

-RESEARCH ARTICLE-

THE ROLE OF EFFECTIVE PUBLIC E-SERVICES AND ONLINE SINGLE SUBMISSION IN ENHANCING PUBLIC VALUE NET BENEFITS: A CASE OF THE INDONESIAN PUBLIC-SECTOR NON-PROFIT ORGANIZATIONS

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—Abstract—

Adapting the research methodology proposed by [Sterrenberg \(2016\)](#), this study seeks to measure the success of information systems that affect public use and value. This study's primary purpose is to determine the relationship between information quality, system quality, service quality, and social quality and the adoption of Online Single Submission (OSS). This study surveyed 404 participants using cluster sampling and a questionnaire. This work employed quantitative methodology and SEM software for quantitative analysis. The findings of this study reveal that among the four antecedents of the use of Online Single Submission (OSS), the system's quality has the most significant impact on business actors' continuous use of the Online Single Submission

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(OSS) application. This study revealed that the Online Single Submission (OSS) application considerably impacts the public value net benefits. The outcomes of this study give stakeholders in the Online Single Submission (OSS) application and the One Stop Integrated Planting and Service Office the socialization necessary to collaborate in supplying information and utilizing the OSS program. The novelty of the research resides in the relationship between social quality and use, which influences the public value's net benefits.

Keywords: system quality, information quality, social quality, service, public value net benefit, information system, e-government

1. INTRODUCTION

In the context of public services, accelerating and expanding investment, and company licensing, the Indonesian government deems it essential to create an integrated electronic licensing service (Kominfo, 2018). As a means of streamlining the management of electronically integrated business permits, the Indonesian government is accelerating business licensing and realizing the ease of attempting to form an Online Single Submission (OSS) application as an electronic service based on Government Regulation No. 24 of 2018 and Presidential Instruction No. 7 of 2019, respectively. In the reform of company licensing services in Indonesia, the Online Single Submission (OSS) system represents a new mode of operation.

Complex technology aids the government in enhancing its services and winning the public's and the business community's confidence (Anand, 2020). Several e-government studies have been employed to analyze and quantify the success of e-government systems (Ciesielska et al., 2022). Research has implemented updated information systems success models to evaluate various information systems (Carmen et al., 2015; Efiloğlu Kurt, 2019; Ouajdouni et al., 2021). However, Lytras et al. (2020) stated that the success of the public site system had been the subject of scant research. This indicates that few studies have been conducted on the success of information systems. Hence additional study is required to enhance the literature and identify the characteristics that contribute to the success of information systems.

Previous research has modified and employed the Information System Success Model (TAM) to quantify the level of acceptance of information technology (Donovan et al., 2018; Ibrahim et al., 2021; Ifinedo, 2018). Then, some researchers have included several factors to measure the success of information systems, including social influence (Dhir et al., 2020), information quality (Ifinedo, 2018), system quality (Ifinedo, 2018), quality of functioning (Ifinedo, 2018), and social psychology (Ifinedo, 2018). (Warter et al., 2021). Future research must explain or quantify the amount of acceptability of internet technologies about other variables (Ifinedo, 2018; Warter et al., 2021). Consequently, this study will describe the success of information systems in using Online Single Submission (OSS) applications that are anticipated to affect the public value net benefits.

According to [Delone et al. \(2016\)](#), use is a precursor to overall quality, including information, service, and system quality. This assertion is corroborated by [Aldholay et al. \(2018\)](#), who found that overall quality influences utilization. Previous research has demonstrated that information quality and service quality can impact the success of information systems ([Mahendra et al., 2020](#); [Yakubu et al., 2018](#)), including the intention to use and use information system service providers of application services ([Nani et al., 2020](#)), blogs ([Ifinedo, 2018](#)), virtual communities ([Al-Fraihat et al., 2020](#)), and Facebook ([Ibrahim et al., 2021](#)). Then, [Sterrenberg \(2016\)](#) demonstrate that success must be measured in terms of service-based efficiency and the personal and social effects of technology. Therefore, it is believed that social quality influences the utilization of Online Single Submission (OSS) apps.

