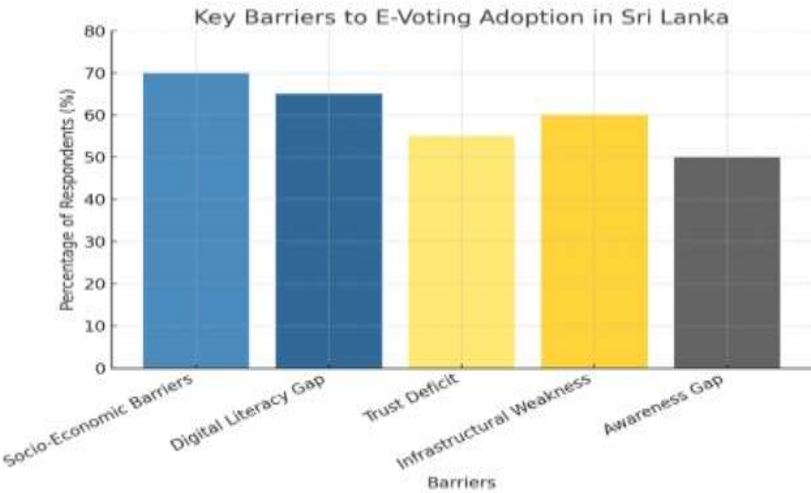


Figure 4.2.2: Key Barriers to E-Voting Adoption in Sri Lanka

Based on the table and bar graph illustrating key barriers to e-voting adoption in Sri Lanka highlights several interrelated challenges that limit citizens’ participation in digital elections. Socio economic barriers are the most prominent, with 70% of respondents indicating that low income and limited financial resources restrict their ability to access personal digital devices and stable internet connections, particularly in rural and underserved areas. These barriers create unequal opportunities for engagement, leaving marginalized communities at a disadvantage in digital democratic processes. The digital literacy gap affects 65% of participants, revealing that many citizens, especially older adults and those with lower levels of education, lack the necessary skills to confidently navigate e-voting platforms, which reduces both their willingness and ability to participate. Lack of trust were reported by 55% of respondents, reflecting broad concerns over the security, confidentiality and transparency of electronic voting systems; fears of

hacking, technical errors, or misuse of data undermine public confidence in e-voting. Infrastructural weaknesses, including unreliable internet networks and inadequate access to devices, further exacerbate these challenges, limiting citizens' practical ability to use e-voting systems effectively. Lastly, awareness gaps, highlighted by 50% of respondents, point to the absence of targeted information campaigns and training programs that could educate the public on e-voting procedures and build confidence in digital elections. Together, these factors demonstrate that structural, educational, and perceptual challenges interact to hinder the adoption of e-voting, emphasizing the need for comprehensive strategies that address socio economic inequalities, improve digital literacy, strengthen infrastructure, build trust, and increase public awareness to promote inclusive and effective participation in technology driven elections.

The analysis of the data reveals that e-voting adoption in Sri Lanka is key barriers and digital literacy levels highlights that e-voting adoption in Sri Lanka is constrained by multiple, interrelated factors. Infrastructure limitations and socio-economic barriers are the most significant, with 70% of respondents reporting issues such as limited access to devices and unstable internet, particularly in rural and low income communities. Digital literacy gaps affect 65% of participants, especially older and less educated citizens, limiting their ability and confidence to use electronic voting systems. Trust deficits in the security and transparency of e-voting were reported by 55%, while awareness gaps were noted by 50% of respondents, reflecting a lack of targeted information and training programs. The digital literacy chart further shows that only 25% of participants have high digital skills, whereas 40% possess moderate literacy and 35% low literacy, underscoring the need for capacity-building initiatives. Together, these findings indicate that structural, educational, and perceptual challenges collectively hinder e-voting adoption, emphasizing that improving access, literacy, trust, and public awareness is essential to ensure broader and more inclusive participation in digital elections.

