# Driving Forces for Building Trust among Citizens on e-Government Websites: User Perceptions in the Galle District, Sri Lanka

**Piyumi Seneviratne**
*University of Sri Jayewardenepura, Sri Lanka*
*piyumiseneviratne93@gmail.com*

**Kanishka Karunasena**
*Sri Lanka Computer Emergency Readiness Team (SLCERT|CC), Sri Lanka*
*Kanishka.karunasena@gmail.com*

## Abstract
In the field of e-government, trust is a critical factor in successful online service delivery. It is evident that the transparency is not clearly apparent through some of the government websites of Sri Lanka. The main objectives of this study are to identify the driving forces that are required to build government website-oriented citizen trust and to provide suggestions for policymakers to ameliorate government website-oriented citizen trust. This research is conducted based on quantitative research methods involving deductive approach with hypothesis testing and confirmatory factor analysis. The findings reveal key obstacles such as usability limitations, accessibility barriers, and disparities in user trust and suggests practical improvements, including refining interface design, strengthening cybersecurity protocols, and introducing personalized digital services to enhance user experience. Additionally, integrating AI-driven support tools, expanding digital literacy initiatives, and optimizing multi-channel service delivery are recommended to improve accessibility and foster public confidence. The results of the study can be valuable for policymakers in efficiently executing approaches to enhance citizen confidence in e-government for addressing potential risks and susceptibilities related to the usage of e-government websites.

**Keywords**: e-Government Website Quality, Government Website-oriented Citizen Trust, Hedonic Motivation, Usability Performance, Website Security

## 1. Introduction
The Network Readiness Index (NRI) is a significant global measure used to assess the integration and impact of ICT in economies worldwide (Dutta & Lanvin, 2022). Within this framework, trust is defined as the security of individuals and businesses in the networked economy, creating an environment conducive to fostering trust and reliable behaviour among the population (Dutta & Lanvin, 2022). NRI evaluates 131 economies across various dimensions, with trust being one of its sub-pillars. Sri

Lanka, positioned at 96 in the 2022 ranking, underscores the importance of trust in accomplishing e-government objectives.

The advancement of e-government initiatives in Sri Lanka has faced obstacles, as evidenced by the country's descent to the 95th position out of 193 nations in the 2022 E-Government Development Index (EGDI). Notably, this represents a drop from its 2020 ranking of 85 (United Nations, 2023a). The EGDI assesses a country's website development trends, considering factors such as advancements in online services (institutional framework, service provision, content provision, technology, and e-participation), infrastructure, and literacy levels. It measures the utilization of ICT applications for improving access and inclusivity (United Nations, 2023b). There is a noticeable downward trend in Sri Lanka's performance in the Online Services Index (Younus et al., 2023).

The Human Capital Index for Sri Lanka remained stagnant between 2020 and 2022 (Younus et al., 2023). According to Younus et al. (2023), countries in South Asia, including Sri Lanka, faced challenges in advancing their electronic government initiatives in 2022. This hindrance could potentially be attributed to economic uncertainty, heightened inflation related to commodity price trends, rises in fuel costs, and the conflict between Russia and Ukraine. These factors shifted focus away from e-government initiatives towards maintaining economic stability and addressing social unrest (Younus et al., 2023).

Sri Lanka's ranking in the e-participation index fell to 107 out of 193 countries in 2022, a significant drop from its position of 66 in 2020 (United Nations, 2023a). The e-participation index evaluates how governments use e-participation mechanisms compared to other nations, providing insights into how countries utilize online tools to improve communication between the government and citizens for mutual benefits (United Nations, 2023c).

There is no evidence of implementing feedback or survey tools to provide statistical support and boost citizen engagement. In their review of selected e-government websites in Sri Lanka, Sittampalam et al. (2016) discovered that over 90% of these sites may inconvenience or obstruct users with disabilities.

The Sri Lankan police website was hacked on April 18, 2022 (10QBIT, 2022). Amid the unprecedented rise of the 'Aragalaya' conflict in Sri Lanka, anonymous hackers also targeted the websites of the Ceylon Electricity Board and the Department of Immigration and Emigration (10QBIT, 2022). These incidents could negatively affect citizens' long-term trust in adopting Sri Lanka's e-government, thereby jeopardizing the government's overall reputation.

The reluctance of older citizens to embrace e-government, particularly government websites, may hinder progress, pushing the nation backward rather than forward. Similarly, Karunasena and Deng (2009) emphasized that the government's transparency is not clearly apparent through the websites.

E-government platforms have become essential for modern governance, enabling efficient public service delivery, increasing transparency, and fostering citizen participation. Despite continued investments in digital transformation, many governments face persistent challenges such as declining user adoption, economic instability, and growing cybersecurity threats. These issues point to underlying weaknesses in the accessibility, trust, and overall effectiveness of e-government systems. While existing research has explored various aspects of digital governance, there is limited focus on how these broader challenges directly impact user engagement and service delivery.

In this context, this study poses the following research questions:

01. What are the driving forces that are required to build government website-oriented citizen trust?

02. What are the suggestions to improve government website-oriented citizen trust?

This study aims to fill that gap by examining the role of usability, digital literacy, and security concerns in shaping the success of e-government platforms. Most of the studies focused on a generalized approach to digital governance, but this research specifically investigates how these factors contribute to adoption barriers and trust issues. By drawing connections between declining public confidence, security vulnerabilities, and economic pressures, the study seeks to offer practical solutions for strengthening e-government services.

## 2. Literature Review

### 2.1. E-government Websites

Digital governance refers to the utilization of ICT, particularly via the World Wide Web, aimed at enhancing the effectiveness, efficiency, and quality of government information and services provided to various stakeholders (Lindgren et al., 2019). Ray (2023) posits that e-government websites set themselves apart from others primarily through their visual presentation. They are specifically crafted to efficiently deliver information, employing a straightforward approach with logically structured sites for easy navigation.