This study aims to explain the [Steele et al. \(2016\)](#) research model. However, [Steele et al. \(2016\)](#)'s research is still in its infancy, and the association between variables that includes the most recent literature on public values and the success of information systems has not yet been examined. In addition, according to [Scott et al. \(2016\)](#), it is necessary to study the public value net benefit to understand this difference in the success of information systems to encompass functional and transactional use of electronic services. According to research conducted by [Yakubu et al. \(2018\)](#), the quality of information is the most critical factor in the success of an information system. According to [Nugroho et al. \(2018\)](#) and [Sarkar et al. \(2020\)](#), the quality of information influences perceived usability and value. However, according to the findings of [Zuama et al. \(2017\)](#) and [Y.-C. Huang et al. \(2019\)](#), the quality of information has no significant effect on utilization.

[Al-Emran et al. \(2020\)](#) found that the system's quality has a role in persuading users. System quality is categorized into (1) system-related aspects and (2) task-related dimensions. Accessibility and dependability are system-related aspects that do not vary across uses or depend on task, context, or application. Task-related dimensions quantify task- and context-dependent traits, such as adaptability, reaction time, and integration ([Daradkeh, 2021](#)). However, a study by [Prasetyo et al. \(2021\)](#) indicates that the system's quality for online buying has little effect on online shopping behavior. Service quality refers to the comprehensive assistance provided by a service provider ([Donovan et al., 2018](#)). [Li et al. \(2020\)](#) identified flaws in commonly used measurements of the success of information systems, which concentrated on systems rather than the services offered by information systems departments. In response, [Donovan et al. \(2018\)](#) incorporated service quality into the model. They emphasized that information quality or system quality may be a crucial criterion for measuring the performance of information technology.

Nonetheless, [Donovan et al. \(2018\)](#) contend that service quality is essential for gauging information systems' overall performance. [Hsu et al. \(2015\)](#)'s research indicates that service quality influences utilization. In contrast, according to the findings of [Y.-C. Huang et al. \(2019\)](#), service quality has little bearing on consumption.

The model of DeLone and McLean demonstrates that system quality and information quality influence the use and pleasure of users, which in turn influences the system's impact on individual users and organizations [Al-Hattami \(2021\)](#). Usage is the frequency with which an information system is utilized. However, [Nugroho et al. \(2018\)](#) suggest substituting usage with usefulness and assert that use only influences satisfaction when use is voluntary. Then, [Delone et al. \(2016\)](#) highlight that the most crucial direction when utilizing technology is the requirement to evaluate the influence of system utilization on information system success elements. Increased social media technology has contributed to a paradigm shift in how people connect with other businesses and organizations online ([Kosmas et al., 2020](#)). These new types of contact enable the commercial and public sectors to create shared value ([Akgül, 2022](#)) and are known as public value net benefits ([Scott et al., 2016](#)). [Scott et al. \(2016\)](#) noted that it is vital to assess public value net benefits to understand the variances in the success of information systems that span functional and transactional use of electronic services. This conclusion is consistent with the findings of [Sterrenberg \(2016\)](#), who concluded that additional research is required to analyze the relationship between the use of public value net benefits, one of the issues examined in this study.

This study contributes to information system success research by 1) developing and validating the qualitative research conducted by [Sterrenberg \(2016\)](#), 2) identifying the impact of social quality resulting from the use of the Online Single Submission (OSS) application, and 3) calculating the public value net benefit from the perspective of business actors as Online Single Submission (OSS) application users.

2. LITERATURE REVIEW

2.1 Information Quality

Information quality is described as the extent to which the information obtained satisfies the user's expectations and requests regarding its relevance, accuracy, timeliness, and completeness ([Delone et al., 2016](#); [Li et al., 2020](#); [Wang et al., 2020](#); [Yakubu et al., 2018](#)). Information-System-Quality (ISQ) is the degree to which technical components and information content in software system applications, such as help screens, user guides, useful functionality, accessibility, flexibility, integration between sub-systems, response time, reliability, data processing accuracy, ease of use, and ease of learning, are of high quality. Information-System-Quality (ISQ) in numerous disciplines of research ([Gürkut et al., 2017](#)) to investigate the elements that influence the usage of computing and business value, and they suggest that ISQ is a

crucial aspect that influences the production of value in the ubiquitous computing environment (Hariguna et al., 2016).

