Pinpointing Factors in the Success of Integrated Information System Toward Open Government Data Initiative: A Perspective from Employees

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***Abstract*—As the Supervisory Institution in Statistics, Badan Pusat Statistik (BPS) launched an integrated information system (IS) to exercise the Open Government Data (OGD) initiative and to impose the One Data Policy Act. Albeit challenges arise, BPS manages to provide more than 120 thousand publicly accessible datasets. With the success of OGD, many scholars have opted to examine a similar issue from the perspective of users/citizens. However, employees' perspective remains substantial as employees are the OGD provider. This research administers employees' views to pinpoint influencing factors in the success of OGD adoption through an IS. The authors seek to comprehend the factors from IS and acceptance manner, thus integrating the Information System Success Model (ISSM) and Unified Theory of Acceptance and Use of Technology (UTAUT) as the measurement model. This study also administers a cross-sectional questionnaire with close-ended questions to obtain data from 253 IS users in BPS. Using structural equation modelling (SEM), the authors find that all ISSM constructs influence the success of IS while only one construct from UTAUT plays a pivotal role in defining the success. Information Quality, System Quality, Service Quality, User Satisfaction, and System Use remain paramount to the successful implementation, while Performance Expectancy becomes the sole influencing UTAUT factor affecting success. This study therefore offers substantial benefits by aiding other researchers in OGD-related areas and providing in-depth evidence for practitioners in implementing IS for OGD initiatives.**

Keywords*—*Open data; open government data; OGD; employees' perspective; ISSM; UTAUT; success factors; acceptance; impact; integrated IS; One Data Policy; BPS; SEM

I. Introduction

Since its inception in 2009 [1], [2], Open Government Data (OGD) have grown exponentially [3] in the last few years and has served as the bedrock for a data-driven nation. Correspondingly, governments have collected a plethora of data to perform their tasks and made it available to the public [4]. OGD therefore holds an increasingly pivotal role [5]. In 2016, President Joko Widodo coined One Data Initiative or "Satu Data Indonesia" (SDI), followed by a regulation in 2019: Presidential Decree Number 39 of 2019. Similar to principles of open data by the Open Knowledge Foundation [1] and the United Kingdom's Government [6], Indonesian ministries/agencies must comply with four fundamental principles (*data standard, metadata, interoperability*, and *reference code). Through* SDI, the government intends to deliver accurate, up-to-date, integrated, accountable, accessible, and interchangeable data for national development agendas [7].

As SDI's Central Data Supervisory Institution (Pembina Data) in Statistics, Badan Pusat Statistik (BPS) introduced[1] an integrated information system (SIMDASI) that administers SDI principles: interoperability with other ministries/agencies [8]–[10] and compliance to data standards, metadata, and reference code[2]. Supported by derivative policies, SIMDASI establishes itself as the bedrock of the OGD initiative, dispensing most of the open data on the organisation's website[3] with the finest quality through synchronisation processes [8]. Presently, SIMDASI houses more than 120 thousand publicly accessible datasets[4]; thus, SIMDASI remains paramount in the OGD initiative for BPS.

Likewise, Information and Communications Technology (ICT) adoption for employees becomes tedious [11] and information systems (IS) cannot engender benefits should employees refuse or fail to use IS accordingly [12]. In measuring the success of government systems or services, Martono et al. (2020) [13], Puspitarini & Ardhani (2022) [14], Stefanovic et al. (2016) [15], and Gangga Dewi & Fajar (2021)[16] successfully exercised DeLone and McLean Information System Success Model (ISSM) [17] to measure the IS success. Accordingly, Stefanovic et al. (2021) [18] reaffirm that ISSM is the most widely used measurement to measure IS success within the e-government context. Stefanovic et al. (2016) [15] also evaluate the IS success of an e-government system from the view of employees in the Republic of Serbia. The result shows that the use of an e-government system influences the net benefits perceived by the employees.

At the organisational level, moreover, many scholars stress the challenges hindering OGD adoption: lack of technical skills

[1] https://nasional.kontan.co.id/news/bps-luncurkan-sistem-data-statistik-terintegrasi. Accessed: 7 November 2022

[2] https://www.bps.go.id/menu/8/Peraturan.html. Accessed: 7 November 2022

[3] https://www.bps.go.id/indikator/indikator/list_/da_01/. Accessed: 7 November 2022

[4] https://simdasi.bps.go.id/. Accessed: 7 November 2022

from employees, staff shortage, and organisational understanding [19]–[25]. Wang et al. (2019) [24] even address that the United Kingdom's OGD programme relies on employees' enthusiasm, skills, and goodwill. Subedi et al. (2022) [26] also imply that individual and organisational factors influenced OGD adoption by Nepali government officials. Hence, the acceptance from employees has proven substantial in the OGD adoption.

In assessing the acceptance, the Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003) [27] and perfected by Venkatesh et al. (2012) [28], becomes one of the baseline models to explain user intention to use an IS in an organisation setting such as in e-government research [12], [26], [29]–[38]. Their findings prove that the four construct (Performance Expectancy, Effort Expectancy, Facilitating Conditions, and Social Influence) affect the intention to use, which subsequently influences the system use .Further, Stefanovic et al. (2021) [18] explain that many scholars combine UTAUT in the ISSM construct to complement their studies [12], [14], [29], [38], [39].

In OGD-related research, however, many scholars employed the citizens' perspective [31], [37], [39]–[43] to measure the success of OGD, although Syuhaini and László (2022) [12] highlight the importance of taking employees' perspective as they design, implement, run, and expand the systems. Talukder et al. (2019) [43] propose additional dimensions from ISSM to clarify the usage intention of OGD users. Prior studies have yet to discuss the benefits of IS as the foundation of OGD and employees' acceptance as OGD providers for the public; they stop at the behavioural intention to use OGD. Considering the gaps and the limited number of research on OGD from employees' perspective, this study formulates the following research questions:

RQ1. What are the IS factors that influence the use of SIMDASI?

RQ2. What acceptance factors from employees affect the use of SIMDASI?

RQ3. What direct factors determine the success of SIMDASI as an OGD adoption tool?

To address the research question, the authors propose an UTAUT-integrated ISSM model aimed at unearthing benefits from administering SIMDASI as an OGD adoption tool from employees' perspective. The model

The study therefore is organised as follows: Section II elaborates theoretical background and hypotheses; Section III explains the research methodology; Section IV expounds on the research results; Section V explicates the discussion regarding the research objectives and the implications; Section VI closes the research with the conclusion and limitation of the study.

II. Literature Review and Hypotheses

A. *DeLone & McLean Information System Success Model (ISSM)*

ISSM offers a comprehensive metric to gauge the success of an information system [44], [45]. Correspondingly, this approach proposes an idea in which system quality and information quality affect the use and the adoption of IS, resulting in individual and organisational impact [43], [45]. DeLone and McLean (2003) [17] further propounds upgrades with the inclusion of the service quality dimension to help explain the effectiveness of an IS [45]. DeLone and McLean (2016) [46] then recommended the integration of *intention to use* and *use* into the *system use* dimension, of which the model measures the degree of usage in a mandatory IS —*the case of SIMDASI*. The ISSM model thus stipulates six dimensions as follows:

1) Information Quality (IQ)

Providing users with accurate, timely, and relevant information becomes the driving force for IS applications; hence, the IQ dimension remains paramount in the model [45]. DeLone and McLean (2016) [46] argue that IQ contributes to user satisfaction and declares that this dimension should be viewed as a success metric independent from end-user satisfaction measurements. Further, they assert that IQ has been demonstrated to be substantially correlated with system usage and net benefits in both individual and organisational settings [44]–[46].

