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Article

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Cogent Business & Management

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Suggested Citation: Ariyanto, Dodik; Dewi, Ayu Aryista; Paramadani, Rizky Bagus; Paramadina, Aulia Ayu (2024) : Determinants of tax compliance and their impact on a sustainable information society: an investigation of MSMEs, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 11, Iss. 1, pp. 1-17,
<https://doi.org/10.1080/23311975.2024.2414856>

This Version is available at:

<https://hdl.handle.net/10419/326615>

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To cite this article: Dodik Ariyanto, Ayu Aryista Dewi, Rizky Bagus Paramadani & Aulia Ayu Paramadina (2024) Determinants of tax compliance and their impact on a sustainable information society: an investigation of MSMEs, Cogent Business & Management, 11:1, 2414856, DOI: [10.1080/23311975.2024.2414856](https://doi.org/10.1080/23311975.2024.2414856)

To link to this article: <https://doi.org/10.1080/23311975.2024.2414856>



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Determinants of tax compliance and their impact on a sustainable information society: an investigation of MSMEs

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ABSTRACT

The use of information communication technology for tax reporting has an important role in increasing economic growth and people's quality of life. This research aims to evaluate the success of information systems and trust in the government on usage and user satisfaction, as well as the impact on tax compliance. The success of information systems consists of three variables, namely information, service, and system quality. This research also involves gender, education, and age as moderating variables. Subsequently, this study investigates whether tax compliance has an impact on a sustainable information society. This research was conducted on micro, small, and medium business taxpayers in Bali Province, Indonesia. Data collection was carried out by distributing survey questionnaires, with 128 taxpayers participating in this research. PLS-SEM was then used to test the hypothesis. This study found that the tax reporting system's quality has a positive effect on usage and user satisfaction, while trust in the government has no effect. However, this study reveals that gender, education level, and age have no significant effect on the relationship between usage and satisfaction of e-filing users and taxpayer compliance. Furthermore, the results show that usage and user satisfaction have a positive effect on tax compliance, which in turn affects the sustainable information society. This research has implications in terms of the importance of improving the quality of the tax reporting system in Indonesia in realizing a sustainable society.

ARTICLE HISTORY

Received 21 January 2024
Revised 11 September 2024
Accepted 5 October 2024

KEYWORDS

E-filing; Delone and McLean success model; tax compliance; sustainable information society; MSMEs

SUBJECTS

Business, management and accounting; finance; industry and industrial studies

1. Introduction

Adoption of information technology (IT) is crucial for creating a sustainable information society (SIS), which comprises environmental, economic, cultural, social, and political issues (Ziemba, 2018). All societal stakeholders, particularly government units and public administration, can help overcome this problem by utilizing an information system (IS) and IT to provide public and administrative services or known as e-government (Grant & Chau, 2005). The use of e-government has been shown to boost transparency, citizens' trust, and citizens' perceptions of the performance of public services (Grimmelikhuijsen et al., 2013; Lee et al., 2011).

The government and stakeholders continue to encourage the strengthening of the national economic foundation by setting as one of the priorities the digital transformation agenda for micro, small, and medium enterprises (MSMEs) which are the backbone of the Indonesian economy. One form of e-government is e-filing, which is used for tax reporting by taxpayers in Indonesia. The Directorate General of Taxation has created an e-filing system to ease MSME taxpayers when they carry out tax reporting (Veeramootoo et al., 2018). E-filing as a form of e-government can reduce costs for taxpayers and the government (Schaupp & Carter, 2010) as well as bring net benefits (Delone & McLean, 2003; Putra et al., 2022). The use of e-filing should be appreciated and encouraged because it will increase

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awareness and benefit the community as users of e-filing and the government thereby creating tax compliance (Santhanamery & Ramayah, 2013). Utilizing e-filing for data processing is a means of reducing tax risks, in addition to economic risks and tax legal uncertainty (Neuman et al., 2019).

On the other hand, the popularity and usefulness of e-filing for MSME taxpayers and the government is feared to be less than optimal (Ghobakhloo & Tang, 2015; Schaupp & Carter, 2010). Evidence from Indonesia has revealed that the amount MSMEs contribute to tax revenue remains low. Of 64 million MSME business units in Indonesia, only 2.3 million have taxpayer identification numbers, and none of them have paid and reported taxes regularly (Hamida & Wijaya, 2022). The low contribution of MSMEs to tax revenues in Indonesia could have an impact on the failure to create an SIS and will result in government guidance and subsidies for MSMEs not being on target.

In particular, this research investigates the success of e-filing with the information system success model from Delone and McLean (2003) and has replaced net benefits with taxpayer compliance is Widyari et al. (2021), and its role in realizing a sustainable information society from the point of view of MSME users in Bali. MSMEs in Bali contribute to 61 percent of the nation's gross domestic product (GDP). Therefore, it investigates factors that can influence the success of e-filing adoption in increasing MSME taxpayer compliance, and its impact on realizing an SIS is becoming crucial.

There are several things that are the focus and motivation in this study. First, the net benefit variable in the model developed by Delone and McLean (2003) or individual performance as well as organizational performance (DeLone & McLean, 1992) adapted to the goal of ease of use and the use of e-filing for taxpayers, namely taxpayer compliance (Widyari et al., 2021). Second, there is the addition of trust to the e-government variable. Research by Azmi and Aziz (2015) and Mahmood et al. (2019) explains that trust is a significant and major challenge for governments in developing countries when implementing e-government projects. Users' trust can positively influence the use of e-filing systems in developing countries (Munyoka & Maharaj, 2019), especially the Balinese people who are communal.

Third, the model of Delone and McLean (2003) is developed by adding the moderating variables gender, level of education, and age. The gender moderator variable is included in this research because women in Bali have significant responsibilities in carrying out religious and cultural activities, as well as pursuing their careers (Komalasari et al., 2019). In addition, MSME businesses are initiated by individuals with a good understanding of business (as a proxy for the level of education) and by young people who enjoy challenges (as a proxy for age).

Finally, sustainability concepts and research are developed according to the context, such as social media adoption linked to MSMEs' sustainability (Amoah, Egala, et al., 2023), the competitive sustainability of MSMEs in tourism social media integration and MSMEs' sustainability opportunities (Bruce et al., 2023), and social marketing and MSMEs' sustainability (Patma et al., 2021). This research contributes by highlighting the importance of the implementation of e-filing as a basis for MSMEs tax compliance to create a sustainable information society.

