INKUBIS: Jurnal Ekonomi dan Bisnis
Volume 8, Issue 4, 3264-3279
e_ISSN: 2775-3913
https://inkubis.poltekssci.ac.id/index.php/ink/index
DOI: doi.org/10.59261/inkubis.v8i4.523

Integrating ISSM and TTF to Evaluate Mandatory System Success: A Pathway to Paperless Sustainability

Raihan Pradhika Rangkuti*
Universitas Bina Nusantara, Indonesia

Anderes Gui
Universitas Bina Nusantara, Indonesia

***Corresponding author:**
Raihan Pradhika Rangkuti,
Universitas Bina Nusantara, Indonesia.
✉raihan.pradhika@binus.ac.id

Article Info:
Article history:
Received: September 09, 2026
Revised: October 16, 2026
Accepted: October 27, 2026
Available Online: November 03, 2026

Keywords:
Information Systems Success Model;
Task-Technology Fit;
Mandatory System;
User Satisfaction;
Paperless Sustainability

This is an open access article under the CC BY-SA license.

Copyright © 2026 by Author. Published by Politeknik Siber Cerdika International

Abstract

Background: Digital transformation toward paperless bureaucracy has become a strategic necessity for organizations seeking to reduce administrative risk and environmental impact, yet mandatory information systems are frequently evaluated using models that assume voluntary adoption.
Objective: This study appraises the implementation success of a mandatory online Travel Management System (Surat Perjalanan Dinas/SPD) by combining the Information Systems Success Model (ISSM) with Task-Technology Fit (TTF), applying Partial Least Squares Structural Equation Modeling (PLS-SEM) to 109 users at PT XYZ.
Methods: Every measurement item satisfied the requisite convergent validity, discriminant validity, and reliability thresholds before structural model testing. The findings establish that System Quality, Information Quality, and Service Quality jointly influence User Satisfaction, whereas Task Characteristics and Technology Characteristics strongly determine Task-Technology Fit (TTF).
Results: As a primary finding, User Satisfaction does not significantly affect TTF, confirming that in a mandatory use environment, task-fit evaluation is based purely on objective feature capability rather than users' affective emotional bias. Ultimately, the achievement of Net Benefits is strongly predicted by TTF, confirming that bureaucratic efficiency can only be realized when technological functionality perfectly accommodates operational field demands.
Conclusion: These findings extend ISSM-TTF theory to compulsory-use contexts and offer practical guidance for organizations pursuing paperless sustainability.

To cite this article: Rangkuti, R. P., & Gui, A. (2026). Integrating ISSM and TTF to evaluate mandatory system success: A pathway to paperless sustainability. *INKUBIS: Jurnal Ekonomi dan Bisnis, 8*(4), 3264–3279. https://doi.org/10.59261/inkubis.v8i4.523

INTRODUCTION

Information technology has advanced at a rapid pace and now constitutes an essential requirement for the operations of contemporary firms, since adopting suitable information systems has been shown to enhance service quality, standardize processes, and generate efficiencies in both time and cost (Dewi et al., 2026; Melyanto, 2025). Cloud Computing, and most notably the Software as a Service (SaaS) model, has emerged as the foundation of present-day digitalization because it permits applications to be accessed without any local software installation. Nevertheless, numerous organizations continue to depend on manual systems, which give rise to recording mistakes, duplicated payments, and difficulties in verifying documents (Rachmawati et al., 2018; Rudzikyani et al., 2025). Reliance on physical paperwork likewise runs counter to the sustainability principles embedded in the Sustainable Development Goals (SDGs),

especially SDG 12, so shifting toward a paperless system becomes a vital approach for lowering an organization's carbon footprint and paper waste (Goni et al., 2021; Palmié et al., 2025). Accordingly, the core scholarly question is not merely whether digitalization yields benefits, but whether established information-system success models stay theoretically valid once system use is obligatory and the frequency of use can no longer act as a meaningful marker of acceptance or success.

Beyond decelerating processes and damaging the environment, this inefficiency of manual systems also produces considerable financial losses. Handling a single expense report by hand costs roughly $38.72 when error-free, while 19% of such manual reports still contain mistakes that add time and correction expenses. Physical systems are, moreover, susceptible to manipulation; within the travel and expense domain, fraud represents 14.5% of all occupational fraud, and 55% of offenders conceal their misconduct through falsified physical documents (Davis, 2024). Table 1 summarizes these vulnerabilities.

Table 1
Risk Profile of Manual Expense Reporting Systems

Risk Indicator	Percentage / Value
Average processing cost per report (error-free)	$38.72
Percentage of reports containing errors	19.0%
Proportion of occupational fraud from Travel & Expense sector	14.5%
Travel & Expense fraud cases concealed via physical documents	55.0%

Source: (Davis, 2024)

A routine yet essential administrative activity in the corporate setting is the handling of Official Travel Orders (Surat Perjalanan Dinas/SPD). Managing SPD conventionally under conditions of high mobility not only decelerates bureaucratic procedures but also introduces operational weaknesses and squanders paper resources. Retaining manual procedures effectively leaves the organization exposed to technical-failure risks and financial inefficiency, which positions digital transformation as a pivotal strategy for optimizing risk responses by converting "bureaucratic knowledge" such as SOPs into information-technology infrastructure (Abdillah et al., 2024; Nonaka & Takeuchi, 1995), thereby translating administrative rules into functional software that curbs errors.

This need to mitigate administrative risks through digitalization is strongly felt by PT. XYZ. As the company's operational scale expands to various regions, management's risk appetite for procedural errors and losses due to human error becomes very low. In response, PT. XYZ developed an SPD application integrated into the Human Capital System (HCS) portal and used by various branch offices. This web-based module is designed to manage end-to-end official travel requests, including filling out travel plans, expense applications, the approval process, and the issuance of Outgoing Voucher (Bon Keluar/BK) numbers.

Before this system was optimized, official travel operations at various PT. XYZ branch offices faced several obstacles: the workflow for filling out SPD plans and expenses was still separate without automatic validation, Leaders and Human Capital (HC) divisions had to check documents manually, and the issuance of green vouchers and printing of payment receipts were still manual. These weaknesses drove the development of new features (to-be process), including integration with SAP for automatic green voucher creation and payments, interface uniformity with the HRD portal, and a payment receipt upload feature. These features keep operations within the company's tolerated risk threshold, making the use of the SPD application absolutely mandatory without manual options for employees.