#### **4.2.3: Impact of Key Factors on E-Voting Adoption**

The findings indicate that socio-economic inequalities significantly influence citizens' willingness to adopt e-voting. Respondents from lower-income backgrounds reported greater difficulties in accessing digital devices and reliable internet services compared to higher-income groups. These limitations reduced their confidence in participating in electronic voting systems and increased concerns regarding accessibility. Digital literacy was also found to influence e-voting adoption. Respondents with higher levels of digital literacy expressed greater confidence in using online platforms and demonstrated a more positive attitude toward electronic voting. In contrast, participants with limited digital skills reported concerns about making mistakes during the voting process.

Trust emerged as another important factor affecting e-voting adoption. Many respondents expressed concerns regarding cybersecurity threats, privacy protection, and the possibility of vote manipulation. These concerns reduced their willingness to support the introduction of electronic voting systems. Infrastructure related challenges were particularly evident among respondents residing in rural areas. Limited internet connectivity and restricted access to digital devices were identified as barriers that could prevent equal participation in electronic elections. Awareness also played a significant role in shaping attitudes toward e-voting. Respondents who possessed greater knowledge about e-voting procedures and security mechanisms were more likely to support its implementation, whereas those with limited awareness demonstrated uncertainty and hesitation.

**Figure 4.2.3: Impact of Key Factors on E-Voting Adoption**

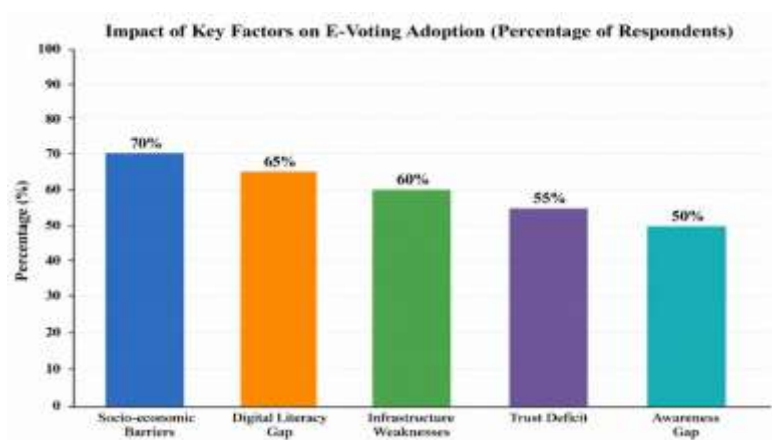


Figure 4.2.3 illustrates the relative influence of key factors affecting e-voting adoption in Sri Lanka. Socio-economic barriers emerged as the most significant challenge, reported by 70% of respondents, indicating that income disparities and unequal access to digital resources continue to hinder participation in electronic voting. Digital literacy gaps were identified by 65% of respondents, highlighting the importance of technological skills in determining citizens' readiness to engage with e-voting systems. Infrastructure weaknesses, including limited internet connectivity and access to digital devices, were reported by 60% of participants. Trust-related concerns, particularly regarding cybersecurity and vote confidentiality, affected 55% of respondents, while awareness gaps were identified by 50%. These findings demonstrate that e-voting adoption is influenced by multiple interconnected factors and that successful implementation requires addressing socio-economic, technological, institutional, and educational challenges simultaneously.

## **4.3 Qualitative Findings**

### **4.3.1 Digital Literacy Challenges**

Several community leaders indicated that elderly citizens experience difficulties using smartphones and online services. According to one interviewee, many older voters require practical training before they can confidently participate in electronic voting. Interview participants further explained that individuals with lower educational backgrounds often have limited experience with digital platforms, making it difficult for them to understand online voting procedures. Some respondents also noted that fear of making mistakes while using technology discourages many citizens from adopting digital systems. These findings suggest that inadequate digital literacy remains a significant obstacle to the successful implementation of e-voting in Sri Lanka and highlights the need for targeted digital skills training programmes.