2.2 System Quality

System quality comprises reaction speed, system dependability, and system availability, which positively affect perceived usability and website usability (Dedeke, 2016). The definition of information system quality is a product or service that satisfies the needs and expectations of customers to complete transactions. These goods or services provide users with easy access to reliable information, immediate information, accurate operation, and particular information at any time and place (Masri et al., 2020).

2.3 Service Quality

Service quality is a crucial success factor for organizations and businesses prioritizing market competitiveness, growth, and development (Yilmaz et al., 2021). (Pakurár et al., 2019) Researchers concur on the definition of service quality, stating that service delivery can coordinate with matching or superseding customer desires. With the introduction of technology-based services, the service literature's focus has changed to assessing and operationalizing service quality (Saha et al., 2022).

2.4 Social Quality

van der Maesen (2020) defines social as "the interaction between individuals and the constructed environment of the natural environment" and "the constitutive connection between the process of self-realization and the mechanisms that control the construction of collective identity" The concept supports the society's view of the social system, which requires a fundamental rejection of the individualist approach to society, following the notion of social quality. According to Xiao et al. (2020), social quality is a sociologically grounded theory that measures the quality of society. Prior research has demonstrated that social quality is utilized to construct indices that explain differences in subjective satisfaction (Aras et al., 2021). Then, this study utilizes Isaac et al. (2018)'s definition of social quality as the amount to which internet users value the effect of family, friends, and coworkers on their internet use.

2.5 Use of Information System

Osagiede et al. (2021) define system utilization as the amount of effort exerted to interact with the information system or the number of reports or other information products generated per unit of time by the information system. According to Benmoussa et al. (2018), the usage of the system refers to the use and exploitation of the information system's output, which is its anticipated future consumption or output. Utilization of the system can be monitored based on frequency, duration, number of accesses, usage instructions, and dependencies.

2.6 Public Value Net Benefit

Scott et al. (2016) defines net benefits based on three broad objectives: efficiency, effectiveness, and democracy enhancement. These value clusters highlight proposed similarities in the literature (Andrews, 2019). In addition, this study recognizes the Online Single Submission (OSS) application service as a community-developed information technology artefact with value perceptions. Then, this study utilizes the concept offered by Iivari (2005), which states that the public value net benefit is the extent to which information systems contribute to the success of stakeholders and the measurement of that success.

2.7 Hypothesis Development

Information quality is the user's opinion of the content quality of a specific network service (Ifinedo, 2018). Previous research has demonstrated that the quality of information can impact the success of information systems (Mahendra et al., 2020; Yakubu et al., 2018), such as the intention to use and use of information system service providers (Nani et al., 2020), blogs (Ifinedo, 2018), virtual communities (Al-Fraihat et al., 2020), and Facebook (Al-Fraihat et al., 2020). (Ibrahim et al., 2021). Then, Liu et al. (2020) claimed that the public value net benefit refers to the suitability of system quality characteristics, information quality characteristics, and service quality characteristics about the usage of electronic services. From this description, one can formulate the following hypothesis:

H1: The quality of information affects the use of the Online Single Submission (OSS) application.

Users' intention to utilize information systems is favorably influenced by system quality (Ifinedo, 2018; Mahendra et al., 2020), web-based learning services (Seo et al., 2019), virtual communities (Al-Fraihat et al., 2020; González-Anta et al., 2021), and blogs (Seo et al., 2019). (Ifinedo, 2018). System quality has been studied in terms of usability, reliability, adaptability, and responsiveness (Feng et al., 2019; Mahendra et al., 2020). System quality indicates an information system's expected performance or intended qualities (Donovan et al., 2018; Ibrahim et al., 2021; Nani et al., 2020). Consequently, a higher user perception of system quality corresponds to more usage (Feng et al., 2019; Gürkut et al., 2017; Ifinedo, 2018). From this description, one can formulate the following hypothesis:

H2: System quality affects the use of Online Single Submission (OSS) applications

The evolution of the Internet's electronic services reflects the current era. However, the quality of service in such electronic devices is one of the most significant user behavior aspects (Marimon et al., 2019). According to Hsu et al. (2015), none of the empirical investigations demonstrated a significant correlation between service quality and user usage or satisfaction. On the other hand, system quality and information

quality have repeatedly demonstrated a significant correlation with utilization and user satisfaction in many prior empirical investigations. Service quality has received less study attention, and its relationship to other successful information system components is poorly understood, according to meta-analyses. Petter and McLean propose that the absence of adequate measures may be a plausible explanation for this surprising discovery, and the concept of "use" must be adequately examined in various circumstances. From this description, one can formulate the following hypothesis:

H3: Service quality affects the use of Online Single Submission (OSS) applications

In the Unified Theory of Acceptance and Use of Technology (UTAUT) (Sarkar et al., 2020), social influence is operationalized as a person's belief in what essential others expect them to do. Then, Isaac et al. (2018) stated that social quality (pressure from family, friends, and coworkers) in the domain of information systems is crucial in influencing individuals to use the system, and this can also result in user happiness (Mutahar, Daud, Ramayah, Isaac, et al., 2017; Mutahar, Daud, Ramayah, Putit, et al., 2017). However, research on social quality is still scarce. Thus, we hypothesize in this study that social quality can also influence use. From this description, one can formulate the following hypothesis:

H4: Social quality has a positive effect on the use of single online submission (OSS) applications.

According to Scott et al. (2016), changes in electronic social interactions expand the bounds of traditional organizations to encompass online grouping communities and adapt the following perspectives on value creation. Porter et al. (2019) believe corporations should modernize outmoded economic approaches to value generation by pursuing economic and social growth. In addition, Scott et al. (2016) believe that the success of information systems requires the development of public value net benefits. According to the findings of Sterrenberg (2016), additional research is required to explore the relationship between use and net public benefits. The description can be expressed as the following hypothesis:

H5: The use of a single online submission (OSS) application affects the public value net benefit

3. RESEARCH METHODOLOGY

The design of the present investigation was quantitative and cross-sectional. This study employs a non-probability sampling technique with a purposive sampling method, which is defined as a unit chosen at random without replacement from a specific portion of the population that is believed to produce a sample that provides the most accurate estimate of the population parameter of interest (Ligery et al., 2021).