The enforcement policy that mandates this system is consistent with empirical evidence on business-expenditure governance: each 1% rise in business travel spending is associated with a 0.20% gain in company revenue (Association, 2025; de Bruijn et al., 2026). Data also proves that company scale and enforcement levels shape operational investment profiles (Table 2). More tellingly, organizations applying low-level policy enforcement reported revenue 30.2% higher than those with no policy, whereas moderate-to-high enforcement lifted revenue by 17.0% (Association, 2025; de Bruijn et al., 2026).

Table 2
Average T&E Expenditure per Employee (USD) by Company Size and Policy Enforcement Level

Enforcement Level	Large Companies (>1,000 Employees)	Medium Companies (100-1,000 Employees)	Small Companies (1-99 Employees)
None	$349.4	$1,059.7	$5,373.2
Low	$829.6	$2,278.5	$7,178.0
Moderate	$834.3	$2,378.5	$7,195.0
High	$621.6	$5,831.1	$6,175.7

Source: (Association, 2025)

Although the system's functionality is designed to mitigate risks while supporting an environmentally friendly organization, the success of the technology transition still depends on individual readiness for change (Jayanto et al., 2026), which ideally forms through stages of awareness, interest, evaluation, trial, to full adoption, but is often hindered by weak technological understanding and management (Jayanto et al., 2026). A user's receptiveness to new technology serves as a prerequisite for an organization's absorptive capacity (Gunung et al., 2024; Zahra & George, 2002). However, in a mandatory work environment, the stages of individual readiness are often bypassed because employees are required to immediately use the system, so their acceptance must still be evaluated based on performance expectations and supporting facilities, not occurring automatically. As a result, elevated usage rates within mandatory systems can no longer be read as genuine adoption; they instead reflect nothing more than compliance with administrative rules (Silvestro et al., 2024).

For this reason, PT. XYZ's investment in system development warrants a comprehensive evaluation, since the success of any system rests substantially on whether system and information quality deliver added value to users (DeLone & McLean, 2003; Saba et al., 2025). To gauge the implementation success of the SPD HCS application in a holistic manner, this research employs a modified version of DeLone & McLean's Information System Success Model (ISSM) that removes the usage-intention variable and concentrates on how the dimensions of System Quality, Information Quality, and Service Quality shape User Satisfaction.

In addition, a purely technical evaluation cannot adequately address the challenges posed by a mandatory ecosystem (Nisak et al., 2025; Tam & Oliveira, 2016), so this research supplements it with the Task-Technology Fit (TTF) framework (Goodhue & Thompson, 1995; Zhang et al., 2025). Amidst individual readiness constrained by mandatory rule compliance, the organization's capacity to exploit the new system purely relies on how well the technological functionality accommodates the complexity of official duties in various field offices. This objective alignment culminates in holistic Net Benefits, encompassing bureaucratic efficiency, individual productivity, and the achievement of organizational paperless sustainability at PT. XYZ.

Against this backdrop, the study frames its problems around how system and information quality affect user satisfaction with the SPD application, how task and technology characteristics shape Task-Technology Fit (TTF), and the degree to which the combined ISSM, TTF, and user-satisfaction constructs influence Net Benefits in a mandatory usage setting. In line with this, the research seeks to examine the effect of the ISSM quality dimensions on user satisfaction, to appraise how well the SPD application's functional capabilities match daily task needs through the TTF model, and to test how integrating user satisfaction with technology alignment contributes to individual-level net benefits.

Theoretically, this research is expected to enrich the Information Systems Management literature regarding the integration of ISSM and TTF in evaluating mandatory-use software and provide empirical understanding of the relationships between the constructs tested. In practical terms, the findings are intended to function as evaluation benchmarks for PT. XYZ's management in judging how far the SPD application adds value and operational efficiency, and to inform the IT development team and internal policymakers as they refine the application's features.

This study is confined to evaluating the SPD application hosted on the Human Capital System (HCS) portal that PT. XYZ developed and operates internally. The research subjects include operational to managerial employees who have experience using the application as Requesters or Approvers. The constructs under examination combine ISSM (system quality, information quality, service quality, and user satisfaction) with TTF (task characteristics, technology characteristics,

and TTF) in service of evaluating Net Benefits. The research was conducted at the post-implementation stage, focusing on the application's front-end functionality without including source code audits or technical network architecture.

METHOD

Conceptual Framework

Drawing on the literature review and the background problems outlined in Chapter I, this conceptual framework is constructed to give a coherent picture of the principal problem, the theoretical stance, and the ultimate objective pursued in evaluating the Online Official Travel Order (SPD) application.

Problem Statement

Bureaucratic digitalization through the Online SPD application aims to cut administrative paths, accelerate approvals, and enhance transparency. However, when this system is implemented mandatorily, users have no manual alternative and are thus required to use the system regardless of whether its features match their task realities. If technological capabilities are not aligned with task characteristics, the system built at great cost risks causing inefficiency and failing to deliver significant impact on individual productivity (Net Benefits).

To tackle this evaluation problem in a mandatory environment, conventional approaches that merely gauge how often a system is used lose their relevance. This research therefore brings together two principal theoretical models: the Information Systems Success Model (ISSM) and Task-Technology Fit (TTF). Prior ISSM and TTF studies commonly interpret use, intention, or satisfaction under conditions in which users retain some degree of adoption discretion. By contrast, the present study investigates a compulsory administrative system, in which the theoretical focus moves away from willingness to use and toward whether system quality produces satisfaction and whether technology characteristics genuinely match the tasks required.

Quality Aspect Evaluation (ISSM)

This research adapts ISSM by dropping the "Use" variable and directing attention squarely at how the dimensions of System Quality, Information Quality, and Service Quality act upon users' affective response, namely User Satisfaction. This exclusion is theoretically justified because, in a mandatory-use setting, observed use is largely constrained by organizational rules rather than voluntary behavioral intention. In contrast to ISSM studies in voluntary environments, the model therefore treats User Satisfaction as the affective quality response while TTF captures the operational alignment between task requirements and system functionality.