Stefanovic et al. (2016) [15] and Martono et al. (2020) [13] also prove that IQ influences the usage of e-government systems. Correspondingly, Talukder et al. (2019) [43] pinpoint that IQ influences citizens' usage of OGD. For the satisfaction issue, Gangga Dewi & Fajar (2021) [16] verify that IQ affects employees' satisfaction in using IS at Kominfo, Indonesia, similar to the research by Puspitarini & Ardhani (2022) [14].

This study therefore refers to the IQ dimension as a measurement of SIMDASI following the criteria: *relevance, usefulness, understandability, accuracy, reliability, completeness, and timeliness* [45], [46]. Accordingly, the authors suspect that IQ influences system use and user satisfaction.

2) System Quality (SQ)

DeLone and McLean (2003) describe that SQ constitutes the desired attributes of an IS; thus, SQ subsumes measures of the IS itself [44]–[46]. These measures typically emphasise usability aspects and performance attributes of the examined IS. DeLone and McLean also reiterate that there is no universal measurement in SQ; thus, they establish *ease of learning, ease of use, availability, system reliability,* and *system interactivity* as ways to gauge the SQ [44]–[46].

In this model, SQ influences the system use and user satisfaction of the IS examined. Puspitarini & Ardhani (2022) [14], Talukder et al. (2019) [43], and Stefanovic et al. (2016) [15] demonstrate how SQ affects both *intention to use* and *user satisfaction* in their research. In addition, Martono et al. (2020)[13] uncovered that SQ has a significant influence on *system usage*, and Gangga Dewi & Fajar (2021) [16] have verified the correlation between SQ and user satisfaction in their research.

The authors suspect SQ significantly influences *user satisfaction* and *system use* in the model.

3) Service Quality (SEQ)

SEQ, the updated ISSM dimension, denotes the quality of assistance provided to users by the IT support team or IS department, such as training, hotline, or helpdesk [44]–[46]. DeLone and McLean (2016) [46] reclarify the SEQ dimension, which they believe is misunderstood and understudied, merits inclusion as a component of IS success because SEQ enhances individual performance. They further propose that the key measures for today's digital environment are *reliability, empathy, responsiveness, contact,* and *interactivity.*

Puspitarini & Ardhani (2022) [14] and Gangga Dewi & Fajar (2021)[16] evince that SEQ influences both system use and user satisfaction. Stefanovic et al. (2016) [15], on the other hand, verify the relationship between SEQ and system usage in their research but fail to identify the correlation between SEQ and user satisfaction. The same goes for Martono et al. (2020) [13], as they failed to determine the connection between SEQ to either user satisfaction or system use.

As SIMDASI remains a mandatory system for OGD adoption and a specific department is available to assist users with technical and nontechnical support [8], the authors believe that the inclusion of SEQ is beneficial and thus argue that SEQ has a significant influence on system use and user satisfaction.

4) System Use (SU)

DeLone and McLean (2016) [46] explain that SU is the degree and manner in which employees utilise IS capabilities. Further, they also rectify the misconceptions among many scholars to omit SU where the system is mandatory. Realising the system's benefits is expected to be significantly impacted by variations in quality and intensity[46].

While prior studies stop at the SU, Stefanovic et al. (2016) [15] and Gangga Dewi & Fajar (2021)[16] seek to uncover the relationship between SU and the net benefits, which leads to the realisation that SU has a significant influence on the net benefits either for organisations or individuals.

The authors then suggest using SU as the mediating factor from IQ, SQ, and SEQ to the net benefits. Accordingly, DeLone and McLean (2016) [46] highlight indicators to measure SU: *frequency of use, duration of use, nature of use, appropriateness of use, number of functions or features used (extent of use), thoroughness of use, attitudes toward use*, and *intention to reuse*.

5) User Satisfaction (US)

The US dimension constitutes users' satisfaction when utilising an IS and is considered an essential factor in measuring IS success. As SIMDASI remains mandatory, employing this dimension becomes favourable [44]–[46]. Gangga Dewi & Fajar (2021)[16] have proven the relationship between US to SU and US to net benefits, further proving the notion from Stefanovic et al. (2016) [15]. Urbach and Müller (2012) [47] also argue that US has a strong relationship with both system use and net benefits. The authors believe that US mediates IQ, SQ, and SEQ to SU and net benefits. The measurement of *effectiveness*, *enjoyment*, and *overall satisfaction* is an effective way to gauge US in this model. This study hence employs this US dimension as part of the measurement model.

6) Individual Impact (II)

DeLone and McLean (2016) [46] splits net impacts into *individual* and *organisational impacts*. This dimension explains the extent to which IS contributes to an individual's success, such as improved personal productivity. This paper suggests the inclusion of the II construct to measure the success of SIMDASI among individual levels that attribute the success of OGD adoption. The measurement of *learning, decision quality, decision time, productivity,* or *task performance* is proven effective.

7) Organisational Impact (OI)

DeLone and McLean (2016) [46] also propose measuring *cost reduction, overall productivity, improved outcomes*, and *e-government positioning* through the OI construct at the organisation level. As this study intends to unravel the success of SIMDASI to OGD initiatives in BPS, the authors propose using OI in the measurement model.

Given the above, the authors establish the proposed hypotheses to measure IS usage in the following lists:

H1. IQ positively and significantly influences on SU to operate SIMDASI for OGD adoption.

H2. IQ positively and significantly influences on US to operate SIMDASI for OGD adoption.

H3. SQ positively and significantly influences on SU to operate SIMDASI for OGD adoption.

H4. SQ positively and significantly influences on US to operate SIMDASI for OGD adoption.

H5. SEQ positively and significantly influences on SU to operate SIMDASI for OGD adoption.

H6. SEQ positively and significantly influences on US to operate SIMDASI for OGD adoption.

H7. US positively and significantly influences on SU to operate SIMDASI for OGD adoption.

B. The Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT, a modified TAM model, uses two variables from TAM and expands them into four constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) affecting the behavioural intention to use a technology and/or technology use [27], [28]. Venkatesh et al. (2003) [27] imbue the construct with eight IT adoption theories, perfecting the theory. The eight standards used in the construct are the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model (MM), Theory of Planned Behaviour (TPB), a model that combined TAM and TPB, Model of PC Personal Computer Utilization (MPCU), Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT).

Venkatesh et al. (2003) [27] have also tested the UTAUT resulting in a variance of 70%. Many scholars hence deem the UTAUT as the most comprehensive model in predicting employee behaviour in the e-government setting [12], [13], [29], [30], [38], [39]. Venkatesh et al. (2003) [27], Venkatesh et al. (2012) [28], and Taherdoost (2018) [48] report that, compared to other frameworks, the UTAUT boasts a better explanatory capability in forecasting the behavioural intention toward an IS. This study therefore employs the following constructs to complete the measurement:

1) Performance Expectancy (PEX)

The *Performance Expectancy* construct defines the degree of individual belief in which one feels that using the system will help improve his or her job performance [27], [45]. In general, Puspitarini & Ardhani (2022) [14] have established the evidence that PEX influence the usage of a technology. Further, in the e-government area, Yavwa and Twinomurinzi (2018) [33] failed to validate the connection between PEX and the usage behaviour. Yet, many scholars have successfully verified the correlation between PEX and usage behaviour [30]–[32], [34]–[36]. Mutaqin and Sutoyo (2020) [36] even prove that PEX stands as the most influential factor in the behavioural intention of e-government usage.

