

DETERMINANTS OF BLOCKCHAIN TECHNOLOGY ADOPTION INTENTION IN PUBLIC FINANCIAL MANAGEMENT OF KUTAI KARTANEGARA REGENCY

Muhammad Adib^{1*}, Rifqi Muhammad²

adib1722@gmail.com*

Universitas Islam Indonesia, Indonesia^{1,2}

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Abstract

Public financial management at the regional level still faces challenges in transparency and accountability. This study aims to analyze the factors influencing the intention to adopt Blockchain technology in public financial management within the Kutai Kartanegara Regency Government. Employing a quantitative approach with a survey method, data were gathered from 62 State Civil Apparatus (ASN) in BPKAD, Bapenda, and the Regional Inspectorate using a purposive sampling technique. Data analysis was performed using Partial Least Squares-Structural Equation Modeling (PLS-SEM). The results indicate that the model has strong explanatory power ($R^2 = 0.762$) and good predictive relevance ($Q^2 = 0.503$). Partially, Stakeholders and Competency are proven to have a significant positive influence on Blockchain adoption intention. Conversely, Relative Advantage, Complexity, Laws and Regulations, and Top Management Support show no significant effect. Theoretically, this study shows that human resource capacity and external stakeholder support are more dominant than technological characteristics at the early stage of innovation diffusion.

Keywords: Blockchain, Adoption Intention, Diffusion of Innovations, Public Finance, Local Government

*Correspondence Author



By Authors

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1. Introduction

Transparent and accountable public financial management is a crucial foundation for realizing good governance as mandated by Law No. 17 of 2003 and Law No. 1 of 2004. Although the Indonesian government has intensively implemented digitalization of regional financial systems over the past two decades through platforms such as SIPD and SAKTI, the Audit Board of the

Republic of Indonesia (BPK RI), through the Semester Audit Results Overview (IHPS) of 2023, still identified thousands of cases of internal control weaknesses and non-compliance with regulations. This indicates that the existing systems have not fully closed the loopholes for manipulation at the operational level. In response to these issues, Blockchain technology, as part of Distributed Ledger Technology (DLT), offers an alternative solution through its characteristics of decentralization, immutable transaction records, real-time auditing, and smart contract features for the secure and efficient automation of government contract execution.

Globally, Blockchain adoption in the public sector has been successfully implemented in various countries, such as Georgia for land registration, Estonia for digital identity, the United Arab Emirates for macroeconomic financial strategies, and the European Union through the European Blockchain Services Infrastructure (EBSI). Research by Yusuf Maolani (2024) affirms the capability of this technology in strengthening public trust, despite remaining regulatory barriers and technical constraints. Conversely, in Indonesia, the diffusion of Blockchain, according to Noman and Gwenhure (2025), is still at the early knowledge stage, so formal implementation has not yet materialized. Previous studies such as those by Toufaily et al. (2021), Cagigas et al. (2021), Tan et al. (2021), Ibrahimy et al. (2023), Tabatabaei et al. (2023), and Dong et al. (2023) have also been dominated by discussions of global-scale governance or a focus on macro-security technical aspects, thus failing to address the dynamics of adoption readiness at the regional government bureaucracy level.

To examine adoption behavior, this research uses three complementary frameworks. First, Diffusion of Innovations (DOI) theory by Rogers (2003) is used for technological attributes of innovation. Relative Advantage and Complexity are placed under DOI because both describe how apparatus evaluate the perceived benefits and difficulty of Blockchain before deciding to adopt it. Second, the Technology-Organization-Environment (TOE) Framework by Tornatzky and Fleischer (1990) is used to locate organizational and environmental conditions that shape technology decisions in public organizations. Top Management Support and Competency represent the organizational context, while Stakeholders and Laws and Regulations represent the environmental context. Third, the Theory of Planned Behavior (TPB) by Ajzen (1991) is used for the dependent construct. Because Blockchain has not been formally implemented in Indonesian regional governments, the study measures

intention rather than actual use (Noman and Gwenhure, 2025). A single theory would leave part of the mechanism unexplained. DOI alone focuses on innovation attributes, TOE alone does not directly model behavioral intention, and TPB alone is weak in explaining organizational and institutional conditions. Combining DOI, TOE, and TPB therefore provides a clearer chain from technology appraisal and institutional conditions to ASN adoption intention.