Operational Aspect Evaluation (TTF)

To round out the quality evaluation, the TTF model gauges how far the Technology Characteristics of the Online SPD application correspond to employees' everyday Task Characteristics.

Desired Outcomes

Resolving the problem through this integrated framework seeks to demonstrate empirically how system quality and task-technology fit bear on Net Benefits. By analyzing the intersection between User Satisfaction and Task-Technology Fit, this research produces data-based recommendations for management so that the SPD application is not merely a bureaucratic requirement but truly accelerates task completion and employee operational performance.

Conceptual Framework Diagram

The research mindset described above is illustrated in the conceptual diagram in figure 1.

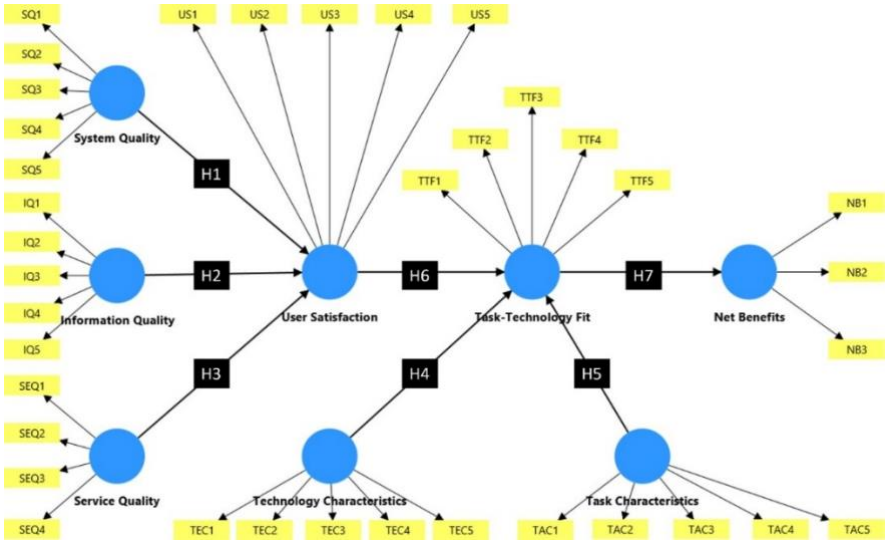


Figure 1. Conceptual Framework Diagram

As shown in the conceptual diagram above, the structural relationships among the variables fall into three principal groups:

1. Independent Variables: This section acts as the triggering factors that determine system evaluation, divided into two theoretical groups:
   a. ISSM Dimensions comprise System Quality, Information Quality, and Service Quality, which assess the technical reliability, data quality, and service support of the Online SPD application.
   b. TTF Characteristics include Task Characteristics and Technology Characteristics, which evaluate user workload routines and technological functional capabilities.
2. Mediating Variables (Intersection Point): The mediating variables function as a bridge connecting technical evaluation to performance impact.
   a. User Satisfaction is an affective response that, within a mandatory system, serves as the primary evaluation indicator in place of the "Use" variable. It is shaped directly by the three ISSM quality dimensions and, in turn, affects how users perceive the system's operational fit. Its position as a linking construct is theoretical rather than mechanical: perceived quality can shape satisfaction, and satisfaction may influence users' appraisal of whether the system supports task completion; the empirical model tests whether that affective appraisal contributes additional explanatory power beyond objective task and technology characteristics.
   b. Task-Technology Fit (TTF) captures the degree to which the Online SPD application's capabilities "fit" users' daily task requirements; it arises from the alignment of Task and Technology Characteristics and is likewise affected by User Satisfaction.
3. Dependent Variable (Output)
   a. Net Benefits is the final outcome of this conceptual framework, representing increased task efficiency, bureaucratic streamlining, and individual productivity that directly depends on the creation of Task-Technology Fit.

Research Stages

This research was conducted through a series of systematic operational stages, starting from instrument preparation to drawing conclusions. The following are the details of the research stages carried out:

Instrument Preparation and Development Stage

This stage centers on constructing the research instrument. Using the variable identification derived from the integrated ISSM and TTF model, questionnaire items based on a 5-point Likert scale were prepared in a digital format (online form) to ease distribution to respondents.

Instrument Pilot Test Stage

Prior to broad dissemination, the questionnaire underwent a pilot test with about 30

respondents so that its validity and reliability could be confirmed using statistical software. Any items failing to satisfy the statistical criteria were to be revised or removed.

Main Data Collection Stage

Once the instrument had been declared valid and reliable, the questionnaire was disseminated widely to the target population, namely employees operating the Online SPD application within a mandatory work environment, aiming for at least 106 respondents in accordance with Green's (1991) and Arkes (2025) rule of thumb (the computation is detailed in the Sample Size Calculation section).

Data Processing and Analysis Stage

The raw data gathered were tabulated and screened for missing values and outliers. The quantitative analysis itself was performed with SmartPLS software. The operational stages of analysis are divided into two parallel processes:

1) Measurement Model Evaluation (Outer Model): Re-examining the convergent validity, discriminant validity, and composite reliability of the data as a whole.
2) Structural Model Evaluation (Inner Model): Examining the hypotheses, covering the effects among System Quality, Information Quality, Service Quality, Task Characteristics, Technology Characteristics, TTF, User Satisfaction, and Net Benefits, through bootstrapping procedures that yield significance values (p-values).

Interpretation of Results and Conclusion Drawing Stage

The SmartPLS output results are interpreted to answer the problem formulation, including a synthesis of findings regarding the most dominant factors influencing the success of the Online SPD application, before drawing final conclusions and managerial recommendations for the company.

Hypotheses

Building on the literature review and the conceptual framework presented in Chapter II, this research tests the causal links among the dimensions of the Information System Success Model (ISSM) and Task-Technology Fit (TTF).

In formulating these hypotheses, the use of the Online SPD application is set as instructional and mandatory, so the "Usage Intention" or "System Use" variable is assumed to be constant. Thus, the evaluation of system success is focused directly on how technical quality and operational fit culminate in satisfaction and benefit creation. The hypotheses subjected to empirical testing in this research are stated below:

System Quality Group Hypotheses (ISSM):

H1: System Quality positively and significantly affects users' satisfaction with the Online SPD application.
H2: Information Quality positively and significantly affects users' satisfaction with the Online SPD application.
H3: Service Quality positively and significantly affects users' satisfaction with the Online SPD application.