### 2.1.1. Theoretical Background

This study is supported by the Political Trust Theory. Turper and Aarts (2017) elucidate that political trust encompasses citizens' faith in political norms and regulations, serving as a gauge of political legitimacy. As per the authors, the erosion of political trust is primarily attributed to global shifts brought about by modernization and globalization, which in turn foster increased levels of education among citizens. This educational advancement heightens expectations and discontentment with the inadequacies of the prevailing political system.

Further, this study examines the factors of perceived usefulness and perceived ease of use within the framework of the Technology Acceptance Model (TAM). The TAM has established that perceived usefulness and perceived ease of use are pivotal in determining technology acceptance (Davis, 1989), thereby influencing trust in the technology. Given the importance and widespread applicability of these variables in e-government research, they have been included in this study. The proposed TAM is capable of predicting an individual's acceptance of innovation (Jahangir & Begum, 2008, cited in Chen & Aklikokou, 2019).

The social influence factor from the UTAUT model was also incorporated into the present study. This decision stemmed from the assumption that citizens' trust in e-government is rooted in psychological agreement and is influenced by behavioural intention. When predicting the intention to use technology and its actual usage, four dimensions come into play: performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2016, as cited in Chen & Aklikokou, 2019). According to Jackson et al. (2013), performance expectancy and effort expectancy align conceptually with perceived usefulness and perceived ease of use, respectively, in TAM.

The current research incorporates hedonic motivation, supported by the UTAUT2 model, which has expanded the original UTAUT model by introducing three new constructs: hedonic motivation, price value, and habit (Venkatesh et al., 2012). Hedonic motivation is specifically addressed in this study because it is recognized as a robust predictor of behavioral intention by Venkatesh et al. (2012).

The concepts of website security and vulnerability intensity are linked to the Protection Motivation Theory, which stands as one of the early theories focusing on the psychological aspect of individuals' inclination to protect themselves from threats (Marikyan & Papagiannidis, 2023). Key variables outlined in this theory include vulnerability, severity, response efficacy, and perceived self-efficacy (Sutton, 2015). This aspect was integrated into the conceptual framework of the present study by considering both the current economic state of the country and the diverse cyber-attack risks faced by individuals.

### 2.1.2. The Conceptual Framework

Based on the theoretical background this study identifies seven independent variables namely, Utility Performance, Usability Performance, Social Influence, Vulnerability Intensity, Website Security, Hedonic Motivation, E-government Website Quality and the dependent variable is the Government Website-Oriented Citizen Trust. These variables will be discussed in the proceeding section.

Utility Performance: This variable is the same as the perceived usefulness variable used in TAM. Chen and Aklikokou (2019) emphasized the significant influence of "perceived usefulness" on the "behavioral intention to adopt e-government services." Additionally, Abu Karsh and Hussein (2021) indicated that performance expectancy (also known as perceived usefulness) affects the behavioral intention to utilize e-government public services and is moderated by educational level.

Usability Performance: This variable is the same as the “perceived ease of use” variable used in TAM. Chang and Almaghalsah (2020) conducted research to evaluate the usability of e-government websites in Taiwan, focusing on specific issues identified within targeted websites. The study involved assessing two local e-government websites: national taxation and the ministries of finance and interior. Nielsen's usability heuristic evaluation method was utilized. Findings revealed that dimensions such as user assistance, user control and freedom, efficiency and flexibility of use, and visibility of system status significantly impacted “perceived ease of use” (Chang & Almaghalsah, 2020). The study concluded that improving website design, particularly in terms of navigation, aesthetics, content, accessibility, and customization, is likely to promote users' adoption of e-government (Chang & Almaghalsah, 2020). Perceived ease of use exerts a moderately positive and significant influence on attitudes towards utilizing e-services (Elkheshin & Saleeb 2020).

Social Influence: Abu Karsh and Hussein (2021) confirmed and supported the hypothesis that social influence significantly impacts the behavioral intention to use online government services. Similarly, Susanto and Aljoza (2015) asserted that social influence significantly pressures individuals to adopt e-government services, especially in developing countries. Albesher (2015) asserts that social influence is a significant factor in determining how much citizens embrace e-government services.

Vulnerability Intensity: During the COVID-19 pandemic, people facing financial instability or lacking political influence tend to have lower levels of trust (Organisation for Economic Co-operation and Development [OECD], 2023). Therefore, prompt government actions are crucial to building trust in a crisis situation (OECD, 2023). Increased uncertainty due to the epidemic, disruptions in

transportation processes, and healthcare facilities prioritizing COVID-19 patients, influence individuals' decisions to adopt digital health solutions (Wang et al., 2021).