2. Literature and hypotheses

A sustainable information society (SIS) is a new phase of development that has a significant impact on enhancing public information and services provided for all stakeholders and yields benefits in terms of environmental protection (ecological sustainability), economic growth (economic sustainability), socio-cultural development (socio-cultural sustainability), and governance (political sustainability) (Ziemba, 2018). The use of information technology is one of the most important tools for building an SIS (Amoah, Bruce, et al., 2023). On the other hand, a study by Grunwald (2007) shows that the relationship between technology and sustainability is ambivalent. Although Grunwald (2007) argues that technology adoption is considered to be the reason for many sustainability problems, it is also considered to be a direct solution or at least one feature of the solution to sustainability issues. The use of technology can be used to limit environmental pollution and distortion, and thus contribute to an SIS.

Research on the success of technology adoption was begun by DeLone and McLean (1992) and was later updated (Delone & McLean, 2003). The success of IS adoption is categorized into three levels or taxonomies. At the technical level, it is assessed in terms of production and is the construct of system quality. At the semantic level, it is examined in terms of the product and is the construct of information

quality. At the level of effectiveness or influence, it is analyzed in terms of receipt and power of the recipient. This becomes the constructs of usage, user satisfaction, individual impact, and organizational impact.

DeLone and McLean (1992, 2003) present a model that is used to evaluate the success of the information system. The model of DeLone and McLean (1992) is constructed from six latent variables, namely system quality, information quality, user satisfaction, usage, individual impact, and organizational impact. Then, in 2003, the DeLone and Mclean model was renewed by adding service quality as a latent variable and incorporating the variables of latent individual impact and organizational impact into a net benefit. Previous research had evaluated the success of SI with the DeLone and McLean model in e-government or e-filing (C. Chen, 2010; J. Chen et al., 2015; Liang & Lu, 2013; Veeramootoo et al., 2018; Rehman et al., 2023). Based on Delone and McLean (2003), this research adds the construct of service quality and changes the constructs of individual impact and organizational impact to a net benefit.

MSMEs that are able to capture potential markets in the future will be those that utilize information and communications technology (ICT) in their business (Qosasi et al., 2019). In this vein, MSME taxpayer compliance is expected to build SIS so that tax incentives and government guidance for MSMEs can be sustainable and on target. The database used is the MSME taxpayer identification number which is reported by e-filing. E-filing as a tool that utilizes ICT can build competitive sustainability practices (Amoah, Egala, et al., 2023), MSME sustainability (Bruce et al., 2023), and SIS (Ariyanto et al., 2022; Ziemba et al., 2013). Meanwhile, some citizens have not or do not use online services and e-government applications (Schaupp & Carter, 2010) This condition is caused by a lack of trust in the transfer of information online (Abu-Shanab, 2014). Therefore, trust is an important aspect of e-government implementation and will be used as a recommendation from one user to another (Alzahrani et al., 2019) of word of mouth.

Research by Mellouli et al. (2020) finds that information quality positively affects the usage of e-filing. The results of research by Tam and Oliveira (2017), Shim and Jo (2020), and Tam et al. (2020) show that information quality has a significant relationship with usage and user satisfaction. In addition, there is also an indirect effect of information quality on net benefits mediated through user satisfaction. Similar results have also been found by Chumsombat (2014), in MSMEs (Prasojo & Pratomo, 2015), in the Rail Ticket System (Rukmiyati & Budiarta, 2015) in the use of accounting software, as well as Mas'ud & Umar (2019) who found that the information quality has a positive effect on user satisfaction in the service sector. Alkrajji (2021) proves that perceptions of information quality affect the usage of e-government in Saudi Arabia. This is in contrast to research by Veeramootoo et al. (2018) who show that the quality of information has no effect on continuance intention and user satisfaction with the e-filing system in Mauritius.

Therefore, if the output of the e-filing system is complete, relevant, accurate, on time, and provides good information, user trust and satisfaction will be achieved. This condition will encourage taxpayers to use the e-filing system. Then, the intensity of use will increase.

H₁: Information quality has a positive effect on the usage of e-filing systems.

H₂: Information quality has a positive effect on user satisfaction of the e-filing system.

System quality has a significant impact on system usage and user satisfaction (Delone & McLean, 2003; DeLone & McLean, 1992). The better the system quality in processing data into useful information, the more people will use the system since it is felt that it makes completing tasks easier. Because the e-filing system quality is easy, fast, reliable, and flexible, it will make people use it repeatedly in the future (Tjen et al., 2019). The system quality depends on the needs of each user.

Research by C. Chen (2010) measures the system quality using three sub-dimensions, namely access, interactivity, and ease of use. The study by Veeramootoo et al. (2018) finds a positive relationship between system quality with the use of and user satisfaction with the online tax filing system in Mauritius as well. This is in line with the research by S. K. R. Zaidi, Henderson, et al. (2017) and F. Zaidi, Azlina, et al. (2017) that states that the system quality constructed with functionality and responsiveness is a determinant of e-filing user satisfaction in India and Malaysia. According to Chiu et al. (2016) system quality has a positive effect on user satisfaction. This means that the appearance of search results on mobile devices,

performance, and smooth operation have a positive effect on user satisfaction. Therefore, improving the system quality is needed to increase user satisfaction.

A good system will affect the usage of and user satisfaction with the e-filing system. A good system will make users feel comfortable using it, making it possible for them to use it frequently, and they will be satisfied with the system when submitting tax returns.

H₃: System quality has a positive effect on the usage of the e-filing system.

H₄: System quality has a positive effect on user satisfaction with the e-filing system.

Research by Tam et al. (2020) shows that the use of e-commerce is influenced by the service quality in the European Union. Shahzad et al. (2021) examined the impact of COVID-19 on higher education e-learning in Malaysia with the full model and distinguished the male and female student models. The research states that the service quality of e-learning services has an effect on the usage of and user satisfaction with e-learning portals. It can be said that the better the service quality, the higher the intensity of the usage of the e-learning system among students. It is strengthened by the research of Rehman et al. (2023) which explains that there is a positive influence of service quality on perceived use, use of e-government, and user satisfaction. In contrast, research by Veeramootoo et al. (2018) shows that continuance usage intention is not affected by service quality.

Research by Tam and Oliveira (2017) confirms that service quality has a direct effect on customer satisfaction by considering a more comprehensive service model in the context of m-banking. However, service quality has no effect on usage; Shim and Jo (2020) state that service quality has a significant relationship with reuse and user satisfaction, and net benefits can be achieved indirectly through user satisfaction and reuse. This is supported by the result that shows that service quality is a determinant of e-government and e-filing user satisfaction. Therefore, if the quality of service provided by the system provider for the use of e-filing is getting better, the taxpayer will feel happier and more satisfied with the use of the system. Therefore, they intend to use the system continuously.