Task-Technology Fit Group Hypotheses (TTF):

H4: Task Characteristics positively and significantly affect the Task-Technology Fit (TTF) of users of the Online SPD application.
H5: Technology Characteristics positively and significantly affect the Task-Technology Fit (TTF) of users of the Online SPD application.

Main Hypotheses (Performance Impact / Net Benefits):

H6: User Satisfaction positively and significantly affects Net Benefits within a mandatory usage environment. Unlike voluntary-use studies in which satisfaction can reinforce perceived technology fit, this non-significant relationship may reflect the compulsory-use context: employees must use the application regardless of affective evaluation, so judgments of fit may

depend more directly on task requirements and functional capability than on satisfaction. This interpretation should be tested across other mandatory systems before being generalized.
H7: Task-Technology Fit (TTF) positively and significantly affects Net Benefits within a mandatory usage environment.

Research Characteristics

This research is quantitative in nature and adopts a causal/explanatory design that describes and examines the cause-and-effect relationships underlying a problem. Based on the time dimension, this research is cross-sectional, where data is collected in a certain time period, then processed, analyzed, and conclusions drawn.

Table 3
Research Characteristics

No	Research Characteristic	Type
1	Based on Method	Quantitative
2	Type of Investigation	Causal / Explanatory
3	Based on Unit of Analysis	Individuals (Application User Employees)
4	Based on Time of Execution	Cross Section

Variable Operationalization

A research variable is anything that the researcher determines to be studied to obtain information, from which conclusions are then drawn. This research employs independent variables (System Quality, Information Quality, Service Quality, Task Characteristics, Technology Characteristics), mediating variables (User Satisfaction, TTF), and one dependent variable (Net Benefits).

Table 4
Operationalization of Variables and Indicators

Variable	Operational Definition	Key Indicators	Scale
System Quality	Users' appraisal of the application's operational reliability, usability, and speed.	Ease of navigation; System response time; Application stability (error-free).	Ordinal
Information Quality	Users' judgment of how relevant, complete, and timely the data are.	Accuracy of cost data; Completeness of information format; Data updates (up-to-date).	Ordinal
Service Quality	Assessment of the responsiveness, competence, and empathy of the support/IT team.	Speed of support team response; Ability to provide solutions; Willingness to help.	Ordinal
Task Characteristics	The demands, routines, and complexity of official travel administration.	Need for synchronous communication; Need for document sharing; Need for mobility (anywhere).	Ordinal
Technology Characteristics	The functional capabilities offered by the Online SPD application.	Ease of uploading digital proof; Multi-device access; Automated approval features.	Ordinal
Task-Technology Fit	The alignment between the application's functionality and task completion needs.	Application fits with routines; Functions support completion; Fit of operational features.	Ordinal
User Satisfaction	Affective response to the overall experience of using the SPD application.	Satisfaction with efficiency; Satisfaction with effectiveness; Overall satisfaction.	Ordinal
Net Benefits	Evaluation of the system's ability to improve	Faster task completion; Improved workflow	Ordinal

Variable	Operational Definition	Key Indicators	Scale
	productivity and time efficiency.	smoothness; Time and cost savings (paper).	

Measurement Scale

This research applies a 5-point Likert ordinal scale to capture the degree of respondent agreement with each indicator statement, scored as Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5).

Population, Sample, and Data Collection Procedure

Population

The population of this research comprises all employees across a range of Indonesian companies and institutions who have used their respective organization's version of the Online SPPD application. The population includes business entities from various sectors that have digitalized their official travel administration processes in a mandatory organizational environment.

Data Collection Technique

To safeguard instrument quality, validity checks (for instance, Loading Factor and Average Variance Extracted) and reliability checks (for instance, Cronbach's Alpha and Composite Reliability) were conducted on initial data from a pilot test of 30 respondents. An indicator is deemed acceptable when its loading factor exceeds 0.7 and its Cronbach's Alpha exceeds 0.7.

Participants and Data Collection Procedure

This research adopts a quantitative approach in which a structured questionnaire grounded in the integrated ISSM and TTF model serves as the principal data-collection instrument. Data was collected from employees in various offices using the SPD application to obtain comprehensive data variance regarding system evaluation across mandatory-use organizations.

The questionnaire comprises two sections. The first measures 8 core constructs (System Quality, Information Quality, Service Quality, Task Characteristics, Technology Characteristics, TTF, User Satisfaction, and Net Benefits) via 3-5 indicator items rated on a 5-point Likert scale. The second gathers respondents' demographic details (age, department, position, and usage intensity). The instrument was adopted and adapted from Tam and Oliveira (2016) and Zulfika & Astuti (2025), adjusted to the context of mandatory official travel administration.

During the data collection stage, the research objectives were explained to prospective respondents. The questionnaire was designed to be completed in 5-10 minutes, and participation was voluntary even though the application being evaluated was mandatory in their companies.

Data was collected online from staff to managerial respondents, with the questionnaire designed so that all questions were mandatory to answer, resulting in no missing values.

Sample Size Calculation

The minimum sample size follows Green's (1991) and Arkes (2025) rule of thumb, namely $N = 50 + 8m$, where m denotes the number of predictor variables. The structural model of this research has 7 predictor variables (System Quality, Information Quality, Service Quality, Task Characteristics, Technology Characteristics, User Satisfaction, and Task-Technology Fit), so the minimum required sample size is $50 + 8(7) = 106$ respondents. Therefore, this research targets a minimum data collection of 106 participants.

This rationale is further supported by Paramita et al. (2021) and Tapa et al. (2026), who note that a sample of 100-200 respondents suffices for SEM testing, together with the ten-times rule Barclay et al. (1995) and Xie et al. (2025), which calls for a minimum of ten times the largest number of predictors pointing to a single construct. In this model, the largest predictor set is three variables (toward User Satisfaction), so the absolute minimum limit is only 30 respondents. Thus, 110 respondents in this research have met all sample adequacy rules for stable and robust model estimation.