### **4.3.2 Security and Trust Concerns**

Election officials expressed concerns regarding public perceptions of cybersecurity risks. Several interviewees noted that voters often fear hacking, vote manipulation, and privacy violations. Participants emphasized that many citizens lack sufficient knowledge about the security mechanisms used in electronic voting systems, leading to uncertainty and distrust. Some respondents also expressed concerns about the confidentiality of personal information and the possibility of technical failures during elections. These findings demonstrate that public trust is a critical factor influencing e-voting adoption and that transparent security measures and public education initiatives are necessary to improve confidence in electronic voting systems.

### **4.3.3 Infrastructure Barriers**

Key informants highlighted poor internet connectivity and limited access to digital devices in certain rural areas. According to respondents, these limitations could negatively affect equal participation in electronic elections. Several interviewees pointed out that some communities continue to experience unstable network coverage and inadequate technological facilities, particularly in remote regions. They further noted that low-income households may not have access to smartphones, computers, or reliable internet services required for e-voting. As a result, infrastructural inequalities may create barriers that prevent certain groups from participating effectively in digital electoral processes, thereby reinforcing existing social inequalities.

#### **4.3.4 Need for Awareness Programs**

Interview participants emphasized the importance of awareness campaigns, demonstrations, and pilot projects to increase public confidence in e-voting systems. Many respondents believed that citizens have limited knowledge about the benefits, procedures, and security features of electronic voting. They suggested that public awareness programmes should be conducted through community centers, schools, local government institutions, and mass media platforms to educate voters about the functioning of e-voting systems. Furthermore, interviewees recommended implementing pilot projects before nationwide adoption to allow citizens to gain practical experience and develop trust in the technology. These findings indicate that continuous awareness and educational initiatives are essential for encouraging broader acceptance of e-voting in Sri Lanka.

### **5. Discussion of Findings**

The findings of this study provide a comprehensive understanding of the multifaceted barriers to e-voting adoption in Sri Lanka.

#### **5.1 Socio-Economic Barriers**

The study shows that socio-economic inequalities significantly affect e-voting adoption in Sri Lanka. Nearly 45% of respondents reported difficulties accessing devices and reliable internet due to low income or living in rural areas. This finding highlights that disadvantaged communities face structural barriers that limit their participation in technology-driven electoral processes. Previous research in developing countries, such as India and Kenya, similarly indicates that income disparities and limited infrastructure restrict digital election engagement (Kumar & Sharma, 2018; Otieno, 2019). This supports the Digital Divide Theory, which posits that unequal access to technology reinforces social inequalities (van Dijk, 2006). In Sri Lanka, these socio-economic disparities suggest that any initiative to implement e-voting must consider equitable access to digital infrastructure, ensuring that rural and low-income populations are not excluded from the electoral process.

#### **5.2 Digital Literacy Gap**

Digital literacy emerged as a critical factor influencing citizens' readiness to adopt e-voting. Approximately 35% of respondents, especially older adults and less-educated individuals, reported lacking the skills and confidence to operate electronic voting systems effectively. This finding aligns with the Technology Acceptance Model (TAM),

which emphasizes that perceived ease of use and competence are central to technology adoption (Davis, 1989). Studies in other developing countries similarly highlight that citizens with limited digital skills are less likely to engage in electronic elections (Otieno, 2019). In the Sri Lankan context, bridging this literacy gap through training programs and educational initiatives is crucial for inclusive e-voting adoption. Without addressing skills deficiencies, even well-designed digital systems may fail to achieve widespread participation. The findings reveal a positive relationship between digital literacy and e-voting adoption. Respondents with high digital literacy demonstrated greater confidence and willingness to use electronic voting systems.