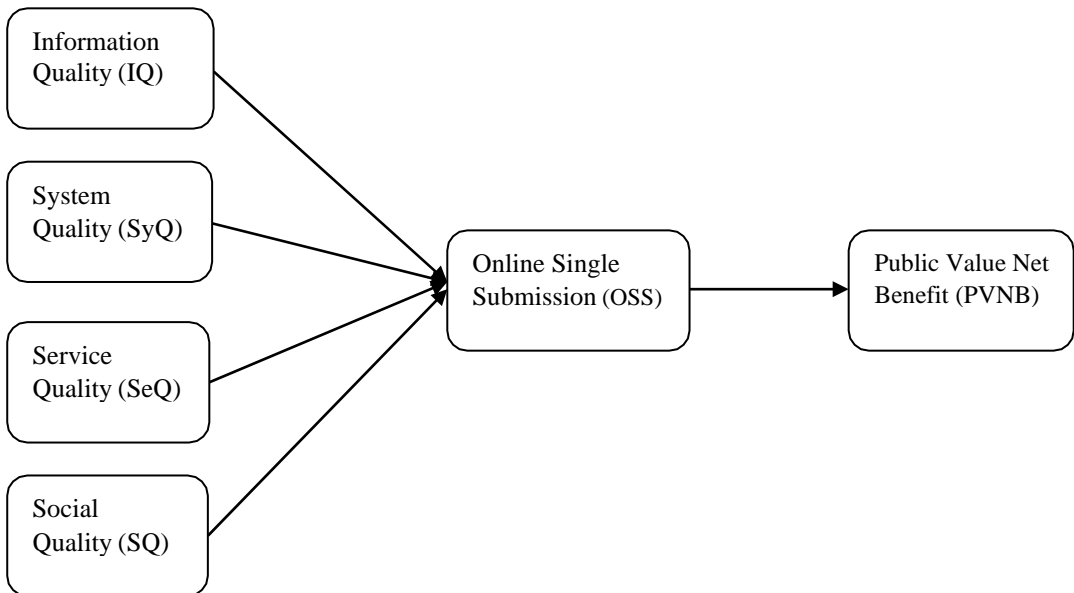


Figure 1. Research Framework

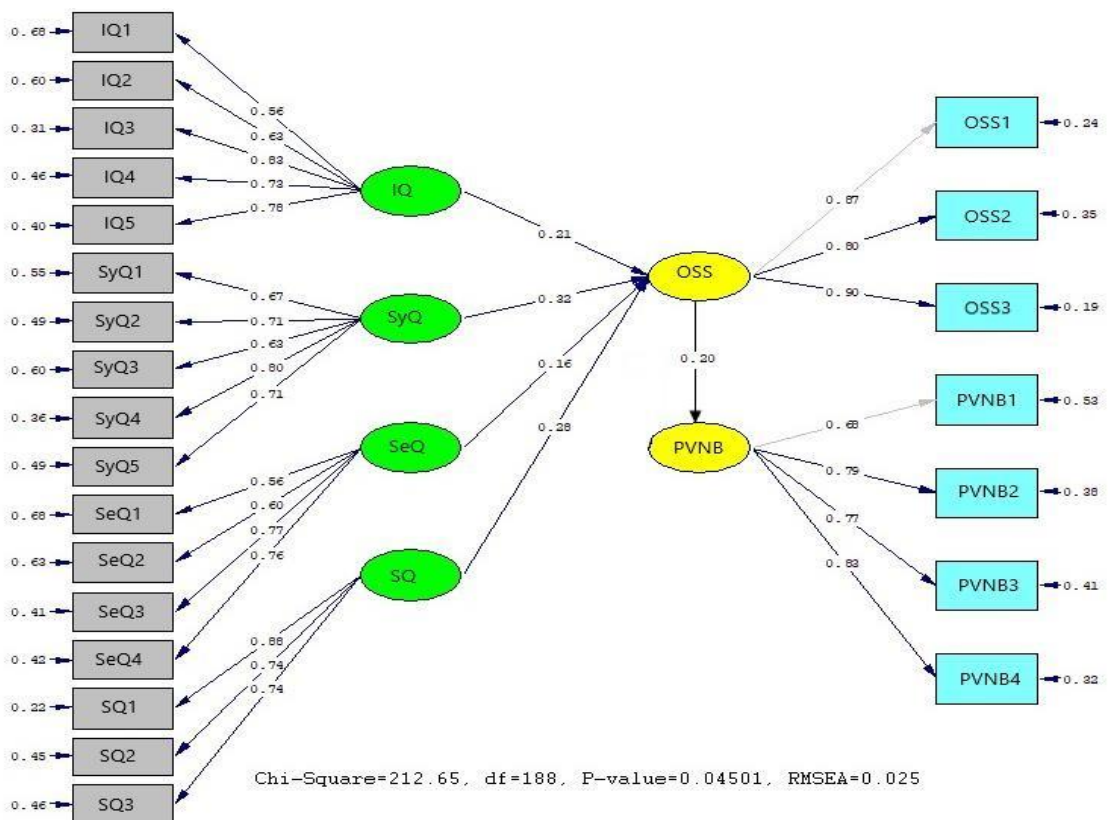
This study's demographic sample consists of business actors in 34 provinces of Indonesia who registered their NIB via the Online Single Submission (OSS) in 2020. Using the Slovin formula to determine the number of samples, there were 404 respondents. The questionnaire was used to collect data. Using a five-point Likertscale, questionnaire item statements about the operationalization of several constructs were examined (Strongly Disagree – Strongly Agree). Information quality comprises five items (Stefanovic et al., 2016). System quality comprises five items (Budiardjo et al., 2017); service quality comprises sixteen items (Zhou et al., 2009); social quality comprises three items (Isaac et al., 2018), the use comprises three items (Amin et al., 2014), and the public value net benefit comprises four items (Laumer et al., 2017). This investigation employs Structural Equation Modeling (SEM) to examine the data and test the proposed hypothesis. SEM is a second-generation technique that permits researchers to integrate unobservable variables indirectly quantified by indicator variables (Jamshidi et al., 2016).

3.1 Analysis and Result

According to Table 1 and Figure 2, the results of the model fit test indicate that the Absolute Fit Measure, which consists of the p-value, has a value of 0.045, and the RMSEA has a value of 0.03. Therefore, it is deemed acceptable. The Incremental Fit Measure, which includes GFI 0.92, AGFI 0.91, NFI 0.97, and CFI 0.90, is deemed satisfactory. The parsimonious fit metric comprises a PNFI of 0.66 and a PGFI of 0.58. In particular, the results of the model fit test (Goodness of Fit) used to develop the structural model indicate a good fit at this stage. Hence it can be assumed that the structural model (overall model) has satisfactory results.