In the area of OGD-related study, Zainal et al. (2019) [39] propose an UTAUT-based model, which includes PEX, to measure the use of OGD in the academic setting. Further, Subedi et al. (2022) [26] certify the presence of PEX construct as the influential factor among OGD use by Nepali users. Hence, the dimension measured in this construct comprises *perceived usefulness*, *job-fit*, and *outcome expectations* [27], [28], [45] to gauge the acceptance of SIMDASI with the following hypothesis:

H8. PEX positively and significantly influences on SU to operate SIMDASI for OGD adoption.

2) Effort Expectancy (EEX)

The notion of the *Effort Expectancy* construct introduces a level of comfort related to using the accepted technology [27], [30], [45]. In the integrated model, Puspitarini & Ardhani (2022) [14] establish definitive proof that EEX affects the behavioural usage of the system. Albeit Taiwo et al. (2012) [34] dismissed the link between EEX and system usage, many researchers propose evidence from their findings point to the connection between EEX and the usage of e-government services [30]–[33], [35], [36], [38].

In their research, Zainal et al. (2019) [39] expound on the correlation between EEX and system usage. In addition, Subedi et al. (2022) [26] depict the link between PEX and OGD use in Nepal. The authors thus propose this construct with the following measurement dimensions: *perceived ease of use*, *learning time*, and *complexity* [27], [28], [45]. For this dimension, the authors also formulate the hypothesis:

H9. EEX positively and significantly influences on SU to operate SIMDASI for OGD adoption.

3) Facilitating Conditions (FC)

The notion, known as the *Facilitating Conditions* construct, depicts how much one assumes the organisational and technological infrastructure support using the system. [27], [45]. Although Subedi et al. (2022) [26] ignore this construct, other scholars using the FC approach have presented the evidence. They claim that FC influences the behavioural use and the use of the system[30], [32]–[36], [39]. As for the measurement, this construct proposes the following criteria: *perceived behavioural control*, *facilitating materials*, and *compatibility*. Thus, the authors postulate the following hypothesis:

H10. FC positively and significantly influences on SU to operate SIMDASI for OGD adoption.

As for the *Social Influence* (SI), the authors believe that mandatory IS [8] compels employees to use the system without the influence of people around them. Al-Swidi & Faaeq (2019) [32] and Faroqi et al. (2020) [35] have proven that SI does not influence the usage behaviour in e-government services; the authors then decide to omit this construct from the model.

Finally, to unravel the benefits of SIMDASI in the context of OGD adoption. The authors formulate the following hypotheses:

H11. US positively and significantly influences on OI from SIMDASI as the OGD adoption tool.

H12. US positively and significantly influences on II from SIMDASI as the OGD adoption tool.

H13. SU positively and significantly influences on II from SIMDASI as the OGD adoption tool.

H14. SU positively and significantly influences on OI from SIMDASI as the OGD adoption tool.

Fig. 1 illustrates the measurement model in this study.

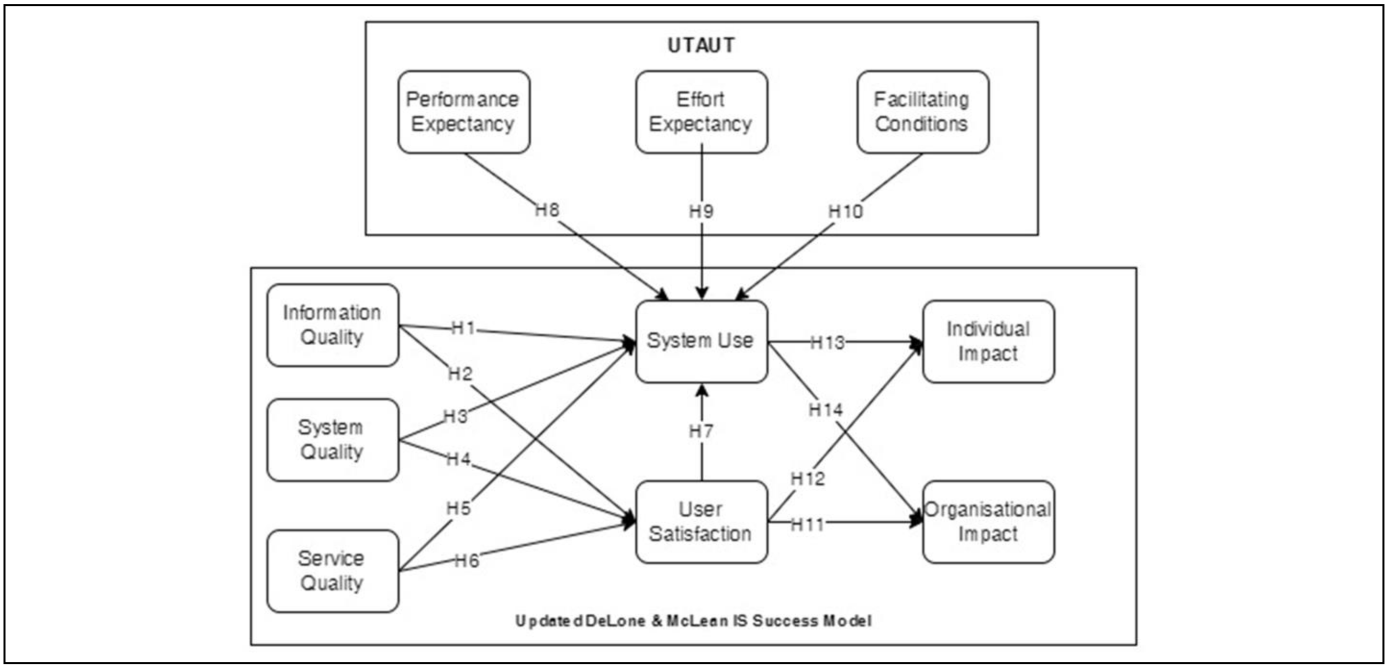

Fig. 1. Proposed measurement model

III. Research Methodology

A. Design of the Study

This study outlines findings on the factors influencing OGD adoption through an integrated system based on employee views. The authors identify four endogenous constructs (system use, user satisfaction, organisational impacts, and individual impacts) and two mediating factors (user satisfaction and system use). Fig. 1 depicts the suggested model, which incorporates two models (ISSM and UTAUT), resulting in ten latent variables: *Information Quality (IQ), Service Quality (SEQ). System Quality (SQ), User Satisfaction (US), System Use (SU), Performance Expectancy (PEX), Effort Expectancy (EEX), Facilitating Conditions (FC), Individual Impacts (II),* and *Organisational Impacts (OI).*

The authors further establish fourteen different paths among the variables. In IS usage measurement, the authors construct seven hypotheses (H1–H7), while in uncovering employees' acceptance, the authors employ three hypotheses (H8 –H10). Finally, the authors also hypothesise that SU and US are predictors of individual and organisational impact with four hypotheses for direct effects (H11–H14) [Fig. 1].