H₅: Service quality has a positive effect on the usage of the e-filing system.

H₆: Service quality has a positive effect on user satisfaction with the e-filing system

The theory of belief developed by Mayer et al. (1995) elaborates that trust is motivated by the three most important factors, namely ability, benevolence, and integrity. In an information system, users must trust not only the website but also the organization and infrastructure behind it (Beldad et al., 2010). Trust is a significant challenge for governments in developing countries when implementing e-government projects. Trust in e-government refers to individual beliefs and expectations of e-government. Several studies have investigated the effect of trust in e-government on system usage. According to research by Fakhoury and Aubert (2015), trust in the internet and government have a significant effect on the usage of e-government. Research by Franque et al. (2022) which shows that trust affects the use and users' continued intention of mobile payment services. According to a study by Contreras and Perez (2018), there is a positive relationship between the level of trust in e-government in European countries. It can be said that the higher the level of trust in e-government, the higher the use of e-government services and vice versa. In contrast, Carter et al. (2011); and Santa et al. (2019) find trust has no effect on the use and satisfaction of e-government users.

Trust plays a crucial role in the implementation and adoption of e-government because, with trust, citizens may feel comfortable interacting with the government digitally. This lack of trust can hinder the optimal realization of e-government benefits and lead to resistance within the community. Research by Azmi and Aziz (2015) and Mahmood et al. (2019) explains that trust is a significant and major challenge for governments in developing countries when implementing e-government projects. People in developing countries prefer conventional or face-to-face methods to fulfill their tax obligations, compared to e-government services, such as e-filing. Trust in the government can increase trust in e-filing websites (Tjen et al., 2019). A study by Khan et al. (2021) shows a significant relationship between e-government trust in perceived usefulness and intention to participate. Trust in e-government will increase the usage of e-government services (Munyoka & Maharaj, 2019) continuously, so user satisfaction will be reached

(Alzahrani et al., 2019). Citizen satisfaction with and use of e-filing are influenced by trust in using e-filing to report MSMEs' taxes. Therefore, user trust can positively influence the use of e-filing systems in developing countries, especially among the Balinese people who have a strong sense of community.

H₇: Trust in e-government has a positive effect on the usage of the e-filing system.

H₈: Trust in e-government has a positive effect on user satisfaction with the e-filing system.

Research on taxpayer satisfaction with online tax e-filing has been conducted (Tjen et al., 2019), on how user satisfaction impacts individual and organizational performance (DeLone & McLean, 1992), and on net benefit (Tam & Oliveira, 2017). Research by Widyari et al. (2021) demonstrates that taxpayers who are satisfied with e-filing will feel encouraged to comply with e-filing. Research by Pramanita et al. (2020) also changes the net benefits variable to a more specific variable related to taxpayer compliance using e-filing. It has been discovered that using the e-filing system has a positive effect on tax compliance. Furthermore, research by Masunga et al. (2021) shows that the intention to use and satisfaction of users of the electronic tax system has a positive effect on taxpayer compliance behavior in Tanzania.

Research by Taing and Chang (2021) examined the determinants of taxpayer compliance by focusing on the theory of planned behavior (TPB). The results show that perceived behavior control, which is proxied by tax complexity, affects intentional non-compliance. Meanwhile, the study by found that the usage of and user satisfaction with e-filing affected taxpayer compliance. Thus, higher usage and user satisfaction because easy reporting through e-filing can increase tax compliance.

H₉: The usage of the e-filing system has a positive effect on taxpayer compliance.

H₁₀: User satisfaction with the e-filing system has a positive effect on taxpayer compliance.

Some researchers have examined gender roles because it can be said that women and men behave differently in all conditions, including in terms of individual tax compliance (Bruner et al., 2017). Research by Ariyanto et al. (2020) shows that sex differences result in differences in tax evasion. Women tend to behave more submissively than men. Generally, women maintain higher ethical standards, whereas men tend to be more daring in tax evasion. Research by Bruner et al. (2017) obtained evidence that women are more compliant when reporting their income for tax purposes in European countries. In contrast, Kirchler and Maciejovsky (2001) state that men are more obedient in fulfilling their tax obligations. Taing and Chang (2021) use some demographic variables as control variables (age, education, gender, and occupation). Meanwhile, V. Venkatesh et al. (2003) and V. Venkatesh et al. (2012) also use demographic variables (age, education, and gender) as moderating variables. It can be said that female taxpayers tend to be obedient and conscientious in tax compliance or have feelings of guilt if they are not compliant. The moderator variable is essential in this context because MSMEs are typically initiated by men who have a good understanding of business (as a proxy for the level of education) and young individuals who enjoy challenges. Besides that, taxpayer compliance is a psychological contract between the taxpayer and the government. Therefore, it is important to examine the effect of gender as a moderating variable on the use of information systems and is based on the UTAUT1 and UTAUT2 theories.

H_{11, 12, 13}: Gender, level of education, and age moderate the effect of usage of the e-filing system on tax compliance.

H_{14,15,16}: Gender, level of education, and age moderate the effect of user satisfaction with e-filing on tax compliance.

There is research on ICT adoption with a sustainable information society (Ziemba, 2019) and the successful adoption of information systems and IT with a sustainable information society (Ariyanto et al., 2022; Patma et al., 2021). Research conducted by Susanto and Aljoza (2015) states that e-government could increase the efficiency of public administration, the affordability of broader government services, the accountability and transparency of public services, and public trust in government. If it is related to MSME taxpayer compliance using e-filing, MSMEs' business information can be continuously registered