Because Indonesian bureaucracy is still at the knowledge stage of Blockchain diffusion, the DOI model is modified following Noman and Gwenhure (2025) by removing Trialability and Observability. This choice is not only empirical borrowing. It is also linked to the governmental context in Indonesia. Trialability requires that users can try an innovation in a limited way, while observability requires that adoption results are visible to others (Rogers, 2003). In regional financial management, both conditions are still weak. There is no widely used pilot system for Blockchain in local treasury work, and successful public-sector Blockchain practices are still limited for operational ASN to observe (Noman and Gwenhure, 2025; Cagigas et al., 2021). Keeping those two attributes would risk measuring perceptions without a real reference in daily work. For that reason, the model keeps Relative Advantage and Complexity as technology variables, and adds Stakeholders and Laws and Regulations as institutional-environmental variables that are more relevant at the early diffusion stage.

The Government of Kutai Kartanegara Regency (Kukar) serves as a highly contextual study locus because it possesses very large fiscal capacity in the East Kalimantan region. Based on the report from BPS of Kutai Kartanegara Regency (2024), the GRDP of Kukar at constant 2010 prices in 2023 successfully exceeded IDR 130 trillion. From the regional finance perspective, the 2024 Kukar APBD target was designed to reach IDR 13.372 trillion with first-semester revenue realization of IDR 5.8 trillion (Antara News, 2024), as well as Local Own-Source Revenue (PAD) exceeding IDR 730 billion. The large scale of the regional budget and the high dependence of regional revenue on the natural resources sector demand modern financial oversight mechanisms capable of ensuring the traceability of public fund flows.

Previous studies have already examined Blockchain adoption using DOI, TOE, or related behavioral perspectives (Toufaily et al., 2021; Janssen et al., 2020; Noman and Gwenhure, 2025). Therefore, the contribution of this study is not only the choice of Kutai Kartanegara Regency as a research site. The specific knowledge gap addressed here is threefold. First, most prior works focus on

central government, global governance, or technical security issues, while fewer studies test pre-implementation adoption intention among regional financial apparatus in a high fiscal capacity setting. Second, this study integrates DOI, TOE, and TPB in one PLS-SEM model and assigns variables to each perspective in a clearer way: technology attributes (Relative Advantage and Complexity), organizational conditions (Top Management Support and Competency), environmental conditions (Stakeholders and Laws and Regulations), and behavioral intention as the outcome. Third, the study provides local evidence that, at the knowledge stage, competency and stakeholder support matter more than technological attributes. This result helps refine adoption theory for risk-averse public bureaucracies that have not yet run formal Blockchain systems. Based on these gaps, this study analyzes the influence of Relative Advantage, Complexity, Stakeholders, Laws and Regulations, Top Management Support, and Competency on Blockchain Adoption Intention to produce more targeted policy recommendations.

2. Research Method

This study employs a quantitative approach with a causal survey design based on a postpositivist view to analyze the relationships of six independent variables (Relative Advantage, Complexity, Stakeholders, Laws and Regulations, Top Management Support, and Competency) with the intention to adopt Blockchain technology in public financial management within the Government of Kutai Kartanegara Regency. The conceptual framework is based on a modification of Rogers' (2003) DOI theory and the empirical model of Noman and Gwenthure (2025), integrated with the TOE Framework and TPB.

The population consists of about 200 active ASN in BPKAD, Bapenda, and the Regional Inspectorate. These three units were chosen because they handle regional financial management, revenue administration, and oversight. Purposive sampling was used (Sugiyono, 2019) because not all ASN in those offices are involved in the budget process. Respondents were selected with two inclusion criteria: (1) at least one year of work experience, and (2) direct involvement in the regional budget chain, namely planning, administration or implementation, reporting or accounting, or oversight and audit. Internal coordinators in each unit helped identify eligible staff based on job function, not only based on who was easy to contact. The final valid sample is 62 respondents,

with 40.3% from the Regional Inspectorate, 30.6% from BPKAD, and 27.4% from Bapenda. This distribution covers the main financial units, but it does not claim strict proportional representation of the full population. Access limits and differences in job roles made proportional allocation difficult. Even so, the sample still reflects end-users and oversight staff who are most relevant for assessing Blockchain readiness.