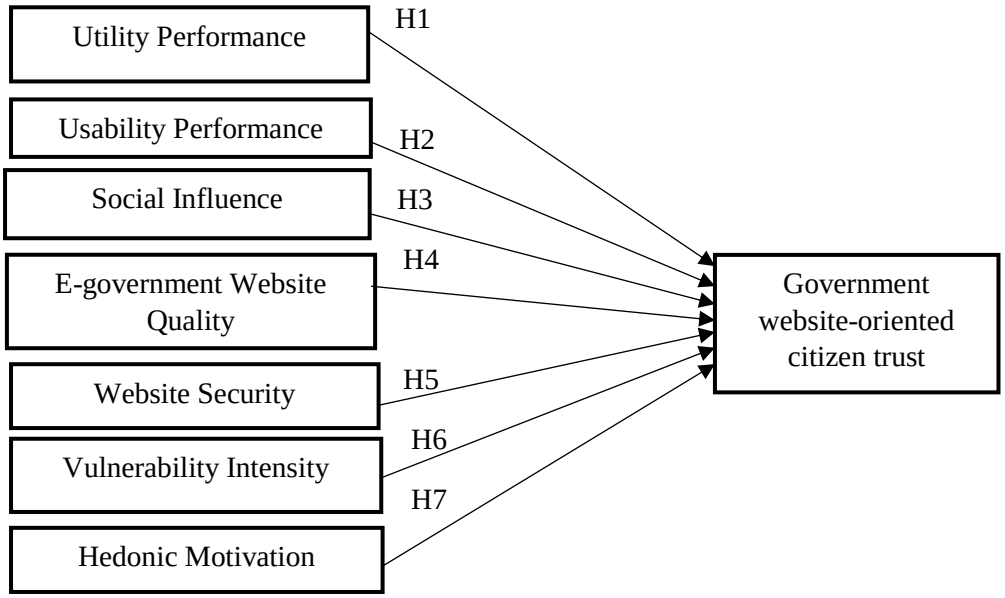
Website Security: Pribadhi et al. (2021) state that security and privacy are crucial for fostering confidence in e-government. Research by Dwivedi et al. (2017) and Munyoka and Maharaj (2019) identifies perceived threat as a key factor influencing trust in digital government.

Hedonic Motivation: Kaczmarek (2017) defines hedonic motivation as the desire to partake in activities that increase positive experiences and decrease negative ones. Khatimah et al. (2019) explored the relationship between hedonic motivation and social persuasion on the intention to use e-cash, with payment habits serving as a mediator. Their study revealed that hedonic motivation significantly influences payment habits and that it substantially affects behavioral intention through the mediation of these payment habits.

E-government Website Quality: Sitokdana (2019) evaluated the information standards of virtual government websites managed by regional administrations in eastern Indonesia. The results highlighted that all these websites in eastern Indonesia were insufficient in providing high-quality information to the public (Sitokdana, 2019). Pribadi et al. (2021) found a significant and positive correlation between the quality of information and trust in e-government. Similarly, Ranaweera (2016) confirmed that information standards play a crucial role in building trust in virtual government services. Lee et al. (2020) found that individuals who perceive higher levels of information literacy are more likely to trust a website.

Government Website-Oriented Citizen Trust: The different categories of trust in e-government include trust in stored data, trust in transactions, trust in service, and trust in information (Papadopoulou et al., 2010). Developing countries have encountered difficulties in implementing e-government systems due to significant disparities between users and platforms, largely caused by users' reluctance to adopt the new technology (Heeks, 2003, cited in Abu Karsh and Hussein, 2021).

***Figure 01: The conceptual framework of the research***




*Source: Based on Literature*

## 3. Methodology

This research is conducted based on quantitative research methods involving deductive approach with hypothesis testing and confirmatory factor analysis. Many previous studies investigating the factors that influence trust in e-government websites have utilized a quantitative research approach.

The implementation of quantitative research begins with identifying primary and secondary research questions. To address these questions, hypotheses are developed and tested within a conceptual framework.

***Table 01: Operationalization of the Research Variables***

| Variable | Description | Survey item | Sources of survey items |
|---|---|---|---|
| Utility Performance | The extent to which a person perceives e-government services as advantageous in comparison to conventional methods of delivering public services (Chen & Aklikokou, 2019) | 1.The convenience of existing e-government websites<br>2.The potential of existing e-government websites to save time<br>3.The potential of existing e-government websites to save costs | Chen and Aklikokou (2019), Susanto and Aljoza (2015) |

| | | | |
|---|---|---|---|
| Usability Performance | The extent to which a particular system or website user perceives it to be user-friendly (Davis, 1989). | 1.Visual appeal of current e-government websites, specifically in terms of navigation<br>2.The functionality of e-government websites in terms of accessibility from any device, at any time, and from any location<br>3.Loading Speed | Becker (2005), Chang and Almaghalsah (2020) |
| Social Influence | The extent to which a person is influenced by the ideas of the external environment for adoption of an e-service application (Chen & Aklikokou, 2019). | 1.The influence of any negative comments from friends on e-government websites<br>2.The influence of any positive comments from friends on government websites<br>3.The impact of media channels, particularly TV news, on encouraging the use of digital government websites<br>4.The effect of expert speeches worldwide on emphasizing the significance of utilizing e-services through government websites | Chen and Aklikokou (2019) |
| E-Government Website Quality | The ability of government websites to meet the standards and expectations of citizens (Pribadhi et al., 2021) | 1.Up-to-date information delivery<br>2.Providing relevant information<br>3.Adaptation of Simple and understandable format<br>Delivering standard-quality services<br>4.Providing feedback | Pribadhi et al. (2021) |

| | | | |
|---|---|---|---|
| Website Security | Precautionary measures to strengthen protection of government websites from cyber attacks (Pribadhi et al., 2021) | 1.Use of proper security controls<br>2.Safety of online transactions<br>3.Privacy of personal data | Pribadhi et al. (2021) |
| Vulnerability Intensity | The weight of the risk associated with citizens' ability to take care of themselves due to social risks (Sutton, 2015). | 1.Difficulties experienced with the COVID-19 pandemic<br>2.Difficulties with the economic crisis<br>3.Ability to grab opportunities | Belyi and Chugunov (2021), Ceesay and Bojang (2020) |
| Hedonic Motivation | The pleasure or satisfaction experienced from utilizing a technology (Venkatesh et al., 2012) | 1.Happiness with the use of advanced technology<br>2.Excitement to use advanced technology | Kaczmarek (2017), Khatimah et al. (2019) |
| Government Website-Oriented Citizen Trust | The extent to which citizens believe in government websites (Pribadhi et al., 2021) | 1.Willingness to conduct online transactions<br>2.The level of trust in e-government websites regarding the dissemination of reliable information<br>3.The extent of trust in the transparency of e-government websites<br>4.The level of confidence in e-government websites regarding safeguarding the best interests | Lee et al. (2020) |

*Source: Based on Literature*

This study used a structured questionnaire to collect the data. The questionnaire is structured into three sections. The first section provides participants with an introduction to the research topic. The second section gathers demographic information, including name, age group, employment status, gender, and educational qualifications. The third section consists of questions formatted on a Likert scale, with responses ranging from '1' for very low to '5' for very high.