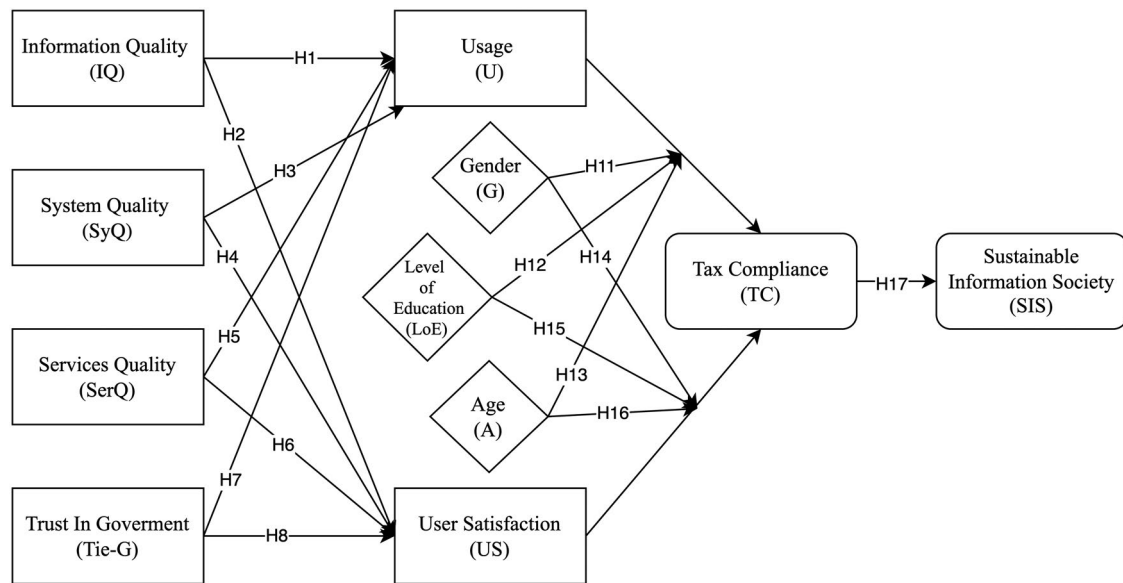


Figure 1. Research model.

and properly integrated. Finally, coaching, providing financial incentives, and tax incentives for MSMEs are right on target, and a SIS is formed.

H₁₇: Tax compliance influences the sustainable information society

Based on the literature review, the research model of this study was put together, as shown in Figure 1.

3. Research method

This study was conducted through an online questionnaire using Google Forms and distributed via MSME associations in the Indonesian Province of Bali. This study, informed consent was obtained from all participants before their involvement. The consent process involved clearly explaining the purpose of the study, procedures, potential risks, and benefits. Participants were given the choice to either agree or decline participation. The written consent process was thoroughly documented, and participants were assured of their right to withdraw from the study at any time without any repercussions. The population of this study comprises MSME taxpayers in the province. MSMEs have become the dominant sector in Bali and the growth of MSMEs during the crisis caused by the COVID-19 pandemic has demonstrated the ability of the province's MSMEs to innovate in order to sustain their businesses in the long term. The classification of MSME taxpayers is businesses with a turnover of under IDR 4.8 billion a year, as well as active and registered at the Primary Tax Service Office (PTSO). Based on Government Regulations (PP 23/2018 and PP 55/2022), MSMEs in Indonesia are only subject to a final income tax of 0.5% according to their cumulative turnover. If MSMEs are individual taxpayers with a year's cumulative turnover of less than IDR 500 million, income tax will not be imposed.

This study has been certified regarding its efforts to protect the human rights and welfare of its research subjects by the Ethics Committee of Udayana University. In conducting the survey, the authors conveyed the objectives of this research and guaranteed the confidentiality of the respondents' identities. This is done so that respondents are enthusiastic about sharing information and ideas comfortably and free of stress (Cooper & Schindler, 2014).

The sampling technique used is proportional sampling or balanced sampling, namely taking representatives of MSMEs from each regency and city (Hair et al., 2019). The determination of a representative sample is based on the minimum sample criteria for survey research using partial least squares structural equation modeling (PLS-SEM) established by Barclay et al. (1995), known as the '10-Times Rule'. Because this study has eight latent variables, the minimum sample size obtained should therefore be 80. Additionally, using the G*Power application based on the F-Test, a minimum sample size of 107 is

Table 1. Number of MSMEs in Bali province.

No	Regency and city	Number of MSMEs	MSME taxpayers
1.	Badung Regency	40,989	30,194
2.	Bangli Regency	44,693	5,121
3.	Buleleng Regency	57,216	10,872
4.	Denpasar City	32,226	27,481
5.	Gianyar Regency	75,620	15,046
6.	Jembrana Regency	66,537	4,237
7.	Karangasem Regency	40,614	217
8.	Klungkung Regency	36,072	280
9.	Tabanan Regency	47,160	5,119
Total		441,127	98,567

Source: Office of Cooperatives and MSMEs in Bali Province, 2022 <https://diskopukm.baliprov.go.id/data-dan-informasi/data-umkm/>.

obtained. The sample size tested with the appropriate structural equation modeling (SEM) is between 100-200 (Hair et al., 2019) so there were 441 copies of the questionnaire distributed for this study because the average response rate is 20%. The sampling technique used is proportional sampling or balanced sampling, namely taking representatives of MSMEs from each regency and city (Hair et al., 2019). There were 441 respondents to this study from various regencies. The details of the total population are presented in Table 1.

In this study, the research data were collected through questionnaires distributed in person and online via Google Forms. All variables were measured by using a 5-point Likert scale where 1=strongly disagree, 2=disagree, 3=doubt, 4=agree, and 5=strongly agree. Then, the hypothesis was tested with PLS-SEM (Hair, 2019). For the analysis using PLS, three stages of testing can be carried out; they are outer model analysis, inner analysis, and hypothesis testing.

The exogenous variables in this study consist of Information Quality (IQ) (Delone & McLean, 2003; J. Chen et al., 2015; Antonopoulou & Kotsilieris, 2019; Mellouli et al., 2020), System Quality (SyQ) (Antonopoulou & Kotsilieris, 2019; Delone & McLean, 2003; Teo, 2008), Service Quality (SerQ) (Antonopoulou & Kotsilieris, 2019; Delone & McLean, 2003; Mellouli et al., 2020), and Trust in the Government (TieG) (Teo, 2008; J. Chen et al., 2015). Meanwhile, endogenous variables are variables that are affected or become a result because of the independent variables (Hair et al., 2019); they are Usage (U) (Delone & McLean, 2003; Mellouli et al., 2020), User Satisfaction (US) (Delone & McLean, 2003; Mellouli et al., 2020), Tax Compliance (TC) (Do et al., 2022; Kochanova et al., 2020; Setyoko et al., 2023; Taing & Chang, 2021), and Sustainable Information Society (SIS) (Ariyanto et al., 2022; Mellouli et al., 2020; Ziemba, 2019).