The sample size of 62 was checked against two common guidelines for structural models. First, the 10-times rule (Hair et al., 2022) requires at least 10 cases per predictor in the most complex regression-like relationship. With six predictors of Adoption Intention, the minimum is 60 respondents. The sample meets this threshold ($n = 62$). Second, Cohen's (1992) power primer indicates that multiple regression with six predictors needs around 55 cases to detect a medium effect size at $\alpha = 0.05$ with statistical power of about 0.80, while larger samples are preferred for small effects. Thus, $n = 62$ is acceptable for detecting medium to large paths, but it is less sensitive to very small effects. This point matters for interpretation: non-significant paths with low effect sizes (for example, Complexity $f^2 = 0.009$ and Relative Advantage $f^2 = 0.070$) may partly reflect limited power, not only true null effects. PLS-SEM was chosen because the study is predictive and exploratory, the sample is modest, and multivariate normality is not assumed (Hair et al., 2022).

Primary data were collected online through Google Form with support from an internal WhatsApp coordinator from late March to mid-April 2026. The instrument used a structured questionnaire with a 6-point Likert scale, and the response rate was 100%. Data were analyzed with Partial Least Squares-Structural Equation Modeling (PLS-SEM) using SmartPLS version 3.2.9.

Before the PLS-SEM outer model, this study also reports classical item validity (r-count compared with r-table) and Cronbach's Alpha reliability, following common empirical reporting practice in Indonesia (Ghozali, 2013). These classical tests are presented as preliminary screening of questionnaire items. They are not used as the final decision criteria for the structural model. Final measurement quality is assessed through PLS-SEM outer model tests: outer loadings, Cronbach's Alpha and Composite Reliability, Average Variance Extracted (AVE), and discriminant validity with the Fornell-Larcker criterion (Hair et al., 2022; Chin, 1998). The inner model is then evaluated using VIF, R^2 , f^2 , Q^2 , and path significance from bootstrapping (t-statistics and p-values < 0.05).

3. Result and Discussion

Respondent Characteristics

This study involved 62 State Civil Apparatus (ASN) from strategic financial management agencies in the Government of Kutai Kartanegara Regency. The demographic profiles of the respondents were consolidated into Table 1 to provide a comprehensive understanding of institutional background, position, length of service, operational budget roles, and initial familiarity with the researched technology object.

Table 1. Demographic Profile and Familiarity Level of Respondents (n = 62)

Characteristic	Category	Frequency	Percentage (%)
Institution / Work Unit	Regional Inspectorate	25	40.3
	Regional Financial and Asset Management Agency (BPKAD)	19	30.6
	Regional Revenue Agency (Bapenda)	17	27.4
	Regional Disaster Management Agency (BPBD)	1	1.6
Current Position	Implementing Staff	51	82.3
	Functional Official	7	11.3
	Structural Official (Echelon II/III/IV)	4	6.5
Length of Service	< 2 Years	12	19.4
	2 - 5 Years	8	12.9
	6 - 10 Years	4	6.5
	> 10 Years	38	61.3
Financial Management Role	Implementation / Administration	34	54.8
	Reporting / Accounting	18	29.0
	Oversight / Audit	6	9.7
	Budget Planning	4	6.5
Blockchain Familiarity	Very Unfamiliar	4	6.5
	Unfamiliar	24	38.7
	Quite Familiar	25	40.3
	Familiar	7	11.3
	Very Familiar	2	3.2

Source: Primary Data Processed, 2026

Data in Table 1 show that the majority of respondents came from the Regional Inspectorate (40.3%), followed by BPKAD (30.6%) and Bapenda (27.4%). The dominance of Inspectorate apparatus indicates strong representation of the financial oversight function, which has a direct interest in the values of transparency and ledger accountability. Viewed from the organizational structure, most respondents are implementing staff (82.3%) who act as end-users of the regional financial system on a daily basis. From

the functional budget aspect, more than 80% of respondents have a direct role in the core chain of public finance, namely thimplementation/administration function (54.8%) and reporting/accounting (29.0%). This condition ensures that the perception data collected is based on a practical field perspective, not merely theoretical assumptions of leadership.