Data Analysis Method

This research employs an explanatory quantitative approach using cross-sectional data processed with SmartPLS. The Partial Least Squares Structural Equation Modeling (PLS-SEM) technique was selected because the research model is complex, incorporates numerous latent variables, and is oriented toward predicting individual performance impact (Net Benefits); the procedure also entails assessing both the measurement model (Outer Model) and the structural model (Inner Model).

RESULTS AND DISCUSSION

Results

General Overview of the Research Object

This research evaluates the acceptance level, task-technology fit, and implementation efficiency of the Online SPD application in a mandatory work environment. Primary data were gathered through an online questionnaire administered to employees using the system across several business entities, yielding 109 complete and valid responses for analysis and thereby satisfying the variance-based SEM feasibility criterion that recommends at least 106 respondents. Respondents were selected purposively from active PT XYZ employees who had direct experience using the Online SPD application for official-travel administration. Eligibility required current system use and sufficient exposure to evaluate system quality, task fit, satisfaction, and net benefits.

Table 5

Respondent Demographics

Demographics	Description	Count	Percentage
Gender	Male	28	26%
	Female	81	74%
Age	17 - 31 years	29	27%
	32 - 46 years	45	41%
	47 - 61 years	35	32%
Education	Diploma (D1 - D3)	4	4%
	Bachelor's or equivalent	79	72%
	Master's or equivalent	21	19%
	Doctoral or equivalent	5	5%
Position	C Level / Director	43	39%
	Manager / General Manager (GM)	31	28%
	Supervisor	29	27%
	Staff	6	6%
Role	Requester	81	74%
	Approver	28	26%
Work Tenure	Less than 5 years	32	29%
	5 - 20 years	61	56%
	More than 20 years	16	15%
Frequency	1 - 2 times per year	33	30%
	3 - 4 times per year	42	39%
	More than 4 times per year	34	31%
Province / City	DKI Jakarta - Jakarta	76	70%
	Banten - Tangerang	8	7%
	South Sulawesi - Makassar	6	6%
	Other regions in Indonesia (10 provinces/cities)	19	17%

Drawing on data from 109 respondents, the demographic profile indicates that most participants are female (74%; 81 people), concentrated in the mature productive age brackets of 32-46 years (41%) and 47-61 years (32%). The education profile shows adequate academic capability, with 72% holding bachelor's degrees and 19% holding master's degrees, indicating a good level of literacy for evaluating information systems.

The respondents' professional profile reveals that the system frequently involves strategic

decision-makers, as most occupy C-Level/Director (39%) and Manager/GM (28%) positions, consistent with 5-20 years of work experience among over half of the respondents (56%). Regarding the role in SPD, 74% acted as Requesters and 26% as Approvers.

In terms of usage intensity, the majority of respondents (39%) use the SPD application 3-4 times per year, 31% more than 4 times, and the remaining 30% use it 1-2 times per year. Geographically, respondents are dominated by DKI Jakarta (70%) and its surrounding areas such as Tangerang, Banten (7%), but this survey also captured user representation from various other regions in Indonesia, including South Sulawesi, Riau, Java, Kalimantan, and Nusa Tenggara. Because approximately 70% of respondents are concentrated in DKI Jakarta, the sample may overrepresent work practices and infrastructure conditions in that location; generalization to other organizational units should therefore be made cautiously.

Data Analysis

The initial step in PLS analysis is to assess the adequacy of the measurement model, or outer model. This assessment is vital for demonstrating that the questionnaire instrument used (its indicators/statement items) genuinely measures the intended latent variables or constructs in a valid and reliable manner.

Table 6
Outer Model Evaluation Results

Variable	Indicator	Outer Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Information Quality	IQ1	0.889	0.936	0.951	0.796
	IQ2	0.918			
	IQ3	0.900			
	IQ4	0.884			
	IQ5	0.868			
Net Benefits	NB1	0.889	0.892	0.933	0.824
	NB2	0.872			
	NB3	0.959			
Service Quality	SEQ1	0.688	0.886	0.924	0.756
	SEQ2	0.925			
	SEQ3	0.913			
	SEQ4	0.928			
System Quality	SQ1	0.808	0.911	0.934	0.739
	SQ2	0.874			
	SQ3	0.798			
	SQ4	0.922			
	SQ5	0.889			
Task Characteristics	TAC1	0.746	0.923	0.943	0.768
	TAC2	0.890			
	TAC3	0.905			
	TAC4	0.938			
	TAC5	0.890			
Technology Characteristics	TEC1	0.843	0.917	0.938	0.752
	TEC2	0.866			
	TEC3	0.923			
	TEC4	0.813			
	TEC5	0.888			
Task-Technology Fit	TTF1	0.885	0.933	0.949	0.789
	TTF2	0.926			
	TTF3	0.902			
	TTF4	0.849			

Variable	Indicator	Outer Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
	TTF5	0.880			
User Satisfaction	US1	0.896	0.935	0.951	0.794
	US2	0.887			
	US3	0.898			
	US4	0.823			
	US5	0.949			

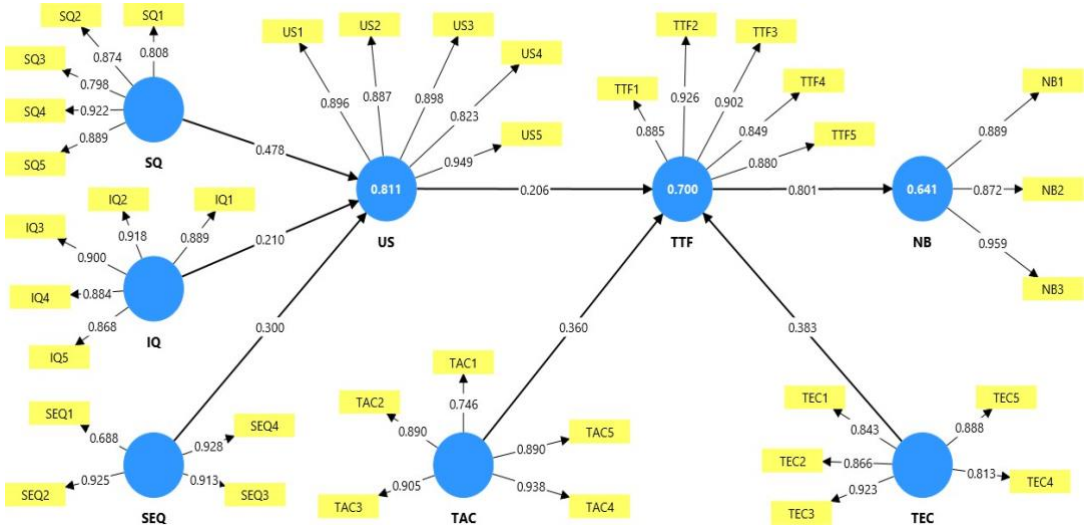


Figure 2. Path Coefficient

Convergent Validity Test

Convergent validity reflects how strongly an indicator correlates with the other indicators of the same construct, judged through Outer Loading and Average Variance Extracted (AVE) values. An indicator qualifies when its Outer Loading exceeds 0.70 and each construct records an AVE above 0.50.