Furthermore, the authors employ a quantitative technique to obtain data, utilising questionnaires as the instrument. To pinpoint the correlation between one or more independent/dependent variables, the authors also use the structural equation model (SEM) methodology [49]. This study also focuses on BPS as the leading sector of OGD in Indonesia, hence resulting in *a small sample size*. With addition of *a complex measurement model* in the study (many indicators and relationships), the authors hence select the partial least square (PLS) SEM as the modelling technique for the study [50]. Previous studies show that PLS SEM helped researchers in performing statistical analysis in a similar setting [13], [14], [16], [31], [32], [35], [43].

As for data analysis, the authors administer PLS software called SmartPLS 4 [51] to execute PLS-SEM [50], [52] and one-tailed bootstrapping tests [50], [53]. Finally, as advocated by Hair et al. (2017) [50], the authors utilise two-stage analysis: *measurement model assessment* and *structural model assessment.*

B. Instrumentation

The authors then collect the data using a cross-sectional questionnaire with close-ended questions. The questionnaire used in this study is designed in two parts: *respondents' information* and *respondents' view* regarding the proposed model. The first part of the questionnaire comprises eight questions that collect basic information about the respondents: *name, email, phone number, location (office), gender, age, education level,* and *working experience*. The second part contains 44 indicators to evaluate the proposed model. Each item is assessed on a five-point Likert scale: *1-strongly disagree; 2-disagree; 3-neutral; 4-agree; 5-strongly agree.* Appendix A exhibits the measurement items for this study and Fig. 2 depicts the recommended indicators for the model.

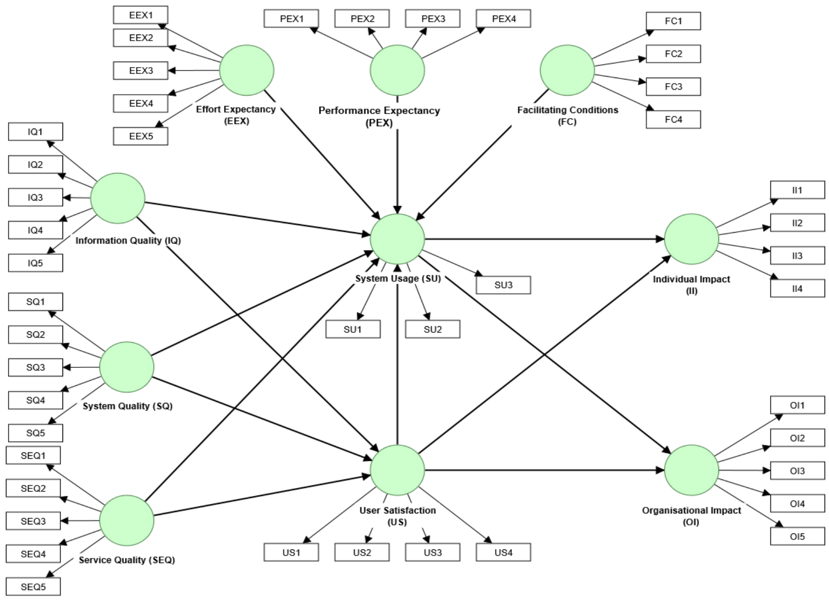

Fig. 2. Proposed measurement model with 44 indicators

C. Participants

The authors sent the questionnaire to approximately 613 employees who operate SIMDASI frequently. The authors then distribute through emails registered to SIMDASI from all BPS offices (headquarters, provincial offices, and regency/municipality offices), of which 253 responses were collected between 9 and 18 November 2022. In collecting the data, the authors inform and guarantee the security of the answer as their responses will remain secret and used only for academic purposes.

$$n = \frac{N}{1+Ne^2} \quad (1)$$

To determine whether the collected responses have met the minimum sample requirement, the authors employ Slovin's formula to check the validity in equation (1), where n equals the required sample size, N means population size, and e is the margin of error. As Tejada et al. (2012) [54] recommended, the authors use a 95% confidence level or 5% of margin error, resulting in a 242 minimum sample size from a known 613 population. In a similar fashion, Kock & Hadaya (2018) [55] propose a sample size of 146 or 160 should researchers do not know the value of path coefficient with the minimum absolute magnitude. Thus, this study has met the required sample size.

Furthermore, as seen in Table I, 88,2% of the valid responses come from regional offices (province and regency/municipality offices), with most of the respondents being male (58,9 per cent). Then, nearly half of the respondents are 30–39 years of age (48,2 per cent). Then, nearly 99 per cent of respondents possessing higher education (diploma to doctorate) backgrounds and 39,5 per cent of the participants had worked for 11 to 20 years in BPS.

TABLE I. RESPONDENTS' PROFILE (N=253)

Item/Description	**N**	**%**
Location (Office)		
Headquarter	30	**11.9**
Provincial Office	66	**26.1**
Regency/Municipality Office	157	**62.1**
Gender		
Male	149	**58.9**
Female	104	**41.4**
Age (years)		
20–29	73	**28.9**
30–39	122	**48.2**
40–49	39	**15.4**
> 50	19	**7.5**
Education Level		
High School	1	**0.4**
Diploma	4	**1.6**
Bachelor's Degree	170	**67.2**
Master's Degree	77	**30.4**
Doctorate	1	**0.4**
Working Experience (years)		
< 5	51	**20.2**
5–10	68	**26.9**
11–20	100	**39.5**
> 20	34	**13.4**

IV. Result

A. Measurement Model Assessment

Hair et al. (2017) [50] and Hair et al. (2019) [52] recommend tests for examining the measurement model: *reflective indicator loadings, internal consistency, convergent validity*, and *discriminant validity*.

1) Reflective indicator loadings (outer loadings)

Hair et al. (2017) [50] employ indicators of a reflective construct as a different technique for evaluating the same construct. The higher the outer loadings, the more common are the associated indicators on a construct. According to Hair et al. (2017) [50], an indicator's outer loading should be greater than 0.708 and, in most cases, 0.700 is adequate. Further, when an outer loading of an indicator is < 0.40, Hair et al. (2017) [50] recommend deleting the reflective indicator, while an outer loading between 0.40 and 0.70 should be analysed to check the increases of *average variance extracted (AVE).*

From the calculation in Table II, two latent variables possess < 0.700 outer loading values, namely, IQ5 and SQ5. Accordingly, the authors prompted another reflective indicator loadings test by omitting **IQ5** and **SQ2** to examine changes in AVE. As identified in Table III, the AVE from IQ and SQ increase to 0.052 and 0.082, respectively. Thus, the authors agree to exclude IQ5 and SQ5 from the proposed model, resulting in above 0.700 outer loading values for all indicators shown in Table IV.