The survey method is employed to collect primary data from research participants. Initially, the questionnaire is designed and then translated into Sinhala. Following the

development and refinement of the questionnaire based on feedback from a panel of reviewers, a pilot study is conducted with 10 participants to assess their comfort level with the questionnaire. After refining the questionnaire based on input from the review panel and incorporating feedback gathered from a pilot study involving 10 participants, the survey was randomly distributed to citizens visiting both the Galle Four Gravets Divisional Secretariat area and the Baddegama Divisional Secretariat area. Responses were manually recorded using a Google Form. For individuals unable to participate immediately, the Google Form was shared via WhatsApp, and they were asked to provide their contact numbers for follow-up. Additionally, they were encouraged to share the questionnaire with their friends and relatives in Galle.

For this specific research project, random sampling is employed, which involves the random distribution and dissemination of the questionnaire. The total population within the age range of 25 to 64 in the Galle district is 529,828 (Department of Census and Statistics, 2012), making it the target population for this research. To provide justification for selecting this age category, ages 25–64 can be considered the critical age group that determines a large portion of the trust level. The Galle district is selected considering the convenience of collecting data. Yamane (1973) introduced a formula for determining the sample size, which can be presented as follows:

$$Sample\ size = \frac{N}{1+N\,e^2} \quad \text{---------- (1)}$$

$$Sample\ size = \frac{529{,}828}{1 + 529{,}828(0.05^2)} = 400$$

As seen in (1), 'N' represents the population size, while 'e' signifies the precision level associated with a 95 percent confidence interval and a probability of 0.05. By applying this formula, the optimal sample size for the current research is calculated to be 400. This determination was confirmed by consulting the Krejcie and Morgan (1970) table for sample size determination.

The selection of the Stata software package for this research is based on its user-friendly interface and widespread use among researchers. Its extensive resources provide support with commands, and the 'help' command allows users to access guidance on command usage. Stata is particularly advantageous for analyzing large datasets, making it well-suited for extensive application in research.

The regression output is generated to evaluate the relationship between independent and dependent variables. Additionally, hypothesis testing is conducted using t-values, p-values and a 95% confidence interval. The goodness of fit of the model is assessed by calculating the R-squared and the p-value of the F-statistic. The Shapiro-Wilk test is performed to determine the normality of the distribution. The Variance Inflation

Factor (VIF) test is used to evaluate multicollinearity among independent variables. Cronbach's alpha will be calculated to determine whether the combination of items consistently measures the same characteristic. Furthermore, convergent validity and discriminant validity for each variable are evaluated by examining Average Variance Extracted (AVE) values and Squared Correlation (SC) values. The composite reliability, also known as Raykov's reliability coefficient in Stata, is calculated for the variables. The data analysis will involve confirmatory factor analysis, and based on the findings, recommendations for a new model is be proposed.

## 4. Analysis and Discussion

According to the conceptual framework, the Ordinary Least Square (OLS) method is considered the suitable model for the research study.

In this research study, 362 responses were collected, resulting in a response rate of 90.5%. Females provided the highest number of responses (Specifically, 64.92% of survey participants are female, while 35.08% are male). The largest proportion of participants (43.37%) are within the 30-34 age group. In contrast, the 50-54 age group has the fewest (1.93%) participants. The highest number of responses (71.82%) were from employed participants, while the fewest (4.97%) were from pensioners. Of the employed participants, 46.69% work in the public sector, while 27.07% are employed in the private sector. Most survey participants (51.66%) are graduates, while the smallest proportion (3.04%) have Ordinary Level (O/L) as their highest level of education.

***Table 02: Reliability Analysis and AVE Values of the Initial Model***

**N=362**

| **Reliability** | | |
|---|---|---|
| | Alpha | AVE |
| Utility Performance | 0.93 | 0.810 |
| Usability Performance | 0.76 | 0.512 |
| Social Influence | 0.74 | 0.432 |
| Website Quality | 0.87 | 0.595 |
| Website Security | 0.84 | 0.645 |
| Vulnerability Intensity | 0.32 | 0.875 |
| Hedonic Motivation | 0.93 | 0.026 |
| Website Trust | 0.88 | 0.638 |

*Source: Survey Data*

As indicated in Table 02, the Cronbach's alpha for all variables exceeds the 0.7 threshold, except for vulnerability intensity. This suggests that the survey items are reliable and internally consistent, and the most items consistently measure the same characteristics, except for those related to vulnerability intensity.