As Table 5 shows, nearly all statement items from the 8 latent variables display strong Outer Loadings between 0.746 and 0.959, surpassing the critical 0.70 threshold. One indicator (SEQ1) scores 0.688 yet was retained, since it remains within the tolerable band (0.40-0.70) without lowering reliability or pushing AVE below the cutoff. The AVE values of all constructs lie between 0.739 and 0.824, well above the 0.50 minimum, evidencing excellent convergent validity. The indicator was retained because it represents a theoretically essential aspect of the construct and remained close to the conventional 0.70 benchmark while the construct-level reliability and convergent-validity criteria remained acceptable; deletion would narrow the intended content domain without a clear measurement benefit.

Reliability Test

Once validity had been confirmed, construct reliability was evaluated via Cronbach's Alpha and Composite Reliability (CR), with both indices regarded as reliable at values of ≥ 0.70.

As Table 5 indicates, every variable exhibits highly satisfactory reliability, with Cronbach's Alpha spanning 0.886 to 0.936 and Composite Reliability spanning 0.924 to 0.951, comfortably above the 0.70 threshold, thereby confirming very high consistency and stability of the instrument. With all convergent-validity and reliability conditions fulfilled, the survey data prove sound and free of measurement problems, rendering them statistically fit to advance to structural model testing (inner model).

Discriminant Validity Test

The Discriminant Validity Test seeks to confirm that each latent variable is empirically distinct, applying the Fornell-Larcker criterion whereby the model is judged sound when the square root of the AVE on the table's main diagonal exceeds its correlations with the remaining constructs.

Table 7
Fornell-Larcker Criterion Test Results

	IQ	NB	SEQ	SQ	TAC	TEC	TTF	US
IQ	0.892							
NB	0.701	0.907						
SEQ	0.708	0.741	0.870					
SQ	0.761	0.710	0.720	0.860				
TAC	0.608	0.704	0.682	0.585	0.876			
TEC	0.665	0.775	0.745	0.772	0.580	0.867		
TTF	0.739	0.801	0.746	0.720	0.716	0.756	0.888	
US	0.727	0.697	0.716	0.854	0.615	0.680	0.745	0.891

As Table 7 demonstrates, every square-root-of-AVE value on the diagonal consistently surpasses its cross-correlations. The square root of AVE for Net Benefits (0.907), for instance, exceeds its correlation with Task-Technology Fit (0.801) and the other variables, confirming that respondents clearly distinguish among all theoretical concepts in the model.
The relationship between System Quality and User Satisfaction, which carried a considerable risk of conceptual overlap in a mandatory application, likewise withstood this stringent test. Although their correlation is quite strong (0.854), this value remains below the square root of AVE for both System Quality (0.860) and User Satisfaction (0.891), so all indicators and latent variables are declared free from multicollinearity issues and valid for structural model testing.

Structural Model Testing (Inner Model) and Hypotheses

Having satisfied the feasibility requirements of the measurement model, the analysis proceeds to the inner model to appraise predictive capability and test the hypotheses, using the PLS algorithm and bootstrapping with 5,000 subsamples to obtain robust significance values.

Coefficient of Determination (R-Square)

The coefficient-of-determination test (R-Square or R^2) seeks to establish how much of the variance in the dependent latent variables is jointly accounted for by the independent variables that influence them within the model.

Table 8
Coefficient of Determination Test Results (R^2)

	R-square	R-square adjusted
Net Benefits	0.641	0.637
Task-Technology Fit	0.700	0.692
User Satisfaction	0.811	0.806

Based on the data processing results using the PLS-SEM algorithm, this research model produces three R^2 values as follows:

1) The adjusted R^2 for User Satisfaction (US) stands highest at 0.806 (Substantial/Very Strong category), meaning that System, Information, and Service Quality jointly explain 80.6% of the variation in user satisfaction, with the remaining 19.4% attributable to exogenous factors outside the model.
2) The adjusted R^2 for Task-Technology Fit (TTF) is 0.692 (Moderate category), implying that Task Characteristics, Technology Characteristics, and User Satisfaction together predict 69.2% of technology fit.
3) The adjusted R^2 for Net Benefits (NB) is 0.637 (Moderate category), indicating that the integrated ISSM and TTF model accounts for 63.7% of the phenomena surrounding individual performance improvement and bureaucratic efficiency, confirming that net benefits are driven by task-technology fit in a mandatory system.

Hypothesis Testing Results (Path Coefficients)

Once the outer model fulfilled its requirements, the next phase evaluates the structural (inner) model to establish the significance of the relationships among latent variables in line with

the hypotheses, via the bootstrapping procedure in SmartPLS. A hypothesis is accepted when its t-statistic exceeds 1.96 and its p-value falls below 0.05 (5% significance).

Table 9
Significance Test Results (Bootstrapping)

	Standard Deviation	t-values	p-values	Decision
H1: System Quality -> User Satisfaction	0.107	4.457	0.000	Accepted
H2: Information Quality -> User Satisfaction	0.090	2.339	0.019	Accepted
H3: Service Quality -> User Satisfaction	0.076	3.921	0.000	Accepted
H4: Technology Characteristics -> Task-Technology Fit	0.119	3.224	0.001	Accepted
H5: Task Characteristics -> Task-Technology Fit	0.071	5.065	0.000	Accepted
H6: User Satisfaction -> Task-Technology Fit	0.138	1.491	0.136	Rejected
H7: Task-Technology Fit -> Net Benefits	0.047	16.854	0.000	Accepted

As reported in Table 9, six of the seven hypotheses yielded T-Statistics above 1.96 and P-Values below 0.05, whereas one hypothesis (H6) failed to meet the significance criteria. Accordingly, H1, H2, H3, H4, H5, and H7 are accepted, while H6 is rejected.