4. Result

The research data were collected through questionnaires distributed in person and online via Google Forms. Before distribution to the MSME respondents, the questionnaire was tested for validity and reliability (Hair et al., 2019) on 35 master of accounting students at Udayana University in Bali. The students were chosen because they already have experience and understanding of e-filling and tax reporting. Preliminary test results show that all statements are declared valid and reliable. In this study, 441 questionnaires were distributed, but only 154 were returned. After screening, 26 questionnaires were not filled out completely, leaving only 128 questionnaires that could be used. Questionnaire distribution and return rates that can be processed in this study are presented in Table 2.

Respondent characteristics which include gender, level of education, age, type of MSME, MSME ownership, business size, and age of business are presented in Table 3.

Figure 1 and Table 4 show that the loading factor values for all reflective elements are more than 0.60 (Chin et al., 2013) for new model and using outer loading values of more than 0.7 if the research model has been frequently used (Hair et al., 2019). It shows that all latent variable statements are said to be valid. However, there are only four statements regarding the sustainable information society (SIS) latent variables, namely (SIS-4,5,7 and 9), whose loading factor values are more than 0.7, (Chin et al., 2013) so the others were removed from the model. Latent variable information quality (IQ) has one statement removed (IQ-4), latent variable trust in government (Tie-G) has two statement removed (Tie-G2 and Tie-3) and latent variable user satisfaction (US-4) has one statement removed. For more details, see Figure 2 and Table 4.

Table 2. Questionnaire distribution.

Description	Total
Distributed questionnaires	441
Unreturned questionnaires	(287)
Returned questionnaires	154
Dropped questionnaires	(26)
The questionnaires used	128
Response rate	34.9%
Returned questionnaires x 100%	
Distributed questionnaires	
Usable response rate	29.0%
Processed questionnaires x 100%	
Sent questionnaires	

Table 3. Characteristics of respondents.

Description	Number of respondents	Percentage
Gender		
Male	77	60.2%
Female	51	39.8%
Total	128	100%
Level of education		
High school	20	15.6%
Diploma	40	31.3%
Bachelor	57	44.5%
Master	11	8.6%
PhD	0	0%
Total	128	100%
Age		
<26 years old	14	10.9%
26–35 years old	61	47.7%
36–44 years old	35	27.3%
>45 years old	18	14.1%
Total	128	100%
Type of MSME		
Culinary	13	10.2%
Textiles	11	8.6%
Craft	41	32.0%
Trade	33	25.8%
Others	30	23.4%
Total	128	100%
MSMEs' ownership		
Individual	82	64.1%
Business entity	46	35.9%
Total	128	100%
Business size		
Micro	88	68.8%
Small	32	25.0%
Medium	8	6.3%
Total	128	100%
Age of business		
<5 years	42	32.8%
≥5 years	86	67.2%
Total	128	100%

The convergent validity value describes the relationship of each indicator with other latent variables and the values are expected to be more than 0.7 (Hair et al., 2019). The convergent validity values are presented in Table 4. Composite reliability describes the level of reliability of data. Data that has a composite reliability value greater than 0.7 means it has high reliability. Table 4 presents the results of the composite reliability test. All latent variables have a composite reliability value of > 0.7, so they are reliable. According to Table 4, the Cronbach's alpha values are greater than 0.7, thereby strengthening the instrument's reliability in measuring latent variables. Before estimating the structural model, the multicollinearity between the constructs or latent variables with a variance inflation factor (VIF) was evaluated. As shown in Table 4, all the constructs' elements have VIF values less than 5, meaning that no collinearity problems exist (Hair et al., 2019).

The Fornell-Larcker (Table 5) criterion value of each construct is greater than the values of other constructs (Fornell & Larcker, 1981). Furthermore, as (Henseler et al., 2015) the highest Heterotrait-Monotrait

Table 4. Outer model, minimum, maximum, average, and standard deviation.

Latent variable and measurement item	OL > 0.7	CA > 0.7	CR > 0.7	AVE > 0.6	VIF > 0.5	Avg	SD
Latent variable: Information quality (IQ)							
IQ1-Completeness	0.865	0.910	0.933	0.735	2.785	4.063	0.649
IQ2-Precision	0.844				2.888	4.023	0.633
IQ3-Accuracy	0.878				4.239	3.875	0.823
IQ5-Usability	0.827				2.314	4.125	0.627
IQ6-Format	0.874				4.574	3.844	0.808
Latent variable: System quality (SyQ)							
SyQ1-Accessibility	0.841	0.900	0.923	0.667	2.896	3.938	0.729
SyQ2-Ease of learning	0.842				3.333	3.781	0.803
SyQ3-Flexibility	0.856				4.008	3.625	0.860
SyQ4-Integration	0.832				3.183	3.656	0.855
SyQ5-Timeliness	0.735				1.919	3.852	0.764
SyQ6-Response times	0.787				2.057	3.867	0.692
Latent variable: Service quality (SerQ)							
SerQ1-Assurance	0.802	0.756	0.859	0.671	1.357	4.039	0.657
SerQ2-Service reliability	0.846				1.788	3.938	0.585
SerQ3-Responsiveness	0.808				1.651	3.953	0.586
Latent variable: Trust in government (Tie-G)							
Tie-G1-Competent and effective	0.714	0.938	0.946	0.697	2.198	3.820	0.620
Tie-G4-Trustworthy	0.712				2.203	3.969	0.560
Tie-G5-Honest and truthful	0.820				3.340	3.906	0.567
Tie-G6-Conduct the service	0.791				4.006	3.977	0.595
Tie-G7-Trusted	0.856				4.206	4.063	0.585
Tie-G8-Comfortable communicating	0.807				2.988	4.039	0.607
Tie-G9-Employee was prompt	0.725				3.118	4.070	0.591
Tie-G10-Handled readily	0.812				3.797	4.047	0.559
Tie-G11-Care and attention	0.716				2.452	4.016	0.588
Tie-G12-Legal and technological structures adequately protect	0.878				2.586	4.086	0.602
Tie-G13-Very responsive	0.761				2.941	4.063	0.482
Tie-G14-Reliable to meet their obligations	0.749				2.593	4.117	0.570
Latent variable: Usage (U)							
U1-Frequency of use	0.825	0.837	0.902	0.755	1.748	4.094	0.657
U2-Frequently use system in the future.	0.895				2.317	4.273	0.585
U3-Effectiveness in preparing	0.885				2.064	4.102	0.586
Latent variable: User satisfaction (US)							
US1-Efficient in fulfilling my needs	0.878	0.895	0.927	0.760	2.518	3.984	0.676
US2-Adequately meets my needs	0.879				2.477	3.906	0.657
US3-Overall satisfaction	0.883				2.631	3.836	0.821
US5-High quality	0.848				2.256	4.086	0.652
Latent variable: Tax compliance (TC)							
TC1-Declares all tax liabilities	0.722	0.838	0.885	0.608	1.465	4.250	0.517
TC2-Paying taxes according to regulations	0.776				1.860	4.195	0.774
TC3-Tax returns on time	0.809				1.940	3.938	0.718
TC4-Declares all income	0.768				1.725	4.141	0.673
TC5-Paying taxes correctly prevent tax penalties	0.819				1.934	4.203	0.621
Latent variable: Sustainable information society (SIS)							
SIS4-Knowledge enhancement	0.750	0.775	0.852	0.690	1.387	3.984	0.753
SIS5-Facilitating everyday personal life	0.784				2.185	3.992	0.582
SIS7-Increased satisfaction with public services	0.767				1.419	4.109	0.564
SIS9-Expanding existing knowledge and skills	0.771				2.262	4.047	0.600
Moderating variable							
Age (A)	1.000	1.000	1.000	1.000	1.000		
Gender (G)	1.000	1.000	1.000	1.000	1.000		
Level of Education (LoE)	1.000	1.000	1.000	1.000	1.000		