An important pattern in the demographic data is the combination of long work experience and low Blockchain familiarity. About 61.3% of respondents have more than 10 years of service, so most of them are already used to conventional accounting systems. At the same time, Blockchain familiarity is still low: 38.7% reported being unfamiliar, 6.5% very unfamiliar, and only 14.5% were familiar or very familiar. This pattern supports the claim that Blockchain diffusion in the regional bureaucracy is still at the knowledge stage (Rogers, 2003). The low familiarity also helps explain the later structural results. When most respondents have little direct contact with Blockchain, judgments about Relative Advantage and Complexity tend to stay abstract. In that condition, variables that are closer to daily organizational life, such as Competency and Stakeholders, are more likely to shape adoption intention.

Instrument Validity and Reliability Testing

Before structural model analysis, instrument quality was first checked through classical item validity and reliability tests. As explained in the Research Method section, this step is only preliminary screening. The main measurement evaluation still follows the PLS-SEM outer model in the next subsection.

1) Validity Testing

Validity testing was conducted by comparing the item correlation value (r-count) against the critical value of r-table of 0.2500 (n=62). An indicator is declared valid if the value of r-count > r-table. The recapitulation of testing results is presented in Table 2.

Table 2. Recapitulation of Instrument Validity Test Results (n=62)

Variable	Indicator	r-count	r-table	Remark
Relative Advantage	RA1	0.881	0.2500	Valid
	RA2	0.919	0.2500	Valid
	RA3	0.855	0.2500	Valid
Complexity	C1	0.854	0.2500	Valid
	C2	0.761	0.2500	Valid

Variable	Indicator	r-count	r-table	Remark
	C3	0.819	0.2500	Valid
Stakeholders	S1	0.782	0.2500	Valid
	S2	0.679	0.2500	Valid
	S3	0.869	0.2500	Valid
Laws & Regulations	LR1	0.744	0.2500	Valid
	LR2	0.807	0.2500	Valid
	LR3	0.852	0.2500	Valid
Top Management Support	TMS1	0.842	0.2500	Valid
	TMS2	0.890	0.2500	Valid
	TMS3	0.841	0.2500	Valid
Competency	CSDM1	0.787	0.2500	Valid
	CSDM2	0.847	0.2500	Valid
	CSDM3	0.883	0.2500	Valid
Intention to Adopt	IA1	0.377	0.2500	Valid
	IA2	0.779	0.2500	Valid
	IA3	0.833	0.2500	Valid
	IA4	0.920	0.2500	Valid

Source: Primary Data Processed, 2026

Based on Table 2, all indicators from the seven constructs have r-count values > r-table. The lowest correlation value was found in indicator IA1 (0.377) and the highest in RA2 (0.919), so all instrument items are declared valid and suitable for use.

2) Reliability Testing

Reliability testing is used to examine the consistency of the instrument using the Cronbach's Alpha coefficient. Referring to Ghazali (2013), a construct is considered reliable if the Cronbach's Alpha value > 0.60. The recapitulation of testing results is presented in Table 3.

Table 3. Recapitulation of Construct Reliability Test Results (n=62)

No	Research Variable	Cronbach's Alpha	No. of Items	Remark
1	Relative Advantage	0.844	3	Reliable
2	Complexity	0.740	3	Reliable
3	Stakeholders	0.659	3	Reliable
4	Laws & Regulations	0.717	3	Reliable
5	Top Management Support	0.807	3	Reliable
6	Competency	0.783	3	Reliable
7	Intention to Adopt	0.736	4	Reliable

Source: Primary Data Processed, 2026

Table 3 shows that the Cronbach's Alpha values for all constructs are above the 0.600 threshold. The Relative Advantage variable has the highest

internal consistency (0.844), while the Stakeholders variable records the lowest value (0.659). Thus, all instruments are proven reliable and consistent for further stage analysis.

C. Measurement Model Evaluation (Outer Model)

The evaluation of the reflective measurement model (outer model) was conducted to ensure that the instruments used are valid and reliable in measuring their latent constructs. This evaluation was carried out through four stages of testing: outer loadings, consistency reliability, convergent validity, and discriminant validity (Hair et al., 2022).