Discussion

This subsection will comprehensively discuss the interpretation of the hypothesis testing results, linking them to the context of the Online SPD application and the underlying grand theory framework.

The Effect of System, Information, and Service Quality on User Satisfaction (H1, H2, H3)

The results confirm that the three pillars of the Information System Success Model (System Quality, Information Quality, and Service Quality) simultaneously exert a positive and significant effect on User Satisfaction. Although employees do not have the choice to reject the SPD application, this testing is crucial to prove that user satisfaction across organizations still depends on the fulfillment of quality expectations holistically.

1) H1 (Accepted): System Quality significantly affects User Satisfaction (t-value = 4.457; p-value = 0.000), confirming that technical reliability, navigational ease, and application stability are the chief determinants of user satisfaction.
2) H2 (Accepted): Information Quality significantly affects User Satisfaction (t-value = 2.339; p-value = 0.019), signaling that accurate, relevant, and current data meet users' information expectations.
3) H3 (Accepted): Service Quality significantly affects User Satisfaction (t-value = 3.921; p-value = 0.000), showing that the responsiveness and competence of the IT support team shape users' functional satisfaction.

The Effect of Technology and Task Characteristics on Fit (H4, H5)

The results reveal that Task-Technology Fit is firmly shaped by Task and Technology Characteristics, demonstrating that the heavy demands of complex official-travel administration—including the need to upload expenditure proof while away from the office—are well supported by the application.

The technology characteristics of the Online SPD application, which enable cross-device access, cloud-based digital proof uploads, and automated approval workflows, are the right solution for these task complexities, supporting Goodhue and Thompson's idea that systems are evaluated not by their technological sophistication but by how "fit" their functionality is in bridging task completion.

1) H4 (Accepted): Technology Characteristics significantly affect Task-Technology Fit (t-value = 3.224; p-value = 0.001), indicating that users regard the application's automation features as relevant.
2) H5 (Accepted): Task Characteristics exert a highly significant effect on Task-Technology Fit

(t-value = 5.065; p-value = 0.000), confirming that the complexity of bureaucratic travel workflows is a key driver of technology-task fit.

The Role of User Satisfaction on Task-Technology Fit (H6)

The integration between affective perception (satisfaction) and cognitive operational evaluation (task-technology fit) is one of the important dynamics tested in this research.

1) H6 (Rejected): This hypothesis linking ISSM and TTF was not empirically supported (t-value = 1.491; p-value = 0.136). This rejection is actually a crucial finding in the context of mandatory systems: employees' feelings of satisfaction (affective aspect) do not automatically dictate their objective perception of system fit (cognitive aspect). A user may be satisfied because of a good interface or minimal errors, but if the application's features cannot handle complex bureaucratic scenarios, the system is still considered not "fit." This finding confirms that in a mandatory environment, TTF is a functionality evaluation driven purely by job demands and feature capabilities, not by user satisfaction.

Achievement of the System's Ultimate Benefits (H7)

Net Benefits is the main proxy for successful information system implementation. Hypothesis H7 measures the final impact of task-technology fit (TTF) on increased efficiency, productivity, and bureaucratic streamlining, to confirm that a system that "fits" employees' workloads will measurably transform administrative processes into more efficient ones.

1) H7 (Accepted): Task-Technology Fit significantly affects Net Benefits, recording the highest significance value in the model (t-value = 16.854; p-value = 0.000) and demonstrating that aligning technological functionality with task needs is the principal key to bureaucratic efficiency and higher work productivity.

CONCLUSION

The integrated ISSM-TTF model shows that the system-quality dimensions account for User Satisfaction, whereas Task Characteristics and Technology Characteristics account for Task-Technology Fit. The non-significant User Satisfaction-to-TTF path indicates that, in this mandatory-use setting, affective evaluation does not necessarily translate into perceived operational fit. Net Benefits are most strongly tied to TTF, underscoring that compulsory digitalization generates value when technological functionality matches actual work requirements.

ACKNOWLEDGEMENT

The authors wish to convey their gratitude to Universitas Bina Nusantara for the academic support and research facilities provided throughout this study. The authors are likewise thankful to all respondents who took part by sharing valuable data and insights on the implementation of the Online Official Travel Order (SPD) application. Their contributions were indispensable to the completion of this research.

AUTHOR CONTRIBUTION STATEMENT

Raihan Pradhika Rangkuti was responsible for conceptualizing the research, developing the methodology, collecting and analyzing the data, interpreting the results, and preparing the initial manuscript. Anderes Gui contributed to validating the research framework, critically reviewing the manuscript, refining the analysis, and supervising the research process. All authors have read and approved the final version of the manuscript.

REFERENCES

Abdillah, A., Widianingsih, I., Buchari, R. A., & Nurasa, H. (2024). *The knowledge-creating company: How Japanese companies create the dynamics of innovation: by Nonaka, Ikujiro & Takeuchi, Hirotaka, New York, Oxford University Press, 1995, 284 pp., 19.39(Hardcover)& 7.40 (paperback), ISBN: 0199879923, 9780199879922.* Taylor & Francis.

Arkes, J. (2025). *Regression analysis: a practical introduction*. Routledge.

Association, G. B. T. (2025). *Quantifying the Return on Investment of U.S. Business Travel: Company Benchmarking Analysis*. GBTA. https://gbta.org/wp-content/uploads/2025-GBTA-x-ASTA-

ROI-Company-View-Benchmarking-Report_-FINAL-Nov-2025.pdf

Barclay, D., Higgins, C., & Thompson, R. (1995). The Partial Least Squares (PLS) Approach to Causal Modeling: Personal Computer Adoption and Use as an Illustration. *Technology Studies*, *2*(2), 285–309. https://people.uleth.ca/~d.burnett/Research04/research/references/Barclay1.html

Davis, M. (2024). *How Much Are Expense Reports Costing Your Business?* BILL. https://scholar.google.com/scholar?q=How Much Are Expense Reports Costing Your Business%3F

de Bruijn, B., Oosterhoff, A., & Kodden, B. (2026). Business travel stress and the moderating effect of corporate aircraft utilization on employee Well-Being: Business aviation from a stakeholder perspective. *Journal of Air Transport Management*, *131*, 102912.