TABLE II. Initial Reflective Outer Loadings

Indicator	Loading	Indicator	Loading
EEX1	0.826	OI5	0.879
EEX2	0.887	PEX1	0.852
EEX3	0.925	PEX2	0.915
EEX4	0.915	PEX3	0.935
EEX5	0.861	PEX4	0.903
FC1	0.840	SEQ1	0.917
FC2	0.792	SEQ2	0.924
FC3	0.843	SEQ3	0.941
FC4	0.789	SEQ4	0.888
II1	0.872	SEQ5	0.915
II2	0.909	SQ1	0.836
II3	0.931	SQ2	0.879
II4	0.907	SQ3	0.833
IQ1	0.748	SQ4	0.728
IQ2	0.800	**SQ5**	**0.608**
IQ3	0.848	SU1	0.830
IQ4	0.784	SU2	0.906
IQ5	**0.696**	SU3	0.870
OI1	0.865	US1	0.918
OI2	0.924	US2	0.882
OI3	0.879	US3	0.926
OI4	0.904	US4	0.914

TABLE III. Changes in the AVE Before and After Exclusion

Latent Variable	AVE		Changes
	Before	After	
EEX	0.781	0.781	0.000
FC	0.666	0.666	0.000
II	0.819	0.819	0.000
IQ	**0.604**	**0.656**	**0.052**
OI	0.793	0.793	0.000
PEX	0.813	0.813	0.000
SEQ	0.842	0.842	0.000
SQ	**0.613**	**0.695**	**0.082**
SU	0.756	0.755	0.000
US	0.829	0.829	0.000

According to Table IV, Service Quality, SEQ3 obtains the most significant loading with 0.946, while the most negligible loading alluded to System Quality, SQ4 (0.718). After analysing the indicators, forty-two items were incorporated for the following assessment:

2) Internal consistency reliability

The subsequent measurement to be examined is internal consistency reliability: *Cronbach's Alpha (Alpha)* and *Composite Reliability (CR)*. Alpha assumes that all indicators are equally reliable and are used to measure internal consistency reliability. Due to its limitations, Hair et al. (2017)[50] introduce an additional measure called CR, which accounts for different outer loadings of the indicators. Additionally, Hair et al. (2017) [50] and Hair et al. (2019) [52] emphasise that both CR and Alpha should be above 0.700.

Table VI shows that both Alpha and CR for all structures are acceptable, exceeding the appropriate level. For the acceptance factors (EEX, FC, PEX), the recorded Alphas are 0.929, 0.834, and 0.923, consecutively. As for the CR, these factors counted 0.947, 0.889, and 0.946, respectively. Regarding IS success, the measured factors (IQ, SQ, SEQ, US, SU, II, and OI) possess Alpha values in the following order: 0.825, 0.852, 0.953, 0.931, 0.840, 0.926, and 0.935. As for the CR values, the IS success factors recorded 0.884, 0.901, 0.964, 0.951, 0.902, 0.948, and 0.950.

3) Convergent validity

Convergent validity constitutes a measure that correlates positively with alternative measures of the same dimension. Therefore, the indicators should converge, sharing a considerable proportion of variance. Hair et al. (2017) [50] state that the appropriate measure for convergent validity is AVE with a value above 0.500 or more, explaining 50% or more of the variance. Table IV shows that all constructs received AVE values higher than the 0.500 variances.

4) *Discriminant validity*

Discriminant validity represents how a construct differs from others by empirical standards, implying the uniqueness among the variables. *The Fornell-Larcker criterion* and *heterotrait-monotrait ratio (HTMT)* are the best measurements to gauge the discriminant validity of the model [50], [52].

The Fornell-Larcker construct compares the square root of the AVE values with the latent variable correlations [50], [52]. The correlation between the two variables should be lower than the *square root of the AVE*. Appendix C exhibits this concept; the square root of EEX AVE (0.781) is 0.884, and the correlation between FC and EEX is 0.750, which means that FC and EEX achieve discriminant validity.

Furthermore, HTMT translates as the ratio of the between-trait correlations of indicators among all variables. To obtain discriminant validity, the HTMT should be below 0.900. Appendix B depicts all HTMTs from the latent variables that are < 0.900 and vary from one another. Through the Fornell-Larcker criterion and HTMT examination, the authors hereby declare that the proposed model achieves discriminant validity.

TABLE IV. INDICATOR LOADINGS, INTERNAL CONSISTENCY RELIABILITY, AND CONVERGENT VALIDITY

Latent Variable	Item	Loading	Alpha	CR	AVE	Latent Variable	Item	Loading	Alpha	CR	AVE
Effort Expectancy (EEX)	**EEX 1**	0.826	0.929	0.947	0.781	**Performance Expectancy (PEX)**	**PEX 1**	0.852	0.923	0.946	0.813
	EEX 2	0.887					**PEX 2**	0.915			
	EEX 3	0.925					**PEX 3**	0.935			
	EEX 4	0.915					**PEX 4**	0.903			
	EEX 5	0.861				**Service Quality (SEQ)**	**SEQ 1**	0.917	0.953	0.964	0.842
Facilitating Conditions (FC)	**FC1**	0.840	0.834	0.889	0.666		**SEQ 2**	0.924			
	FC2	0.792					**SEQ 3**	0.941			
	FC3	0.843					**SEQ 4**	0.888			
	FC4	0.789					**SEQ 5**	0.915			
Individual Impact (II)	**II1**	0.872	0.926	0.948	0.819	**System Quality (SQ)**	**SQ1**	0.859	0.852	0.901	0.695
	II2	0.909					**SQ2**	0.909			
	II3	0.931					**SQ3**	0.838			
	II4	0.907					**SQ4**	0.718			
Information Quality (IQ)	**IQ1**	0.774	0.825	0.884	0.656	**System Use (SU)**	**SU1**	0.829	0.840	0.902	0.755
	IQ2	0.809					**SU2**	0.906			
	IQ3	0.869					**SU3**	0.871			
	IQ4	0.783				**User Satisfaction (US)**	**US1**	0.918	0.931	0.951	0.829
Organisational Impact (OI)	**OI1**	0.865	0.935	0.950	0.793		**US2**	0.882			
	OI2	0.924					**US3**	0.926			
	OI3	0.879					**US4**	0.914			
	OI4	0.904									
	OI5	0.879									

B. *Structural Model Assessment*

In assessing the structural model, Hair et al. (2017) [50] assert that PLS-SEM is beneficial in estimating the parameter to maximise the explained variance of the endogenous latent variable(s). The key criteria for evaluating the structural model are *collinearity*, *path coefficients*, and *coefficient of determination* (*R^2 values*) [50], [52].

1) *Collinearity*

Collinearity refers to the degree of correlation between two predictor constructs; thus, a high level of collinearity is crucial [50], [52]. To measure the collinearity, Hair et al. (2017) [50] recommend administering *variance inflation factor (VIF),* and, in the context of PLS-SEM, the VIF value should be in a range between 0.20 and 5. Appendix D delineates the VIF statistics from the inner model and shows that all VIFs are within recommended values. Therefore, collinearity is not a concern for the model used in this research.

2) Path coefficient (β)

Representing the hypothesised relationships among the constructs, the path coefficients (β) possess standardised values between -1 and +1 [50], [52]—the closer β value is to 0, the weaker is the relationship. Then, to check whether the βs are significant, the authors attempt a one-tailed bootstrapping test procedure with 5,000 resamples, resulting in t-values and p-values. The authors compare the critical value and inspect the significance of every hypothesis.