1) Outer Loadings

Outer loading values are used to test individual indicator reliability. An indicator is assessed as having strong reliability if it has a value >0.700 against its construct (Hair et al., 2022). However, for early-stage research, loading values between 0.50-0.60 can still be accepted (Chin, 1998). The results of the outer loadings test are presented in Table 4.

Table 4. Outer Loadings Test Results

Indicator	Latent Construct	Outer Loading	Remark
RA1	Relative Advantage	0.831	Meets
RA2		0.940	Meets
RA3		0.891	Meets
C1	Complexity	0.935	Meets
C2		0.663	Meets
C3		0.925	Meets
S1	Stakeholders	0.916	Meets
S2		0.899	Meets
S3		0.892	Meets
LR1	Laws & Regulations	0.795	Meets
LR2		0.881	Meets
LR3		0.909	Meets
TMS1	Top Management Support	0.896	Meets
TMS2		0.891	Meets
TMS3		0.757	Meets
CSDM1	Competency	0.736	Meets
CSDM2		0.873	Meets
CSDM3		0.901	Meets
IA1	Intention to Adopt	0.819	Meets
IA2		0.846	Meets
IA3		0.829	Meets
IA4		0.898	Meets

Source: SmartPLS Data Processing Results, 2026

Based on Table 4, almost all indicators have outer loading values above 0.700, with the highest value on indicator RA2 (0.940). Indicator C2 on the Complexity variable recorded a value of 0.663; although below 0.700, this indicator was retained because it meets the tolerance limit for early exploratory studies according to Chin's (1998) criteria. Overall, all indicators are declared valid in reflecting their respective constructs.

2) Consistency Reliability

Internal consistency reliability is measured using Cronbach's Alpha. Values between 0.70 and 0.90 are categorized as satisfactory because they indicate that the indicators are able to measure the construct stably without excessive question repetition (Hair et al., 2022). The test results are presented in Table 5.

Table 5. Consistency Reliability Test Results

Research Variable	Cronbach's Alpha	Remark
Relative Advantage	0.865	Satisfactory
Complexity	0.858	Satisfactory
Stakeholders	0.886	Satisfactory
Laws & Regulations	0.829	Satisfactory
Top Management Support	0.822	Satisfactory
Competency	0.790	Satisfactory
Intention to Adopt	0.870	Satisfactory

Source: SmartPLS Data Processing Results, 2026

The results in Table 5 show that all research variables have Cronbach's Alpha values above 0.70. The highest value is on the Stakeholders variable (0.886), while the lowest is on the Competency variable (0.790). These results prove that the reliability and internal consistency of the research instruments are at a satisfactory level.

3) Convergent Validity

Convergent validity is measured through the Average Variance Extracted (AVE) parameter. The model is considered to meet the requirements if the AVE value of each construct is >0.50 , which means that the latent construct is able to explain more than 50% of the variance of its indicators (Hair et al., 2022). The test results are summarized in Table 6.

Table 6 shows that the AVE values of all variables exceed the minimum threshold of 0.50. The Stakeholders variable recorded the highest explained

variance with an AVE value of 0.814. These test results confirm adequate convergent validity feasibility for all model constructs.

Table 6. Convergent Validity Test Results (AVE)

Research Variable	AVE Value	Remark
Relative Advantage	0.789	Meets
Complexity	0.723	Meets
Stakeholders	0.814	Meets
Laws & Regulations	0.745	Meets
Top Management Support	0.723	Meets
Competency	0.705	Meets
Intention to Adopt	0.720	Meets

Source: SmartPLS Data Processing Results, 2026

4) Discriminant Validity

Discriminant validity was tested using the Fornell-Larcker criterion to ensure that each construct is unique and empirically different from other constructs. The requirement for fulfilling this criterion is that the square root of AVE (diagonal value) of a variable must be greater than the correlation of that variable with other constructs in the model (Hair et al., 2022). The matrix results are presented in Table 7.