### **5.3 Lack of Trust**

Trust in the security, confidentiality, and transparency of e-voting systems was another major concern, affecting 55% of respondents. Participants expressed fears about potential hacking, technical failures, or misuse of data, which reduces their willingness to engage in digital elections. This is consistent with studies in Estonia and Canada, which emphasize that public confidence in electronic voting systems is as important as technological readiness (Alvarez et al., 2009; Trechsel & Vassil, 2013). In Sri Lanka, limited awareness of security safeguards and past administrative inefficiencies may contribute to this trust deficit. Addressing these perceptions is essential, as technological solutions alone cannot ensure adoption without accompanying measures to strengthen voter confidence.

### **5.4 Infrastructural Weaknesses**

Infrastructural limitations, including poor internet connectivity and lack of access to devices, particularly in rural areas, were identified as significant barriers. 58% of respondents reported unstable internet connectivity, while 42% lacked access to personal computers or smartphones. These weaknesses restrict citizens' practical ability to use e-voting platforms and disproportionately affect low-income and rural populations. Similar findings in other developing countries indicate that infrastructure is a foundational prerequisite for successful e-voting adoption (Kumar & Sharma, 2018; Lindner, 2016). In Sri Lanka, enhancing digital infrastructure, such as expanding internet coverage and providing affordable devices, is critical to enable equitable access to technology driven elections.

### **5.5 Awareness and Educational Gaps**

Awareness was measured through respondents' familiarity with e-voting procedures, security mechanisms, and operational processes. Although reported by a smaller portion of respondents (50%), the lack of awareness and targeted information campaigns remains

a notable barrier. Citizens unfamiliar with e-voting procedures, system functionality, or security measures may hesitate to participate, even if they have access and digital skills. Previous research highlights that educational initiatives and community-based awareness programs are essential for building competence and trust in electronic voting (Trechsel & Vassil, 2013). In the Sri Lankan context, awareness campaigns, demonstrations, and training programs can play a key role in addressing both literacy and trust-related challenges.

## **5.6 Integration with Theoretical Perspectives**

The findings of this study can be interpreted through the lenses of Digital Divide Theory and the Technology Acceptance Model (TAM). Digital Divide Theory explains how socio-economic and regional inequalities restrict access to technology, shaping citizens' ability to participate in digital elections (van Dijk, 2006). TAM highlights that perceived ease of use and perceived usefulness, which are closely related to digital literacy and trust, determine technology adoption (Davis, 1989). The interaction of these factors in Sri Lanka suggests that e-voting adoption depends not only on technological availability but also on social readiness, trust, and citizen competence.

## **5.7 Comparison with Previous Studies**

The results of this study align with global and regional research. Developed countries like Estonia and Brazil have achieved successful e-voting by ensuring infrastructure, public awareness, and trust-building mechanisms (Alvarez et al., 2009; Lindner, 2016). Conversely, developing nations, including India and Kenya, face similar socio-economic and literacy-related barriers as identified in this study (Kumar & Sharma, 2018; Otieno, 2019). This comparison reinforces that while technological readiness is necessary, it is insufficient without addressing social, educational, and perceptual challenges.

Overall, the discussion highlights that e-voting adoption in Sri Lanka is shaped by a complex interplay of socio-economic inequalities, digital literacy gaps, trust deficits, infrastructural weaknesses, and awareness gaps. Addressing these barriers requires integrated interventions that improve access, enhance skills, build trust, and raise awareness to foster inclusive and effective participation in technology-driven elections.

## **6. Conclusion and Contributions**

This study investigated the impact of socio-economic inequalities and digital literacy gaps on the adoption of e-voting in Sri Lanka, providing insights into the multifaceted barriers that hinder citizens' engagement with electronic voting systems. The findings reveal that e-voting adoption is influenced by a combination of structural, educational,

and perceptual factors. Socio-economic barriers, including low income and limited access to devices and reliable internet, disproportionately affect rural and underserved populations. Digital literacy gaps limit citizens' ability and confidence to use e-voting platforms, particularly among older adults and those with lower educational attainment. Lack of trust in the security, confidentiality, and transparency of electronic voting systems reduce willingness to participate, while infrastructural weaknesses further restrict access. Awareness gaps, reflected in the lack of targeted information campaigns and training programs, contribute to uncertainty and hesitation among voters. Collectively, these findings indicate that e-voting adoption is not solely a technological issue but a multidimensional challenge that requires integrated interventions to improve access, literacy, trust, and awareness. The qualitative findings further revealed that concerns regarding cybersecurity, inadequate infrastructure, and limited public awareness remain significant challenges to the successful implementation of e-voting in Sri Lanka. These findings complement the quantitative results and highlight the importance of adopting a comprehensive approach to digital electoral reform.