Table 1. Model Fit Indices

INDEX	VALUE	DECISION
RMSEA	0.03	Acceptable
GFI	0.92	Acceptable
AGFI	0.91	Acceptable
NFI	0.97	Acceptable
CFI	0.90	Acceptable
PNFI	0.66	Acceptable
PGFI	0.58	Acceptable

**Figure 2. Structural Model Assessment**

Based on [Table 2](#) and [Figure 2](#), it can be concluded that the quality of the Online Single Submission (OSS) application information has a positive and significant impact on the use of the Online Single Submission (OSS) application by 0.21 (21%), indicating that the quality of the Online Single Submission (OSS) application information has a positive and significant impact on the use of the Online Single Submission (OSS) application (H1 is supported). ii) The quality of the Online Single Submission (OSS) system has a positive and significant influence on the usage of the

Online Single Submission (OSS) 0.32 (32%), indicating that it has a positive and significant effect on the use of the Online Single Submission (OSS) (H2 is supported).
 iii) The quality of Online Single Submission (OSS) services has a 0.16 (16%) positive influence on the use of Online Single Submission (OSS), indicating that the quality of Online Single Submission (OSS) services will explain the use of Online Single Submission (OSS) applications (H3 supported).
 iv) The quality of the Online Single Submission (OSS) system has a positive effect of 0.28 (28%), indicating that the quality of the Online Single Submission (OSS) system has a positive and statistically significant impact on the use of the Online Single Submission (OSS) (H4 supported).
 v) The use of Online Single Submission (OSS) has a positive effect on the public value net benefit of 0.20 (20%), indicating that the usage of the public value net benefit has a positive and statistically significant effect on the use of OSS (H5 is supported).

Table 2. Structural Model

Relationship	Path Coefficient	P Value	Decision
Information Quality -> Online Single Submission	0.21	P-Value < 0.05	Supported
System Quality -> Online Single Submission	0.32	P-Value < 0.05	Supported
Service Quality -> Online Single Submission	0.16	P-Value < 0.05	Supported
Social Quality -> Online Single Submission	0.28	P-Value < 0.05	Supported
Online Single Submission -> Public Value Net Benefits	0.20	P-Value < 0.05	Supported

4. DISCUSSION AND CONCLUSION

The results of this study reveal four antecedents of Online Single Submission (OSS) usage that have the most significant influence on usage, with system quality playing a crucial role in the continuous use of the Online Single Submission (OSS) application by business actors. The government must examine the application method to make obtaining business licenses simpler. It is frequently difficult for users to enter data into the Online Single Submission (OSS) system due to the Online Single Submission (OSS) application's poor system quality. It remains difficult for business actors to discern the statuses of business licenses, such as whether their business is UMK or non-UMK and whether it is low, medium, medium-high, or high risk.

In the information systems literature, system quality has received less formal study than information quality. Moreover, system quality factors are frequently combined with dimensions strongly associated with service quality and usability. [Yakubu et al. \(2018\)](#) equate system quality and usability metrics. Although these concepts are linked, they are not identical. A system that is easy to use and of excellent quality may be deemed user-friendly. Therefore, usability may be a consequence of the system's quality.

On the other hand, for business actors registering business licenses via the Online Single Submission (OSS) service application, information quality is crucial. Companies with access to the appropriate information will be able to reduce uncertainty and improve their planning, which will raise their profitability. Companies with access to the appropriate data will be more proactive in responding to shifting market conditions, allowing them to emphasize addressing client wants.

Service quality's influence on utilizing Online Single Submission (OSS) apps is minimal. The poor quality of service is indicative of the unreliable nature of the system, creating an opportunity for extortion by other parties. Participation of corporate actors in the formulation of associated regulations, especially the Job Creation Law and its derivative rules, such as PP No. 5 of 2021, remains low. This diminishes or eliminates their awareness of it. Additionally, business players acknowledged that they had not received any regional or federal government socialization. Consequently, the findings of this study have implications for stakeholders in the Online Single Submission (OSS) application, as well as the Investment Office and One Stop Integrated Services, to be able to collaborate in providing information and socialization regarding the Online Single Submission (OSS) application.