Note: OL=Outer Loading; CA=Cronbach's Alpha; CR=Composite Reliability; AVE=Average Variance Extracted; VIF=Variance Inflation Factor; Avg=Average; SD=Standard Deviation.

(HTMT) correlation ratio (Table 6), less than 0.9 required. So that the construct has sufficient discriminant.

This research used bootstrapping analysis with 5,000 resamples to test the hypotheses and measure the significance and causal relationship between the constructs. The structural model (inner model) can be seen from the R-squared values of the endogenous variables. Table 7 shows the R-squared values of the endogenous variables. The R-squared value of the SIS endogenous variable is 0.281 (28.1%), which indicates the model is in the 'moderate' category. The R-squared value of the endogenous variable tax compliance (TC) is 0.397 (39.7%), which indicates a 'moderate' model. The R-squared value of the endogenous variable use (U) is 0.540 (54.0%), which indicates a 'moderate' model. Meanwhile, the R-squared value of the endogenous variable user satisfaction (US) is 0.778 (77.8%), which indicates a 'strong' model (Chin et al., 2013).

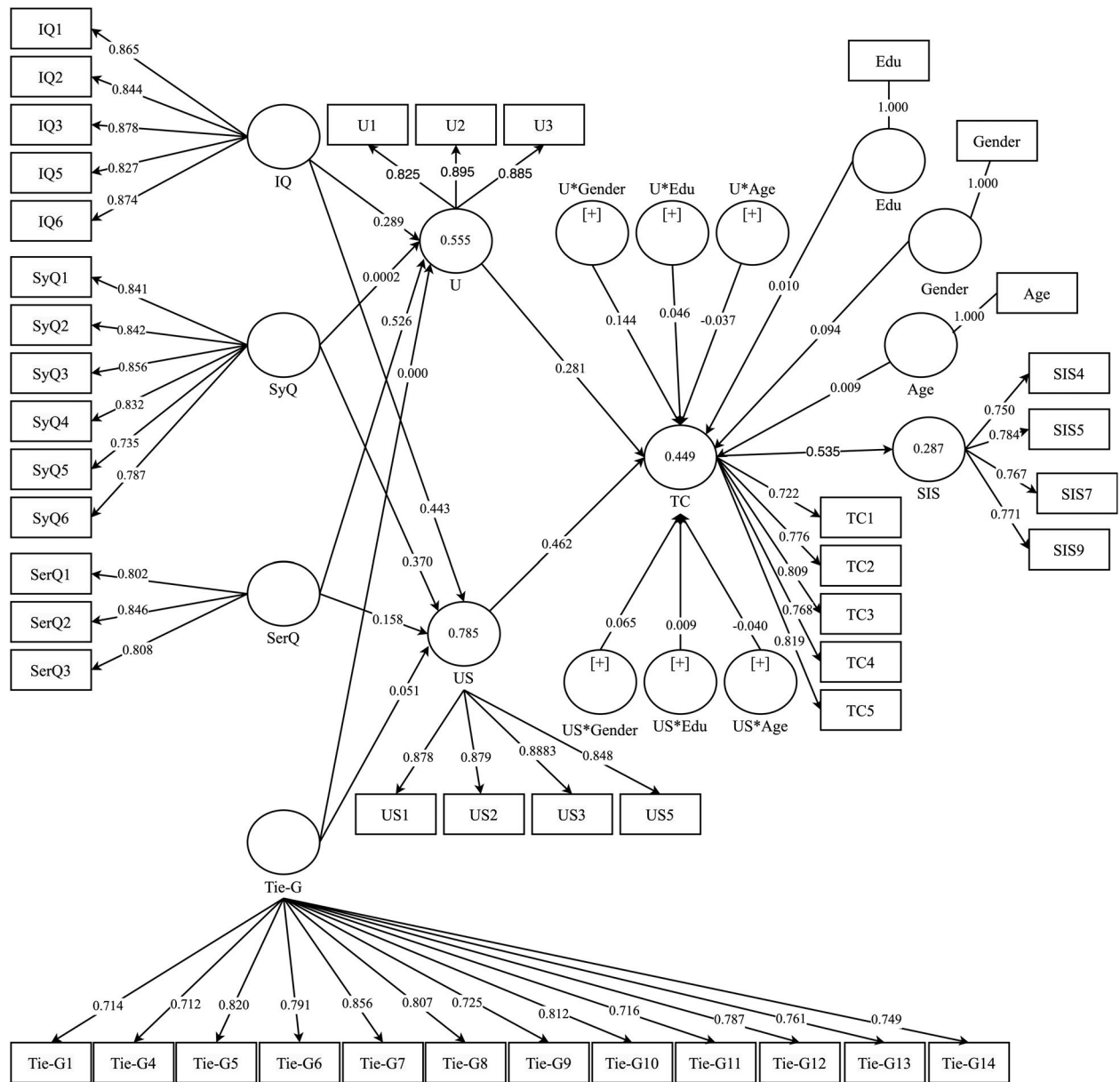


Figure 2. The structural model.

Table 5. Fornell-Larcker criterion.