***Table 03: The Squared Correlation (SC) Values of the Initial Model***

| Variable | Utility Performance | Usability Performance | Social Influence | Website Quality | Website Security | Hedonic Motivation | Vulnerability Intensity | Website Trust |
|---|---|---|---|---|---|---|---|---|
| Utility Performance | 1.000 | | | | | | | |
| Usability Performance | 0.598 | 1.000 | | | | | | |
| Social Influence | 0.481 | 0.613 | 1.000 | | | | | |
| Website Quality | 0.380 | 0.794 | 0.496 | 1.000 | | | | |
| Website Security | 0.289 | 0.694 | 0.391 | 0.596 | 1.000 | | | |
| Hedonic Motivation | 0.309 | 0.291 | 0.398 | 0.186 | 0.125 | 1.000 | | |
| Vulnerability Intensity | 1.493 | 1.277 | 1.361 | 0.643 | 0.846 | 2.968 | 1.000 | |
| Website Trust | 0.274 | 0.521 | 0.334 | 0.591 | 0.546 | 0.243 | 1.619 | 1.000 |

*Source: Survey Data*

Convergent validity is established when the Average Variance Extracted (AVE) value exceeds 0.5. According to Table 02, the analysis confirms convergent validity for utility performance, usability performance, e-government website quality, website security, vulnerability intensity and government website-oriented citizen trust. However, the variables social influence and hedonic motivation do not meet this criterion, as their AVE values are below 0.5. Discriminant validity is achieved when AVE values are greater than Squared Correlation (SC) values. When comparing Table 02 and 03, the analysis indicate that Website Quality, Website Security, and Website Trust meet the above criterion, but the other five variables do not have discriminant validity.

The confirmatory factor analysis (CFA) is conducted to assess the validity of the survey items associated with the respective variables, and the results are presented as follows.

***Table 04: Results of Confirmatory Factor Analysis***

| **Construct Items** | **Factor Loading** | **Composite Reliability** | **Variance Extracted Estimate** |
|---|---|---|---|
| Utility Performance | | 0.927 | 0.92 |
| Utility_Performance_1 | 0.85 | | |
| Utility_ Performance_2 | 0.94 | | |
| Utility_Performance_3 | 0.90 | | |
| Usability Performance | | 0.757 | 0.39 |
| Usability_Performance_1 | 0.75 | | |
| Usability_Performance_2 | 0.70 | | |
| Usability_Performance_3 | 0.69 | | |
| Social Influence | | 0.748 | 0.15 |
| Social_Influence_1 | 0.44 | | |
| Social_Influence_2 | 0.82 | | |
| Social_Influence_3 | 0.76 | | |
| Social_Influence_4 | 0.55 | | |
| Website Quality | | 0.879 | 0.43 |
| Website_Quality_1 | 0.78 | | |
| Website_Quality_2 | 0.87 | | |
| Website_Quality_3 | 0.83 | | |
| Website_Quality_4 | 0.78 | | |
| Website_Quality_5 | 0.57 | | |
| Website Security | | 0.844 | 0.44 |
| Website_Security_1 | 0.78 | | |
| Website_Security_2 | 0.82 | | |
| Website_Security_3 | 0.81 | | |
| Vulnerability Intensity | | 0.00 | 0.04 |
| Vulnerability_Intensity_1 | 0.19 | | |
| Vulnerability_Intensity_2 | -0.05 | | |
| Vulnerability_Intensity_3 | -0.20 | | |
| Hedonic Motivation | | 0.933 | 1.05 |
| Hedonic_Motivation_1 | 0.96 | | |
| Hedonic_Motivation_2 | 0.91 | | |
| Website Trust | | 0.875 | 0.39 |
| Website_Trust_1 | 0.81 | | |
| Website_Trust_2 | 0.81 | | |
| Website_Trust_3 | 0.81 | | |
| Website_Trust_4 | 0.77 | | |

*Source: Survey Data*

According to Tavakol and Wetzel (2020), it is more accurate to view the factor loading as indicative of the relationship between a particular survey item and the corresponding factor. Field (2005) agrees with Guadagnoli and Velicer (1988), who propose that a factor loading greater than 0.6 is acceptable regardless of the sample

size. Therefore, as shown in Table 05, all survey items meet this criterion except for Social_Influence_1, Social_Influence_4, Website_Quality_5, 3 items of Vulnerability Intensity. Furthermore, the composite reliability for all variables, except for vulnerability intensity, surpasses the minimum threshold of 0.7.

***Table 05: Model Fit Summary***

| Fit index | Model | Recommendation |
|---|---|---|
| chi2 | 514.68 | n/a |
| df (degree of freedom) | 296 | n/a |
| chi2/df | 1.7 | <2.00 |
| RMSEA [90% CI] | 0.045 | <0.08 |
| SRMR | 0.055 | <0.05 |
| NFI | 0.887 | >0.95 |
| RNI | 0.948 | >0.9 |
| CFI | 0.948 | ≥ 0.95 |
| IFI | 0.949 | ≥ 0.95 |
| MCI | 0.739 | >0.9 |
| p-value = 0.000 | | Non-significant |

*Source: Survey Data*

Researchers assess the Chi-square value by calculating the extent to which the sample's covariance matrices deviate from the model's predictions (Hu and Bentler, 1999, as cited in Hooper et al., 2008). According to Cole (1987), a chi-square to degrees of freedom ratio (chi2/df) below 2.00 signifies an optimal model fit. A lower chi-square value in relation to the degrees of freedom indicates a better fit for the model. Generally, the chi-square statistic is used as a measure of absolute fit (Alavi et al., 2020).

The widely accepted guideline for Root Mean Square Error Approximation (RMSEA) is that it should be less than 0.08 to indicate a best-fit model (Hooper et al., 2008). RMSEA provides an indication of how well a model with optimally selected but unknown parameter estimates align with the population's covariance matrix (Byrne, 1998, as cited in Hooper et al., 2008).

A Standardized Root Mean Square Residual (SRMR) value below 0.05 indicates a good model fit, with the range extending from zero to 1.0 (Diamantopoulos & Siguaw, 2000, as cited in Hooper et al., 2008). However, SRMR values up to 0.08 are still considered acceptable (Hu & Bentler, 1999, as cited in Hooper et al., 2008). Researchers find SRMR easy to interpret because it accounts for the varying scales of survey items (Hooper et al., 2008).