The most compelling indication for promoting the usage of electronic services is service quality. Service quality quantifies the degree to which consumer perceptions and expectations diverge. Consumer perceptions can be used to construct a reliable model for predicting consumer use of electronic services. This can raise the efficiency of businesses and organizations actively seeking to enhance their electronic services. This study employs four dimensions defined by [Parasuraman et al. \(1985\)](#), reliability, responsiveness, assurance, and empathy, to measure service quality. Nevertheless, physical evidence was not utilized in prior research because physical evidence lacked valid signs. Technology that supports user transaction services through online information systems is undeniably crucial. Consequently, this study gives methodological implications for measuring service quality using several dimensions and indicators, which can be generalized for future research.

[Carreiro et al. \(2019\)](#) claim that personal behavior is the product of interpersonal interactions and imply that interpersonal relationships, social groups, and cultures influence individual behavior. Individuals permit themselves to be affected by observing others and/or obtaining information from others, mainly to reduce uncertainty; this is "social influence" ([Y.-M. Huang, 2019](#)). Numerous information systems research studies have explored the impacts of social influence on adopting new information technologies to support this rationale ([Spears, 2021](#)). Thus, research findings demonstrate that social quality is one of the primary factors in adopting information technology, as social influence triumphs by internalizing perceived ease of use in the context of information technology use.

Measuring success in the public sector is challenging because, unlike in the private sector, where the emphasis is on efficiency, quality, and dependability, public managers must balance these concerns with accountability, trust building, and divergent public preferences (Hefetz et al., 2004). The type and scope of suggested public service objectives and outcomes distinguish electronic government service evaluation activities from their commercial equivalents (Grimsley et al., 2007). Several authors have asked for a broadening and deepening of scientific perspectives on e- government services to appropriately supply social scientific theories and insights in light of the pressing need for e-government service evaluations to incorporate a more significant democratic viewpoint (Andersen et al., 2010; Reece et al., 2006).

Although numerous studies have highlighted the potential benefits of e-government services, few empirically evaluate or identify net benefits from a citizen's perspective (Reddick, 2005). The paucity of theoretical progress in this field underlines the necessity for more research to examine the demand for electronic government services from a citizen-centric perspective, which is supported by solid theoretical notions (Andersen et al., 2010; Barbosa et al., 2013). The purpose of this study is to evaluate the success of the electronic government system by creating a series of specific net benefit measurements based on the Public Value theory. Consequently, future research can use public value net benefits to generalize our study. In addition, the measurement of the public value net benefit used in this study has flaws; therefore, future research can assess the public value net benefit using the Scott et al. (2016) study's results. Utilizing online single submission (OSS) systems gives business actors numerous advantages. However, it is quite regrettable that the public did not receive precise information regarding what occurred in the field. In addition, instruction on these services has not been conducted by mobile or on their own, so they continue to require the assistance of other parties. In this case, they have created a chance for others to seek profit, a practice is known as extortion. Therefore, this research has consequences for the government as the manager of the single online submission (OSS) program to analyze the system's performance better, thereby making it easier for the public to register their business licenses via OSS.

5. RESEARCH CONTRIBUTIONS

The findings of this study constitute a significant theoretical contribution to the current body of literature on the behavior of using online single submission (OSS) apps. This research is expected to contribute new knowledge regarding public value net and social quality net benefits, which have not been explored in earlier studies. In addition, the findings of this study give the One-Stop Integrated Investment Agency a degree of promotion to be carried out in the form of socialization with various types and levels of business actors.

6. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The results of this study indicate that the quality of information systems as an application of the Theory of Acceptance Model (TAM) and the use of Online Single Submission (OSS) applications have an impact on predicting the behavior of users of Online Single Submission (OSS) applications. As a result of the limits of the public value net benefit research literature, it is necessary to do additional studies to examine these variables in other studies with other research objectives. Limitations in adopting public value net benefits due to its use have not been linked in prior research and are still in the form of speculation. To generalize the outcomes of this study, additional research can generate public value net benefits on various research objects. In addition, this study used non-random, purposeful sampling with small sample size. Consequently, future studies can collect samples using approaches such as inadvertent sampling.

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