	IQ	SIS	SerQ	SyQ	TC	Tie-G	U
IQ	0.858						
SIS	0.459	0.768					
SerQ	0.630	0.469	0.819				
SyQ	0.665	0.574	0.626	0.817			
TC	0.518	0.535	0.474	0.732	0.780		
Tie-G	0.388	0.517	0.600	0.504	0.368	0.772	
U	0.622	0.444	0.710	0.524	0.497	0.429	0.869
US	0.808	0.486	0.699	0.789	0.620	0.504	0.525

5. Discussion

The test results in Table 7 indicate that information quality (IQ) has a positive effect on the usage (U) of and user satisfaction (US) with the e-filing system. It indicates that the better the quality of information presented by the e-filing system, the higher the usage (U) and user satisfaction (US) of e-filing. These empirical results are consistent with the research results of S. Chen et al. (2010) regarding the satisfaction

Table 6. Heterotrait-Monotrait ratio (HTMT).

	IQ	SIS	SerQ	SyQ	TC	Tie-G	U
IQ							
SIS	0.535						
SerQ	0.758	0.610					
SyQ	0.729	0.648	0.754				
TC	0.581	0.614	0.585	0.839			
Tie-G	0.413	0.586	0.704	0.539	0.395		
U	0.706	0.548	0.864	0.599	0.584	0.468	
US	0.895	0.559	0.854	0.870	0.709	0.542	0.593

Note: IQ=Information Quality; SIS=Sustainable Information Society; SerQ=Service Quality; SyQ=System Quality; TC=Tax Compliance; Tie-G=Trust in Government; U=Usage; US=User Satisfaction.

Table 7. The result of hypothesis examination with bootstrapping.

Hipotesis	Variable	Coefficient	Sig	Decision
H1	IQ ₋ -> U	0.289	(0.011)*	Accepted
H2	IQ ₋ -> US	0.443	(0.001)*	Accepted
H3	SyQ -> U	0.002	(0.984)	Rejected
H4	SyQ -> US	0.517	(0.001)*	Accepted
H5	SerQ -> U	0.526	(0.000)*	Accepted
H6	SerQ -> US	0.158	(0.065)	Rejected
H7	Tie-G -> U	0.000	(0.995)	Rejected
H8	Tie-G -> US	0.051	(0.501)	Rejected
H9	U -> TC	0.281	(0.002)*	Accepted
H10	US -> TC	0.462	(0.000)*	Accepted
H11	TC -> SIS	0.535	(0.000)*	Accepted
H12	U*G -> TC	0.144	(0.103)	Rejected
H13	U*LoE-> TC	0.046	(0.636)	Rejected
H14	U*A-> TC	-0.037	(0.664)	Rejected
H15	US*G -> TC	-0.040	(0.674)	Rejected
H16	US*LoE-> TC	0.009	(0.932)	Rejected
H17	US*A -> TC	0.065	(0.475)	Rejected
U-R-Squared adjusted		0.540		
US-R-Squared adjusted		0.778		
TC-R-Squared adjusted		0.397		
SIS-R-Squared adjusted		0.281		

Note. *Significance 0.05 (5%). **Significance 0.1 (10%). IQ=Information Quality; SIS=Sustainable Information Society; SerQ=Service Quality; SyQ=System Quality; TC=Tax Compliance; Tie-G=Trust in Government; U=Usage; US=User Satisfaction.

felt by taxpayers in Taiwan towards the online tax-filing system; the results of J. Chen et al. (2015) regarding online tax filing in Metro Manila; the results of Tjen et al. (2019) regarding the use of e-tax filing in Indonesia; and the results of Al-Okaily et al. (2021) regarding the satisfaction felt about using ERP in commercial banks in Jordan. Table 4 also presents a statement with the highest average response (4.125) in the IQ-5 statement usability. The most important aspect of usability is to create a good, clear, and efficient user experience for e-filing. This includes intuitive navigation, simple design, appropriate information arrangement, and responsiveness to actions for MSME entrepreneurs. It can be said that e-filing as a usability system can produce information clearly, thereby increasing user intensity and e-filing user satisfaction for MSMEs.

The test results in Table 7 indicate that system quality (SyQ) does not affect the usage (U) of the e-filing system. Therefore, whether the information system used is good or bad quality does not affect the use of the e-filing system. However, different results from system quality testing (SyQ) have a positive effect on user satisfaction (US) with e-filing systems. That is, the higher the information system quality, the higher the level of e-filing user satisfaction. The results of this study are in line with research by J. Chen et al. (2015) that shows system quality (SyQ) has no effect on the use (U) and user satisfaction (US) of online tax filing in Manila. Moreover, research by Al-Okaily et al. (2021) discovered that system quality evidence (SyQ) influences the use (U) of and user satisfaction (US) with ERP programs in commercial banks in Jordan. Therefore, it can be said that in the context of public organizations that are required to use it, system quality (SyQ) will increase user satisfaction (US). The test results in Table 4 also implies that e-filing is accessibility, with the highest average score of 3.938. This indicates that e-filing has been designed and developed so that services can be accessed, understood, and used by everyone, without significant barriers, specifically in the context of this research, for MSME entrepreneurs. It can be

concluded that accessibility of tax reporting services is the key to e-filing user satisfaction (US) for MSMEs, but not for the usage of e-filing for MSMEs.

Table 7 indicates that service quality (SerQ) has a positive effect on the usage (U) of the e-filing system. However, service quality (SerQ) has no effect on user satisfaction (US). The better the quality of service (SerQ) provided by e-filing, the more usage (U) of e-filing will increase. However, good or bad service quality (SerQ) has no effect on the level of user satisfaction (US) with e-filing. The results of this study are in line with research by Tjen et al. (2019) showing that service quality (SerQ) has an effect on the usage of (U) tax e-filing in Indonesia; research by Al-Okaily et al. (2021) in Jordan. Similarly, research by J. Chen et al. (2015) found that service quality (SerQ) has no effect on user satisfaction (US) in the context of the Electronic Filing and Payment System (eFPS) in Manila; and research by Al-Okaily et al. (2021) on satisfaction with ERP usage in commercial banks in Jordan. The test results in Table 4 also shows that assurance e-filing system (SerQ-1), with the highest average score of 4.039. This statement implies that the security, accuracy, and compliance of e-filing with tax regulations are crucial. Assurance can be achieved through testing, verification, and auditing processes to ensure that the data input by MSME entrepreneurs have been processed and protected properly. It can be argued that good assurance will enhance tax reports through e-filing and increase usage. However, it has not been able to improve e-filing user satisfaction among MSMEs.