The NFI (Normed Fit Index) statistic evaluates the model by comparing its chi-square value to that of the null model (Hooper et al., 2008). NFI values above 0.95 are

generally preferred according to recent recommendations (Hu & Bentler, 1999, as cited in Hooper et al., 2008). However, researchers may also consider a cut-off value as low as 0.8 to be acceptable (Hooper et al., 2008).

The RNI (Relative Non-centrality Index) value must exceed 0.9 to qualify as a well-fitted model (Bentler & Bonett, 1980, as cited in Gupta & Falk, 2017). This assumption relies on the comparability of sample sizes between the target model and null model (Gerbing & Anderson, 1992).

Scholars consider the Comparative Fit Index (CFI) an improved iteration of the NFI because it provides more precise results due to its responsiveness to the sample size. In current discussions, it is suggested that researchers confirm that the CFI obtained from their confirmatory factor analysis results is at or above 0.95 to signify a strong fit for the model (Hu & Bentler, 1999, as cited in Hooper et al., 2008).

Bollen (1989) introduced the Incremental Fit Index (IFI), presenting it as an updated rendition of the NFI, incorporating adjustments for both sample size and degrees of freedom. The standard deviation for this index is notably reduced compared to earlier versions (Bollen, 1989). Hu and Bentler (1999) indicate that the recent threshold for IFI is around 0.95, marking a shift from the previous cutoff of 0.9.

The threshold for the MCI value stands at 0.9, necessitating it to approach 0.95 or surpass it to qualify as a well-fitted model (Hu and Bentler, 1999). Suhr (2006) proposes that a model with a higher chi-square value and a smaller p-value signifies inadequate fit for the data.

Based on the model fit summary presented in Table 05, the final assessment is that the model demonstrates a satisfactory fit. The model is refined according to the factor loadings derived from each survey item.

The Shapiro-Wilk test operates under the null hypothesis that the data comes from a normally distributed population (Mishra et al., 2019). If the p-value is below the chosen significance level (e.g., 0.01, 0.05, or 0.1), the alternative hypothesis is accepted, providing sufficient evidence to conclude that the variables do not follow a normal distribution (Bobbitt, 2020). The choice to utilize the Shapiro-Wilk test in this research is based on its straightforwardness and effectiveness in evaluating normal distribution properties.

***Table 06: Shapiro-Wilk W Test for Assessing Data Distribution Normality***

Shapiro-Wilk W test for Normal Data

**N=362**

| Variable | W | V | Z | Prob>Z |
|---|---|---|---|---|
| Utility Performance | 0.99526 | 1.192 | 0.417 | 0.33835 |
| Usability Performance | 0.98877 | 2.827 | 2.461 | 0.00692 |
| Social Influence | 0.97692 | 5.812 | 4.168 | 0.00002 |
| Website Quality | 0.98433 | 3.946 | 3.251 | 0.00058 |
| Website Security | 0.99073 | 2.333 | 2.007 | 0.02239 |
| Vulnerability Intensity | 0.98701 | 3.270 | 2.806 | 0.00251 |
| Hedonic Motivation | 0.99567 | 1.089 | 0.203 | 0.41957 |
| Website Trust | 0.97894 | 5.303 | 3.951 | 0.00004 |

*Source: Survey Data*

According to the results shown in Table 06, the p-values for utility performance and hedonic motivation are greater than the significance level of 0.05. This suggests that these variables are normally distributed, as the available evidence does not support a significant deviation from normality. Conversely, the p-values for usability performance, social influence, e-government website quality, website security, vulnerability intensity, and government website-oriented citizen trust fall below the 0.05 significance level. This indicates that these variables do not follow a normal distribution, providing substantial evidence to reject the null hypothesis of normality and accept the alternative hypothesis.

According to Kim (2019), multicollinearity refers to a significant degree of linear correlation among explanatory variables in a multiple regression model, which can lead to inaccurate regression analysis results. The variance inflation factor (VIF) measures the extent to which multicollinearity inflates the variance of a regression coefficient (Fox, 2015). The recommended VIF threshold is 10 (Fox, 2015), and a VIF value exceeding 10 indicates a serious multicollinearity problem.

***Table 07: VIF Test for Determining Multicollinearity***

| Variable | VIF | *1*/VIF |
|---|---|---|
| Usability Performance | 2.98 | 0.335921 |
| Website Quality | 2.67 | 0.374705 |
| Website Security | 2.16 | 0.462906 |
| Utility Performance | 2.03 | 0.493658 |
| Social Influence | 1.91 | 0.523556 |
| Hedonic Motivation | 1.59 | 0.629266 |
| Vulnerability Intensity | 1.00 | 0.995986 |

*Source: Survey Data*

As shown in Table 07, the VIF values for the independent variables, utility performance, usability performance, social influence, e-government website quality, website security, vulnerability intensity, and hedonic motivation are all below 3. This indicates that there is no multicollinearity among the independent variables.