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, *19*(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

Dewi, J. P., Abdullah, A. F., & Salsabila, D. F. (2026). Evaluasi Kepuasan Pengguna Sistem Informasi Akademik Menggunakan Model DeLone dan McLean pada Perguruan Tinggi Swasta Indonesia. *Jurnal Informatika, Komputasi, Dan Sistem Cerdas (JIKSC)*, *1*(1), 27–34.

Goni, F. A., Chofreh, A. G., Orakani, Z. E., Klemeš, J. J., Davoudi, M., & Mardani, A. (2021). Sustainable business model: A review and framework development. *Clean Technologies and Environmental Policy*, 889–897. https://scholar.google.com/scholar?q=Sustainable business model%3A A review and framework development

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS Quarterly*, *19*(2), 213–236. https://doi.org/10.2307/249689

Green, S. B. (1991). How Many Subjects Does It Take To Do A Regression Analysis? *Multivariate Behavioral Research*, *26*(3), 499–510. https://doi.org/10.1207/s15327906mbr2603_7

Gunung, M. A., Khairunnaziri, M., Hafiz, M., & Putra, P. O. H. (2024). Enhancing ERP usage through absorptive capacity: A case study from Indonesia enterprise. *Jurnal Sistem Informasi*, *20*(2), 52–67. https://jsi.cs.ui.ac.id/index.php/jsi/article/download/1423/448/4082

Jayanto, I., Murthada, Mondigir, S. E., & Woyongan, P. R. (2026). Change Management in the Digital Era: Determinants of Successful Technology Adoption in Large Organizations. *Journal Management & Economics Review*, 499–514. https://scholar.google.com/scholar?q=Change Management in the Digital Era%3A Determinants of Successful Technology Adoption in Large Organizations

Melyanto. (2025). Analisis Kesuksesan SIAKAD Menggunakan Metode DeLone and McLean IS Success Model pada ITBSS. *RABIT: Jurnal Teknologi Dan Sistem Informasi Univrab*, 72–84. https://scholar.google.com/scholar?q=Analisis Kesuksesan SIAKAD Menggunakan Metode DeLone and McLean IS Success Model pada ITBSS

Nisak, N. K., Ibrahim, A., & Ermatita. (2025). Evaluating the Acceptance and Success of Mobile Banking Systems Using a Combination of UTAUT2 and Delone & McLean Models. *Journal of Applied Informatics and Computing*, *9*(3), 658–666. https://doi.org/10.30871/jaic.v9i3.9301

Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press. https://scholar.google.com/scholar?q=The Knowledge-Creating Company%3A How Japanese Companies Create the Dynamics of Innovation

Palmié, M., Aebersold, A., Oghazi, P., Pashkevich, N., & Gassmann, O. (2025). Digital-sustainable business models: definition, systematic literature review, integrative framework and research agenda from a strategic management perspective. *International Journal of Management Reviews*, *27*(3), 346–374.

Paramita, R. W. D., Rizal, N., & Sulistyan, R. B. (2021). *Metode Penelitian Kuantitatif: Buku Ajar Perkuliahan Metodologi Penelitian Bagi Mahasiswa Akuntansi dan Manajemen* (3rd ed.). Widya Gama Press. https://repository.itbwigalumajang.ac.id/1073/

Rachmawati, S., Retnasari, T., & Sunarto. (2018). Optimalisasi Sistem Informasi Perjalanan Dinas dalam Meningkatkan Efisiensi Biaya Perusahaan. *Jurnal Teknologi Dan Ilmu Komputer Prima (JUTIKOMP)*, 241–249. https://doi.org/10.34012/jutikomp.v1i2.269

Rudzikyani, Y. A., Febrihapsari, M., Hidyantari, E., Suasridewi, D. G., Hardiono, H., & Prihartanti, W.

(2025). Efektivitas penerapan Aplikasi Sipanas (Sistem Informasi Perjalanan Dinas) di Pemerintah Kota Surabaya. *Governance*, *13*(2), 244–258.

Saba, P., DeLone, W., Ul-Ain, N., Harfouche, A., Ben Nasr, I., Biot-Paquerot, G., & Mallek, S. (2025). The DeLone and McLean Information Systems Success Model: What is the Future Evolution for Its Foundations, Components, and Applications? *Communications of the Association for Information Systems*, *57*(1), 52.

Silvestro, R., Schenatto, F. J. A., Santos, G. D., & Oliveira, G. A. (2024). Acceptance of a mandatory e-government system: The public employee perspective. *International Journal of Electronic Government Research*, *20*(1), 1–19. https://doi.org/10.4018/IJEGR.356406

Tam, C., & Oliveira, T. (2016). Understanding the impact of m-banking on individual performance: DeLone & McLean and TTF perspective. *Computers in Human Behavior*, *61*, 233–244. https://doi.org/10.1016/j.chb.2016.03.016

Tapa, I. G. F. S., Putri, A. N., SE, M. B. A., Siti Rohima, S. E., & Bayu Pratomo, S. S. T. (2026). *Buku Ajar Metode Penelitian*. Media Nusa Creative (MNC Publishing).

Xie, X., Teng, M. F., Zhang, L. J., & Alamer, A. (2025). Exploring AI literacy and AI-induced emotions among Chinese university English language teachers: The partial least square structural equation modeling (PLS-SEM) approach. *International Journal of Applied Linguistics*, *35*(4), 1897–1911.

Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, *27*(2), 185–203. https://doi.org/10.5465/AMR.2002.6587995

Zhang, X., Qi, Z., Ma, L., & Zhang, G. (2025). Assessing the curvilinear relationship in employee digital performance: a task-technology fit perspective. *International Journal of Human–Computer Interaction*, *41*(4), 2615–2633.

Zulfika, A., & Astuti, C. D. (2025). Assessing the Implemention Success of Official Travel Management System at Directorat General of Budget, Ministry of Finance, Republic of Indonesia. *Jurnal Akuntansi Dan Bisnis*, *11*(2), 91–103. https://doi.org/10.31289/jab.v11i2.15630