Table VI informs the estimation results for the proposed hypotheses in this study. The path from user satisfaction to individual impact possesses the highest value (β=0.662; t=10.508), while the relationship from facilitating conditions to individual impact and organisational impact with 0.018 value for both paths. In addition, Table VI also confirms that eleven out of fourteen proposed hypotheses are supported.

3) Coefficient of determination (R2)

R^2 value becomes the most applied measurement to assess the structural model by measuring the model's predictive capability [50], [52]. This approach allows researchers to examine the coefficient between exogenous latent variables' combined effects on the endogenous variable [50]. Table V explains that all endogenous model variables possess moderate effects [50], with individual impact receiving the highest R^2, meaning that system use and user satisfaction explain 71.1% of the variance. Moreover, information quality, system quality, service quality, and user satisfaction explain a 55.8% variance in system use, the lowest R^2 value in the model.

TABLE V. COEFFICIENT OF DETERMINATION FROM THE MODEL

Endogenous Variable	R^2
Individual Impact	0.711
Organisational Impact	0.654
System Use	0.558
User Satisfaction	0.644

TABLE VI. ESTIMATION RESULTS FOR PROPOSED HYPOTHESES

Hypothesis	Relationship (from → to)	Path (β)	t-value	p-values	Result
H1	Information Quality → System Use	-0,003	0,033	0,487	**Not Supported**
H2	Information Quality → User Satisfaction	0,329	5,123	0,000	Supported*
H3	System Quality → System Use	0,163	2,013	0,022	Supported**
H4	System Quality → User Satisfaction	0,308	4,281	0,000	Supported*
H5	Service Quality → System Use	0,107	1,525	0,064	Supported***
H6	Service Quality → User Satisfaction	0,291	5,506	0,000	Supported*
H7	User Satisfaction → System Use	0,191	1,676	0,047	Supported**
H8	Performance Expectancy → System Use	0,242	2,953	0,002	Supported*
H9	Effort Expectancy → System Use	0,114	1,161	0,123	**Not Supported**
H10	Facilitating Conditions → System Use	0,059	0,659	0,255	**Not Supported**
H11	User Satisfaction → Organisational Impact	0,570	9,751	0,000	Supported*
H12	User Satisfaction → Individual Impact	0,604	9,367	0,000	Supported*
H13	System Use → Individual Impact	0,306	5,412	0,000	Supported*
H14	System Use → Organisational Impact	0,304	5,199	0,000	Supported*

Note: * 1% significance level, ** 5% significance level, *** 10% significance level

V. DISCUSSION

The findings from this study provide insightful information into the factors influencing the success of IS as the mediator for OGD adoption. Through the integration of ISSM and UTAUT, the study successfully unravels the influencing factors in IS and acceptance manner from employees' perspective.

The proposed forty-four indicators establish ten latent variables developed. The authors exclude two indicators through outer loadings assessment, leading to valid constructs for further assessment. The forty-two indicators establish internal consistency reliability and validity through convergent and discriminant tests. In the structural model assessment, the VIF values verify that no collinearity exists in the model. With the path coefficient test, the authors test the hypotheses at 1% and 5% significance levels. In addition, the authors also determine the R^2 value to explain the model's predictive power. The authors then also investigate internal documents [8]–[10] for further analysis.

RQ1: What are the IS factors that influence the use of SIMDASI?

IQ provided by SIMDASI shows no sign of effects on SU from employees (H1) (β=-0.003; t=0.033); however, IQ possesses a significant correlation with US in operating SIMDASI (H2) (β=0.329; t=5.123). H2 resonates with the previous studies proving that IQ influences US [14], [16]. H1, however, shows that IQ provided from SIMDASI has no influencing power in the use of SIMDASI. This finding differs from previous studies by Stefanovic et al. (2016) [15], Martono et al. (2020) [13], and Talukder et al. (2019) [43] that identified IQ as a salient construct affecting system use. The nature of employees working in data-driven departments [8]–[10] might cause the absence of a positive correlation between information quality and system use (H1), as employees are accustomed to working with all types of data and information quality.

Then, SQ exercised by SIMDASI resulted in a proven correlation to SU (H3) (β =0.163; t=2.013) and a causal effect to US (H4) (β=0.308; t=4.281). H3 and H4 further prove the same results from Puspitarini & Ardhani (2022) [14], Talukder et al. (2019) [43], Stefanovic et al. (2016) [15], Martono et al. (2020)[13] and Gangga Dewi & Fajar (2021) [16]. This research shows that the system's quality is a driving factor leading to more usage and higher satisfaction among employees in BPS. To put differently, employees are keen to use the system when it offers adequate usability and performance.

SEQ provided by the department in charge of SIMDASI has significant connections for both SU (H5) and US (H6) with β values of 0.107 and 0.291 with t-value of 1.525 and 5.506, consecutively. This outcome further proves the notion from Puspitarini & Ardhani (2022) [14] and Gangga Dewi & Fajar (2021)[16]. The presence of service personnel providing a hotline and helpdesk [8] becomes the main reason in this finding. The findings prove that aid from service personnel becomes paramount in the use of the system and the employees' happiness, corresponding to the original theory from ISSM [44]–[46].

Table VI also confirms the existence of the US-SU correlation (H7) with β value of 0.191 and a t-value of 1.676. This finding reaffirms the evidence from Gangga Dewi & Fajar (2021)[16] and Stefanovic et al. (2016) [15]. The results above prove that only IQ, SQ, and SEQ influence the employees' happiness in operating SIMDASI. Then, three IS-based constructs remain influential regarding using SIMDASI: SQ, SEQ, and US.

In view of the above, the authors find that the quality of system and services, along with satisfaction among employees, become the influencing factor from SIMDASI, which affects its usage. In addition, IQ, SQ, and SEQ are the predictor of US, which subsequently affects SU.

RQ2: What acceptance factors from employees affect the use of SIMDASI?

In the acceptance factors, Table VI validates that PEX plays a significant role in determining system use (H8) with β value of 0.242 and a t-value of 2.953. This finding matches the same result from previous studies [30]–[32], [34]–[36]. This finding depicts that when employees perceive SIMDASI as valuable and influential to their job performance, their intention to use it increases, corresponding to the original theoretical foundation of UTAUT [27], [28].

On the other hand, EEX (H9) and FC (H10), surprisingly, are proven to be noninfluential for the use of SIMDASI. H9 ratifies the same result from Taiwo et al. (2012) [34], of which they find no correlation between EEX and system usage. The findings elaborate that employees in BPS presume that the usage of SIMDASI requires effort (H9) and lacks support by an organisation and technological infrastructure (H10), reflected in the internal evaluation documents (such as lack of knowledge transfer, incomprehensive training, and medium to low participation from regional areas) [9], [10]. This study proves that the increase of effort expectancies or facilitating conditions plays no part in the increase of system use. The mandatory of SIMDASI could also lead to this finding, as the employees have no choice but to use it to disseminate OGD in BPS.

Hence, this study proves that performance expectancies remain the only independent variable from the acceptance factors that influence the use of SIMDASI.

RQ3: What direct factors determine the success of SIMDASI as an OGD adoption tool?