For this research study, the anticipated or forecasted regression model can be detailed as follows given in equation (2):

*Government Website-Oriented Citizen Trust = β1 (Utility Performance) + β2 (Usability Performance) + β3 (Social Influence) + β4 (E-government website quality) + β5 (Website Security) – β6 (Vulnerability Intensity) + β7 (Hedonic Motivation) + C---------(2)*

A correlation coefficient nearing 1 suggests a robust and meaningful correlation. The outline of hypothesis testing guidelines is presented below:

***Table 08: Hypothesis Testing Guideline***

| | | |
|---|---|---|
| **T-Value** | T > 1.96 (Critical T-Value) | Alternative Hypothesis Accepted<br>Null Hypothesis Rejected |
| **P-Value** | p < 0.05 (significance level) | |
| **95% Confidence Interval** | Does not include zero | |

*Source: Survey Data*

Below is the output of the model after accounting for heteroskedasticity adjustments:

***Table 09: The Regression Analysis (Adjusted Model for Heteroskedasticity)***

| **Linear Regression** | | | | **Number Of Observations = 362** | |
|---|---|---|---|---|---|
| | | | | F (7,354) | =60.56 |
| | | | | Prob>F | =0.0000 |
| | | | | R-Squared | =0.5534 |
| | | | | Root Mse | =0.44235 |
| **Website Trust** | **Coef.** | **Std. Err.** | **T** | **P>T** | **95% Confidence Interval** |
| Utility Performance | 0.014 | 0.037 | 0.39 | 0.700 | -0.059 0.088 |
| Usability Performance | 0.028 | 0.059 | .47 | 0.639 | -0.089 0.144 |
| Social Influence | -0.084 | 0.049 | -1.72 | 0.086 | -0.179 0.012 |
| Website Quality | 0.395 | 0.058 | 6.76 | 0.000 | 0.280 0.510 |
| Website Security | 0.267 | 0.050 | 5.32 | 0.000 | 0.169 0.366 |
| Vulnerability Intensity | 0.040 | 0.038 | 1.06 | 0.290 | -0.034 0.115 |
| Hedonic Motivation | 0.142 | 0.037 | 3.81 | 0.000 | 0.069 0.215 |
| _Cons | 0.470 | 0.199 | 2.36 | 0.019 | 0.079 0.861 |

*Source: Survey Data*

According to Table 09, it can be elaborated that 55.34 percent of the variation in government website-oriented citizen trust can be explained using independent variables.

When evaluating the applicability of the hypothesis testing guidelines outlined in Table 09, the variables 'e-government website quality,' 'website security,' and 'hedonic motivation' meet the necessary criteria to accept the alternative hypotheses. Consequently, alternative hypotheses H4, H5, and H7 are considered valid. On the other hand, the variables 'utility performance,' 'usability performance,' 'social influence,' and 'vulnerability intensity' do not meet the required t-value, p-value, and 95% confidence interval criteria specified in Table 09. Therefore, the null hypotheses for these variables are acceptable, leading to the rejection of alternative hypotheses H1, H2, H3, and H6.

According to the factor loadings presented in Table 04, the survey items Social_ Influence_1, Social_ Influence_2, Website_ Quality _5, Vulnerability_ Intensity_1, Vulnerability_Intensity_2, And Vulnerability_ Intensity _ 3 should be excluded from the model due to their factor loading values being below the acceptable threshold of 0.6. Consequently, the vulnerability intensity variable is entirely removed from the model adjusted for confirmatory factor analysis.

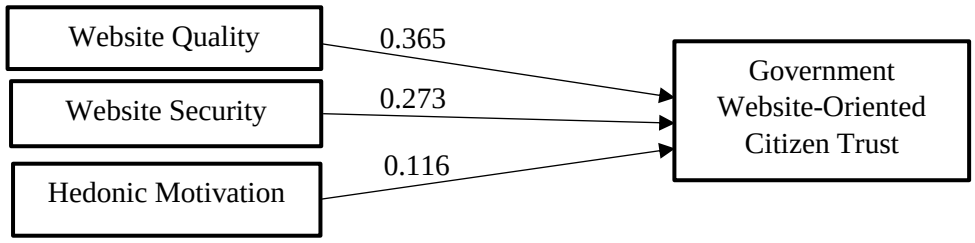
***Table 10: The Hypothesis Validation (Model Adjusted for Confirmatory Factor Analysis)***

| | **Coefficients** | **t-value** | **p-value** | **Confidence interval** | | **Supported** |
|---|---|---|---|---|---|---|
| H1 | 0.002 | 0.06 | 0.956 | -0.064 | 0.068 | No |
| H2 | 0.008 | 0.15 | 0.884 | -0.101 | 0.117 | No |
| H3 | -0.003 | -0.08 | 0.932 | -0.082 | 0.075 | No |
| H4 | 0.365 | 6.89 | 0.000 | 0.261 | 0.469 | Yes |
| H5 | 0.273 | 5.85 | 0.000 | 0.182 | 0.365 | Yes |
| H7 | 0.116 | 4.18 | 0.000 | 0.061 | 0.170 | Yes |

*Source: Survey Data*

According to the results displayed in the Table 10, the conditions involving the t-value, p-value, and 95% confidence interval required to support the alternative hypothesis, as detailed in Table 08, are met for hypotheses H4, H5, and H7. The regression model summary indicates that 54.39 percent of the variation in government website-oriented citizen trust can be attributed to the independent variables: utility performance, usability performance, social influence, e-government website quality, website security, and hedonic motivation (with the exception of vulnerability intensity).

***Figure 02: Regression Coefficient Representation in the Final Recommended Model***




*Source: Survey Data*

With the rejection of hypotheses H1, H2, and H3, as well as the elimination of the vulnerability intensity variable from the confirmatory factor analysis, the final model of the research can be depicted as shown in Figure 02 above.

***Table 11: The Reliability Analysis and AVE Values of the Final Model***

**N= 362**

| **Reliability** | | |
|---|---|---|
| | Alpha | AVE |
| Website quality | 0.88 | 0.664 |
| Website security | 0.84 | 0.645 |
| Hedonic motivation | 0.93 | 0.879 |
| Website trust | 0.88 | 0.656 |

*Source: Survey Data*

Additionally, the Cronbach's alpha for each variable in the approved model exceeds 0.7, indicating the model's strength, as highlighted in Table 11 above.