Table 7 shows that trust in e-government (Tie-G) has no effect on the usage (U) and user satisfaction (US) with e-filing systems. High or low trust in e-government, especially e-filing, has no impact on increasing or decreasing the usage and user satisfaction (US) with e-filing systems. This research is in line with Carter et al. (2011), Azmi and Aziz (2015), J. Chen et al. (2015), and Santa et al. (2019) who show that trust in e-government (Tie-G) has no significant effect on the usage (U) of and user satisfaction (US) with e-government systems. The results of this study contradict the results of the studies by Mas'ud and Umar (2019), Munyoka and Maharaj (2019), Khan et al. (2021), and Franque et al. (2022) which show that trust in e-government (Tie-G) has a significant effect on the usage (U) of and user satisfaction (US) with e-government systems. Table 4 shows that the online service of competent and effective tax office employee services obtained the lowest score (3.820) based on the answers of respondents. Being competent and effective in the context of employees relates to their ability to adapt, collaborate, and overcome challenges for positive contributions and productivity toward the success of the organization. In the context of e-filing, the e-filing service should be easily accessible, transparent, and responsive, and provide solutions to issues for MSME entrepreneurs. This statement implies that the competence of tax officials to explain the utilization of e-filing has not been able to meet the expectations of MSME taxpayers, and the services provided by tax office employees have not been optimal.

Table 7 indicates that usage (U) and user satisfaction (US) have a positive effect on tax compliance (TC). Thus, the higher the usage (U) and user satisfaction (US) with the e-filing system, the higher the tax compliance (TC). These results prove that the use and satisfaction of taxpayers in using e-filing is a factor that indicates the success of a system. The results of this study are supported by research by Widyari et al. (2021) who conducted research on user satisfaction and behavioral intention on tax compliance using the e-tax system by 313 large taxpayers in Tanzania. This result is supported by Table 4 showing the usage (U) and user satisfaction (US) statements with high responses (4,273 and 4,086), namely (U2) those that state that taxpayers are willing to continue using e-filing in the future and (US5) users are high-quality e-filing. This implies that e-filing has been designed and developed effectively to provide reliable, efficient, and accurate services to MSME entrepreneurs when using e-filing for tax reporting. These results indicate that the continued use of e-filing and the pride in using e-filing as a means of tax reporting can increase MSME taxpayer compliance. The results of this study support the information system success model by Delone and McLean (2003). J. Chen et al. (2015) state that perceived usefulness and user satisfaction have an effect on perceived net benefit, where, in the research, the proxy is replaced by taxpayer compliance. It means the perception of use and satisfaction with using e-filing will lead to tax compliance behavior among MSMEs in Bali since e-filing is easy to use.

The results of the analysis in Table 7 also show that tax compliance (TC) has a positive effect on the sustainable information society (SIS). That is, the higher the level of taxpayer compliance, the more a

sustainable information society (SIS) is guaranteed. The results of this study support the research of Amoah et al. (2023) and Bruce et al. (2023) which states that social media adoption affects the sustainability of MSMEs. Ziemba (2018) and Ariyanto et al. (2022) explain that the adoption of e-government can affect a sustainable information society. This result is supported by a statement that received a high response from MSMEs in Bali (4.250), namely declaring that all tax liabilities according to the tax identification number (TIN) used for e-filing. This means that MSME taxpayers are willing to report their received income after deducting the expenses allowed by tax regulations and laws using their TIN through e-filing. It can be concluded that MSME taxpayers are aware of declaring all tax liabilities using a TIN as a tax reporting identity and as a basis for tax reporting by e-filing easily. In addition, the TIN for MSME taxpayers can also be used as a condition for obtaining permits, obtaining guidance, and tax incentives for the purposes of the sustainability of MSMEs.

Table 7 shows that the gender (G) variable does not moderate the effect of usage (U) of and user satisfaction (US) with the e-filing system on taxpayer compliance. However, level of education (LoE) and age (A) are not able to moderate the relationship between usage and user satisfaction with taxpayer compliance. According to the research of Pramanita et al. (2020), gender (G), age (A), and level of education (LoE) do not affect tax compliance intention. It elaborates that the role of age (A) and level of education (LoE) cannot be used as a reinforcement or influence the use and user satisfaction of MSME taxpayers' compliance.

6. Conclusion

This study succeeded in investigating how information quality has an effect on the usage and user satisfaction of e-filing systems. Service quality influences usage and system quality affects e-filing user satisfaction. Conversely, service quality has no effect on user satisfaction, system quality has no impact on usage, and trust in e-government also has no influence on the usage of and user satisfaction with e-filing. The usage of and user satisfaction with e-filing have an effect on MSME taxpayer compliance, as well as, MSME taxpayer compliance is able to influence the sustainable information society. Furthermore, this research found that gender variables moderate the effect of usage and user satisfaction on taxpayer compliance. At the same time, age and education level have not been able to moderate the relationship between usage of and user satisfaction with e-filing for MSMEs in Bali.

This research supports the model of DeLone and McLean (1992) and (2003) that has been proven to be able to explain and predict the success of technology adoption; in this study, this is proxied by MSME taxpayer compliance and the creation of a sustainable information society for MSMEs. This study's results contribute to MSME taxpayers, tax offices, and the Directorate General of Taxes that the use of the e-filing system as a medium for tax reporting can increase time efficiency, be effective in facilitating the work of taxpayers, and help taxpayers avoid sanctions for late tax reporting as well as support a sustainable information society. For e-filing system developers, it can be taken into consideration to improve information quality, system quality, and service quality so that users are satisfied and e-filing can be used by users easily so that they can increase taxpayer compliance. Future research could develop or add latent variables of national or local culture.

Authors contributions

Conceptualization, D.A., A.A.D., R.B.P., and A.A.P.; methodology, D.A., A.A.D. R.B.P., and A.A.P.; software, R.B.P. and A.A.P.; validation, D.A., A.A.D., R.B.P., and A.A.P.; formal analysis, R.B.P. and A.A.P. investigation D.A., A.A.D., R.B.P., and A.A.P.; resources, D.A., A.A.D., R.B.P., and A.A.P.; data curation, A.A.D. and R.B.P.; writing—original draft preparation, D.A., A.A.D. and R.B.P.; writing—review and editing, D.A., A.A.D., R.B.P., and A.A.P.; visualization, R.B.P., and A.A.P.; supervision, D.A. and A.A.D.; project administration, D.A., A.A.D., R.B.P., and A.A.P.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This research was funded by the Research and Community Service Unit (LPPM) of Udayana University, Bali, Indonesia under the scheme of Udayana Excellent Research Grant [grant number: B/78.695/UN14.4.A/PT.01.03/2022].

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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