For the direct effect, US and SU are proven to be strong predictors for II and OI at a 1% significance level. The US in this model possesses the two highest path coefficient values in determining the net benefits: 0.604 (H12) of β to II and 0.570 of β to OI (H11)—denoting the findings from Stefanovic et al. (2016) [15] and Gangga Dewi & Fajar (2021)[16]. The use of the system and employees' happiness impact OGD adoption in individual and organisational contexts and empower employees and organisations via the adoption of OGD. This finding also corresponds to the updated theoretical foundation of ISSM [17], [46] that explains the predictors from II and OI are SU and US.

This study therefore concludes that system use and employees’ satisfaction become the predictor variables in determining the success of SIMDASI toward OGD initiatives in BPS. Those two variables account for 71.11% of the variation in II and 65.4% of the variance in OI.

This research contributes to the literature by proposing an integrated model while also demonstrating a valuable paradigm for understanding the following:

- Information Quality, Service Quality, and System Quality strongly influence employees' satisfaction in operating SIMDASI.
- Service quality, system quality, and user satisfaction become influential in escalating the use of SIMDASI among employees.
- Performance expectancies may also improve employees' usage of SIMDASI.
- The rise in usage of SIMDASI and employees’ satisfaction leads to positive development for individuals and organisations alike.

A. Theoretical Implications

The proposed model comprises seven constructs, namely, IQ, SQ, SEQ, US, PEX, EEX, and FC are used as potential dimensions that may influence the use of SIMDASI. In comparison, three constructs are established to explain user satisfaction: IQ, SQ, and SEQ. US and SU constructs are then evaluated to examine the influential power for personal and organisational impact from SIMDASI to OGD initiative.

This research employs two frameworks (ISSM and UTAUT) to assess the findings. The significant theoretical impacts and implications of this research are elaborated below:

- The ISSM model has been proven to be an ideal framework for understanding Information Quality, Service Quality, and System Quality in enhancing employee satisfaction (H2, H4, and H6), which subsequently could improve the use of the system (H7). This model also helps explain the predictor variables from individual and organisational impacts: user satisfaction and system use (H11–H14).
- The UTAUT model has offered evidence that performance expectancies (H8) play an increasingly pivotal role in using SIMDASI as the medium of individual and organisational benefits. However, in a mandatory setting, effort expectancy and facilitating conditions become less influential for system use (H9 and H10).
- The integrated model covers the weaknesses of each model, resulting in a better predictive power to uncover the benefits of IS for an organisation from the employees' perspective.

B. Practical Implications

This study possesses a wide array of practical implications for decision-makers in the government. This study also promotes a variety of priorities to comprehend employees' acceptance of using IS and strengthen employees' happiness with operating the IS by combining two ideas of IS and acceptance: ISSM and UTAUT. Although some hypotheses regarding acceptance constructs are not supported, one of the acceptance factors, such as PEX, holds predictive power in explaining the increase in system use. PEX subsequently influences the individual and organisational benefits through the medium of system use.

The following are the key findings of the study in a practical manner:

- In increasing satisfaction among employees, decision-makers should be more mindful of the quality of the information provided by the system (usefulness, understandable, engaging, and reliable), the availability of services to aid the employees (willingness, personal attention, punctuality, resourceful, and completeness), and the performance of the proposed system (easy to use and navigate, interactive, and accessible).
- With the increase in employee satisfaction, service quality, and system quality, the decision-makers have the upper hand in enhancing the use of the system; thus, all involved parties must attend to this matter.
- Decision-makers should also establish employees' beliefs regarding how the IS may improve their job performance. This perception may alter the use of the proposed system in the process. Decision-makers should attend to the resources and knowledge available for the employees, the compatibility with other technologies, and the presence of a specific person for assistance.
- Government ministries/agencies could benefit from an integrated IS should they adopt OGD. Consequently, the adopters must pay close attention to the satisfaction of employees as they operate the system on a frequent basis.

VI. Conclusion

This study aims to pinpoint factors contributing to the success of an integrated IS to OGD imitative from the employees' perspective. The authors declare the objectives for this research: (1) to investigate the IS factors affecting the use of SIMDASI in OGD initiative;(2) to examine acceptance factors in the usage of SIMDASI; (3) to uncover influencing factors from the success of SIMDASI employees' point of view in adopting OGD. Thus, with the integration of ISSM and UTAUT, this paper covers the IS success factors and user acceptance by measuring ten different latent variables: IQ, SQ, SEQ, US, PEX, EEX, FC, SU, II, and OI. The authors then postulate twenty-six hypotheses to answer the objectives.

The authors then administer a quantitative method using a cross-sectional questionnaire with close-ended questions. Between 9 and 18 November 2022, the researchers collected 253 responses from the employees in BPS who use SIMDASI. The authors also decide to employ SEM in determining the correlations among the latent variables with the help of SmartPLS 4.

Moreover, this paper examines the validity and reliability of the proposed measurement model of ISSM-UTAUT through measurement model assessment. The test resulted in the exclusion of two indicators among 44 initial indicators. Reflective indicator loadings, internal consistency reliability, convergent validity, and discriminant validity—these are the tests conducted to confirm the model's validity. In addition, this paper also conducts a test on the structural model to verify the proposed hypotheses using the path coefficient. Eleven out of fourteen hypotheses are supported and the additional test of R^2 values presents comprehensive information about the variance caused by exogenous factors.

The accepted hypotheses give insight into the research objectives. Although information quality influences employees' satisfaction in operating the system, information quality remains noninfluential for the usage of the system. However, the quality of the system and the services (provided by a specific department) are proven to affect system use and employees' happiness.

Regarding the acceptance factors, employees' belief in using the system to improve their job performance (PEX) has become the driving factor leading to the acceptance of SIMDASI. Nevertheless, this paper disproves the connection between employees' degree of ease (EEX) associated with SIMDASI and the use of SIMDASI. The same goes for the organisational and technical infrastructure support (FC) plays no part in defining the use of SIMDASI.

In general, this paper uncovers the influencing factors from the benefits generated by SIMDASI to OGD initiatives: individual and organisational benefits. The outcome of the assessment shows that system use and user satisfaction are predictors of the benefits from the view of IS. The result also clarifies that only performance expectancy has a part in defining the benefits of SIMDASI to OGD initiatives. Therefore, the use of system and employees' happiness stand as the explanatory variables for organisational and individual impact in OGD initiatives.

A. Limitations of Study

Albeit this study presents exciting findings, it has certain limitations: *participants* and *the measurement model*.

First, is the limitation of sample size and the focus on a single type of organisation. As the Central Data Supervisory Institution in Statistics, BPS owns a better understanding of disseminating statistical data; hence the OGD adoption might be acceptable. Additionally, with relatively supporting policies available, adopting new technologies becomes more straightforward. Thus, the findings of this study may reflect different factors in other government ministries/agencies.

Second, is the measurement model. The measurement model lacks specificity for the observed area by only integrating two predefined models. Other factors that might contribute to the success of IS in adopting OGD such as experience/habit, characteristics of technology and task, or employees' training prior to the use.

Finally, despite the limitations, this study successfully pinpoint the influencing factors using IS to OGD adoption.

B. Future Work

The authors suggest expanding the sample size and more coverage from government organisations such as ministries/agencies from central to local. Moreover, employing a longitudinal approach may result in more accurate findings to explain the behaviour of the employees. The data collection method could be improved by administering an assisted interview method to help respondents understand the questions better.