***Table 12: The Squared Correlation Values of the Final Model***

| **Variable** | **Website Quality** | **Website Security** | **Hedonic Motivation** | **Website Trust** |
|---|---|---|---|---|
| Website Quality | 1.000 | | | |
| Website Security | 0.575 | 1.000 | | |
| Hedonic Motivation | 0.197 | 0.121 | 1.000 | |
| Website Trust | 0.585 | 0.539 | 0.237 | 1.000 |

*Source: Survey Data*

Table 11 demonstrates that convergent validity is established for all variables, with AVE values exceeding 0.5. Moreover, discriminant validity is confirmed for all variables, as the AVE values are greater than the SC values when comparing Table 11 to Table 12.

***Table 13: The Summary of the Final Model***

| Fit index | Model | Recommendation |
|---|---|---|
| chi2 | 94.75 | n/a |
| df (degree of freedom) | 59 | n/a |
| chi2/df | 1.6 | <2.00 |
| RMSEA [90% CI] | 0.041 | <0.08 |
| SRMR | 0.033 | <0.05 |
| NFI | 0.957 | >0.95 |
| RNI | 0.983 | >0.9 |
| CFI | 0.983 | ≥ 0.95 |
| IFI | 0.983 | ≥ 0.95 |
| MCI | 0.952 | >0.9 |
| p-value = 0.002 | | Non-significant |

*Source: Survey Data*

In the final model, the factor loadings of the survey items are all above the acceptable threshold of 0.6. As shown in the model summary in Table 13, all the indices meet the acceptable criteria, further supporting the validity of the final model. Additionally, the composite reliability for all variables is above the 0.7 threshold. With an adjusted R-squared value of 54.77%, it is evident that 54.77% of the variation in citizens' trust in e-government websites can be explained by the independent variables: e-government website quality, website security, and hedonic motivation.

Therefore, the final mathematical regression model can be illustrated as equation (3) below:

*Government Website-Oriented Citizen Trust = β4 (E-government website quality) + β5 (Website Security) + β7 (Hedonic Motivation) + C-------(3)*

Therefore, it can be recapitulated that e-government website quality, website security, and hedonic motivation are the driving forces that are required to build government website-oriented citizen trust.

Findings in this analysis are consistent with the outcomes of research conducted by Pribadi et al. (2021) and Ranaweera (2016), indicating that “e-government website quality" and “website security” are pivotal determinants affecting “Government Website-Oriented Citizen Trust”. A comparison with the study conducted by Yap et al. (2019) reveals alignment on the significance of “e-government website quality." However, the present study diverges in terms of the “utility performance” variable, where dimensions like cost and convenience do not significantly impact “Government Website-Oriented Citizen Trust.”

While Albesher (2015) suggests that “social influence” affects citizen trust in government websites, the current research contradicts this finding in the Sri Lankan

context. It aligns with the findings of Choudrie et al. (2017). Regarding “hedonic motivation," the results of the current study are consistent with the findings of Khatimah et al. (2019). However, the study diverges from the findings of Ceesay and Bojang (2020) on “vulnerability intensity," suggesting that vulnerability is not a significant determinant of “Government Website-Oriented Citizen Trust”. The results for “usability performance” contradict the findings of Sebetci (2015), Chen and Aklikokou (2019), as well as Abu Karsh and Hussein (2021).

## 5. Conclusion

This study investigates the driving forces that are required to build government website-oriented citizen trust. Specifically, the observed relationship between website security and government website-oriented citizen trust validates the hypothesis that when government put effort to secure their websites from cyber threats, the citizens are more likely to build trust in these e-government websites. The statistical analysis further substantiates the study's assumptions, enhancing its reliability.

Moreover, this research contributes to a broader understanding of the pragmatic behavior of government website-oriented citizen trust by offering empirical evidence that supports or refines existing theories. The practical implications suggest that understanding the citizens perception on e-government websites can drive up the transformation of government operations, which could have meaningful effects on e-governance and service delivery.

The government can learn from government websites in other countries and identify the modifications required to upgrade the existing websites. They can be transformed to display the availability status of officers, reducing frustration among the public.

The chatbot applications can be introduced into government websites to upgrade service delivery in the public sector by providing information based on requirements. Feedback tools can be incorporated into e-government websites to improve existing services and service delivery processes. Major improvements to the websites of government regional offices, such as divisional secretariats, are required as rural citizens encounter more difficulties.

Public sector organizations must ensure that their websites are fortified with robust cybersecurity measures. Regular monitoring and cybersecurity audits by qualified IT professionals are recommended to ensure the integrity of e-government websites.

The level of understanding of the research context, considering age and literacy levels, poses a contributory limitation for the research. Therefore, to overcome this problem, data are collected from citizens in the Galle district aged between 25 and 64

with a minimum qualification of O/L (Ordinary Level Examination). As we have adapted the quantitative research method, obtaining the realistic perspective of research participants is not possible, as participants are restricted to a specific questionnaire framework. This study specifically focuses on government-owned websites. Gathering a comprehensive list of individuals aged 25-64 in the Galle district, the targeted population for this research, proves challenging. Despite requesting assistance from the Divisional Secretariat, Galle, it was revealed that they lack a database and are currently in the process of developing one. The research is limited to the citizens of the Galle District.

This research provides valuable insights for policymakers and stakeholders looking to enhance the effectiveness and accessibility of digital government initiatives in an evolving technological landscape.

For future research perspectives, researchers can consider employing a mixed-methods approach to explore whether similar findings are obtained. Utilizing a mixed-methods approach may also help identify new variables or elements articulating citizens' trust in virtual government websites. Additionally, researchers can focus on specific e-government applications, such as the online issuance of revenue licenses or passports, to examine the elements influencing public trust in digital government beyond websites. Exploring the moderating and mediating effects of “citizens' trust in e-government” with the development of conceptual models informed by a comprehensive literature review could be a valuable avenue for further investigation.

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