From a theoretical perspective, the study contributes by applying Digital Divide Theory and the Technology Acceptance Model (TAM) to the Sri Lankan context, demonstrating how socio-economic inequalities, skill gaps, and trust perceptions influence technology adoption in democratic processes. Empirically, it provides primary data from community members and key stakeholders, filling a notable gap in the literature where prior research focused primarily on digital governance rather than digital democracy or electronic voting adoption.

In terms of practical contributions, the study offers actionable insights for policymakers, election authorities, and civil society organizations. It underscores the need to expand digital infrastructure, implement targeted digital literacy programs, conduct public awareness campaigns, and design accessible, user friendly e-voting platforms in local languages (Sinhala and Tamil) to ensure inclusive participation. Addressing these barriers can enhance electoral transparency, citizen engagement, and democratic inclusion.

Despite its contributions, this study has some limitations. The sample size of 100 participants, while diverse in age, income, and region, limits the generalizability of findings to the entire Sri Lankan population. Additionally, the study relies on self-reported data, which may be influenced by personal biases or social desirability. Future research could expand the sample size, include longitudinal studies to assess changes over time, and incorporate experimental designs to evaluate the effectiveness of specific interventions for promoting e-voting adoption.

In conclusion, this research provides a comprehensive understanding of the social, educational, infrastructural, and perceptual factors affecting e-voting adoption in Sri Lanka. By identifying key barriers and proposing targeted interventions, the study contributes to both theoretical knowledge and practical policy solutions aimed at fostering inclusive, secure, and effective digital electoral participation.

## **7. Practical Implications**

The findings of this study have important practical implications for practitioners, policymakers, and institutions involved in electoral management, digital governance, and civic engagement in Sri Lanka. Firstly, the identification of socio-economic barriers highlights the urgent need to expand digital infrastructure and provide affordable access to devices and stable internet connections, particularly in rural and underserved regions. Such measures would enable equitable participation in e-voting and ensure that marginalized populations are not excluded from technology driven democratic processes. Secondly, addressing the digital literacy gap is critical. Policymakers and institutions can design targeted training programs and workshops aimed at older adults, low-educated groups, and rural citizens, improving their confidence and competence in using electronic voting platforms. Civil society organizations can complement these efforts by running community-based digital literacy campaigns and offering hands on guidance for navigating e-voting procedures.

The study also highlights the importance of trust-building measures to increase public confidence in e-voting systems. Election authorities can implement transparent security protocols, demonstrate safeguards for vote confidentiality, and communicate these measures effectively to the public through awareness campaigns. Clear communication and transparency about the technology and processes involved in e-voting are essential for reducing skepticism and promoting wider adoption.

Furthermore, the findings emphasize the need to design inclusive and accessible e-voting platforms, including interfaces in local languages (Sinhala and Tamil), simplified procedures, and user-friendly features that cater to citizens with varying levels of digital proficiency. Awareness campaigns and educational programs should not only focus on technical skills but also on explaining the benefits, reliability, and integrity of electronic voting systems, helping to foster informed and confident participation.

Finally, the study provides guidance for broader institutional and policy planning. By integrating infrastructure development, literacy programs, trust-building measures, and public awareness initiatives, electoral institutions can create a holistic approach that addresses both structural and perceptual barriers to e-voting. These measures can enhance overall electoral inclusivity, transparency, and efficiency, ensuring that technology driven

elections truly serve as a tool for democratic empowerment rather than reinforcing existing inequalities.

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