Future research could also exercise the same measurement model in different backgrounds: different countries or types of organisations, thus, validating the extent of the model used in this study. Additionally, since this study employs ISSM and UTAUT constructs, future research could extend this model by updating the model with the current version, such as UTAUT2. Next, introducing novel factors outside ISSM and UTAUT construct could provide a broader understanding of how IS influences the success of OGD adoption from employees' perspective. Task-Technology Fit (TTF) or Fit-Viability theory could help explain the impact of an integrated IS for government ministers/agencies in OGD initiatives.

Therefore, the authors believe that many possibilities are available in the future regarding this research—A better way to understand how an information system affects the adoption of open government data.

AUTHORS' CONTRIBUTIONS

WSW collects the data, performs data curation and statistical analysis, validates the research methodology, interprets the result, and writes the original manuscript. AF conducts research conceptualisation, interprets the data, and writes the original draft. DIA, SL, PAWP, and AY supervise the study, validate the results from WSW and AF, revise the mistakes, and review the original manuscript. All writers have reviewed and approved the final manuscript.

CONFLICT-OF-INTEREST STATEMENT

The authors with this declare that there is no conflict of interest in this study. All co-authors have reviewed and authorised the manuscript's contents; hence, the authors certify that the submission is authentic and is not currently under consideration by another publisher.

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APPENDIX A: MEASUREMENT ITEMS

Dimension	Code	Items	Reference
Information Quality (IQ)	**IQ1**	The information provided by SIMDASI is useful.	[15], [17], [44], [46], [47], [56]
	IQ2	The information provided by SIMDASI is easy to understand	
	IQ3	The information provided by SIMDASI is interesting	
	IQ4	The information provided by SIMDASI is reliable.	
	IQ5	The information provided by SIMDASI is up to date	
System Quality (SQ)	**SQ1**	SIMDASI is easy to use	[15], [17], [44], [46], [47]
	SQ2	SIMDASI is easy to navigate	
	SQ3	SIMDASI provides interactive features	
	SQ4	SIMDASI is accessible	
	SQ5	SIMDASI provides integration with other systems	
Service Quality (SEQ)	**SEQ1**	The responsible service personnel are always highly willing to help whenever I need support with SIMDASI.	[17], [44], [46], [47], [56]
	SEQ2	The responsible service personnel provide personal attention when I experience problems with SIMDASI.	
	SEQ3	The responsible service personnel provide services related to SIMDASI at the promised time.	
	SEQ4	The responsible service personnel have sufficient knowledge to answer my questions regarding SIMDASI.	
	SEQ5	The SIMDASI overall service quality from assigned personnel is complete	
System Use (SU)	**SU1**	I spend 3 to 4 days weekly on SIMDASI to complete my task	[17], [44], [46], [47]
	SU2	I try new features and functions in SIMDASI for specific tasks to make me more efficient than others	
	SU3	I feel at ease when using SIMDASI	
Facilitating Condition (FC)	**FC1**	I have the resources necessary to use SIMDASI.	[27], [28], [45], [56]
	FC2	I have the knowledge necessary to use SIMDASI.	
	FC3	SIMDASI is compatible with other technologies I use.	
	FC4	A specific person is available for assistance with SIMDASI difficulties.	
Performance Expectancy (PEX)	**PEX1**	SIMDASI would be useful for me to complete my tasks.	[27], [28], [45], [56]
	PEX2	SIMDASI would allow me to complete my tasks more quickly.	
	PEX3	Using SIMDASI would increase my productivity levels.	
	PEX4	Using SIMDASI would improve my performance.	
Effort Expectancy (EEX)	**EEX1**	It would be easy for me to become skilful at using SIMDASI.	[27], [28], [45], [56]
	EEX2	Learning how to use SIMDASI is easy for me.	
	EEX3	My interaction with SIMDASI would be clear and understandable.	
	EEX4	I would find it easy to get SIMDASI to do what I want it to do.	
	EEX5	Overall, I believe that it is easy to use SIMDASI to support my tasks.	
User Satisfaction (US)	**US1**	I was very content with SIMDASI.	[15], [17],

	US2	I was very satisfied with the information in SIMDASI.	[44], [46], [47]
	US3	I was satisfied with the efficiency of SIMDASI.	
	US4	Overall, I felt delighted with SIMDASI.	
Individual Impact (II)	**II1**	I have learnt much through the presence of SIMDASI.	[15], [17], [44], [46], [47]
	II2	SIMDASI enhances my awareness and recall of job-related information.	
	II3	SIMDASI enhances my effectiveness in the job.	
	II4	SIMDASI increases my productivity.	
Organisational Impact (OI)	**OI1**	SIMDASI has resulted in cost reductions (e.g., administration expenses or data collection activities).	[17], [44], [46], [47]
	OI2	SIMDASI has resulted in overall productivity improvement in BPS.	
	OI3	SIMDASI has resulted in improved outcomes or outputs (e.g., data quality).	
	OI4	SIMDASI has resulted in improved business processes.	
	OI5	SIMDASI has resulted in better positioning for Open Data in BPS.	

APPENDIX B: DISCRIMINANT VALIDITY ANALYSIS MATRIX (HETEROTRAIT-MONOTRAIT RATIO)

	EEX	**FC**	**II**	**IQ**	**OI**	**PEX**	**SEQ**	**SQ**	**SU**	**US**
EEX										
FC	0.849									
II	0.801	0.760								
IQ	0.789	0.751	0.664							
OI	0.713	0.726	0.880	0.690						
PEX	0.773	0.746	0.816	0.723	0.772					
SEQ	0.656	0.639	0.666	0.622	0.608	0.606				
SQ	0.742	0.698	0.685	0.801	0.668	0.598	0.690			
SU	0.722	0.685	0.800	0.661	0.768	0.727	0.636	0.693		
US	0.819	0.758	0.874	0.796	0.833	0.799	0.707	0.798	0.757	

APPENDIX C: DISCRIMINANT VALIDITY ANALYSIS MATRIX (FORNER-LARCKER CRITERION)

	EEX	**FC**	**II**	**IQ**	**OI**	**PEX**	**SEQ**	**SQ**	**SU**	**US**
EEX	**0.884**									
FC	0.750	**0.816**								
II	0.748	0.676	**0.905**							
IQ	0.697	0.624	0.584	**0.810**						
OI	0.671	0.652	0.820	0.607	**0.891**					
PEX	0.722	0.661	0.759	0.630	0.719	**0.902**				
SEQ	0.622	0.587	0.626	0.557	0.574	0.570	**0.917**			
SQ	0.669	0.589	0.609	0.681	0.597	0.535	0.625	**0.834**		
SU	0.654	0.591	0.720	0.572	0.695	0.652	0.579	0.606	**0.869**	
US	0.768	0.674	0.813	0.701	0.778	0.742	0.666	0.714	0.685	**0.910**

APPENDIX D: VARIANCE INFLATION FACTOR (VIF)

	EEX	**FC**	**II**	**IQ**	**OI**	**PEX**	**SEQ**	**SQ**	**SU**	**US**
EEX									3.680	
FC									2.601	
II										
IQ									2.535	1.969
OI										
PEX									2.735	
SEQ									2.070	1.732
SQ									2.601	2.228
SU			1.882		1.882					
US			1.882		1.882				3.839	