Table 7. Discriminant Validity Matrix (Fornell-Larcker Criterion)

	X6 Comp	X2 Compl	Y IA	X4 LR	X1 RA	X3 S	X5 TMS
Competency (X6)	0.840						
Complexity (X2)	-0.212	0.850					
Intention to Adopt (Y)	0.722	-0.196	0.848				
Laws and Regulations (X4)	0.692	-0.103	0.633	0.863			
Relative Advantage (X1)	0.421	-0.034	0.618	0.357	0.888		
Stakeholders (X3)	0.408	-0.127	0.688	0.303	0.649	0.902	
Top Management Support (X5)	0.665	-0.119	0.500	0.542	0.486	0.413	0.850

Source: SmartPLS Data Processing Results, 2026

Based on Table 7, all square root AVE values located on the diagonal line are proven to have values greater than the inter-construct correlations in the columns below them. As an illustration, the diagonal values for the Stakeholders construct (0.902) and Relative Advantage (0.888) far exceed their correlation values with other constructs. These results confirm that there is no

overlapping problem among variables, so all constructs are assessed as perfectly meeting the discriminant validity criteria.

Structural Model Evaluation (Inner Model)

1) Multicollinearity

The level of dependence among independent variables is measured through the Variance Inflation Factor (VIF) value. The model is declared stable and free from multicollinearity problems because all indicators have VIF values below the critical limit of 5.

Table 8. Multicollinearity Test Results (Indicator VIF)

Indicator	VIF	Remark	Indicator	VIF	Remark
RA1	1.886	No Multicollinearity	LR3	2.321	No Multicollinearity
RA2	3.527	No Multicollinearity	TMS1	1.705	No Multicollinearity
RA3	2.746	No Multicollinearity	TMS2	2.561	No Multicollinearity
C1	2.545	No Multicollinearity	TMS3	1.958	No Multicollinearity
C2	1.897	No Multicollinearity	CSDM1	1.450	No Multicollinearity
C3	2.293	No Multicollinearity	CSDM2	1.939	No Multicollinearity
S1	2.803	No Multicollinearity	CSDM3	2.311	No Multicollinearity
S2	2.425	No Multicollinearity	IA1	1.836	No Multicollinearity
S3	2.446	No Multicollinearity	IA2	2.259	No Multicollinearity
LR1	1.611	No Multicollinearity	IA3	2.296	No Multicollinearity
LR2	2.157	No Multicollinearity	IA4	3.083	No Multicollinearity

Source: SmartPLS Data Processing Results, 2026

The test results show that all predictor indicators have VIF values below the critical limit of 5, with the lowest value on CSDM1 (1.450) and the highest on RA2 (3.527). This proves that the model is free from multicollinearity problems among independent variables, so the regression model is assessed as stable and valid for subsequent structural analysis.

2) Coefficient of Determination (R^2)

The R^2 value is used to measure how much the independent variables collectively are able to explain the variation in the dependent variable.

Table 9. Coefficient of Determination (R^2) Values

Endogenous Latent Variable	R-Square Value	Explanatory Power Category
Adoption Intention (Intention to Adopt)	0.762	Strong

Source: SmartPLS Data Processing Results, 2026

The R^2 value of 0.762 indicates that 76.2% of the variation in Blockchain technology Adoption Intention is determined by the six exogenous predictors in the model, while the remaining 23.8% is influenced by other factors outside the model.

3) Effect Size (f^2)

The Effect Size (f^2) value evaluates the substantive contribution or magnitude of the impact of each independent variable partially on the formation of the coefficient of determination value of the dependent variable.

Table 10. Effect Size (f^2) Test Results

Exogenous Variable	f^2 Value	Influence Category
Stakeholders	0.350	High
Competency	0.274	Near High
Laws & Regulations	0.130	Medium
Relative Advantage	0.070	Low
Top Management Support	0.055	Low
Complexity	0.009	Very Weak

Source: SmartPLS Data Processing Results, 2026

The Effect Size (f^2) test results show that the Stakeholders variable provides the largest substantive contribution to the R^2 value of Adoption Intention with a high influence category ($f^2 = 0.350$), followed by Competency with a near-high category ($f^2 = 0.274$). Conversely, the Complexity variable recorded the smallest value ($f^2 = 0.009$), indicating a very weak partial influence.

4) Predictive Relevance (Q^2)

The Q^2 value is used to test the predictive accuracy capability of the built structural path model.

Table 11. Predictive Relevance (Q^2) Test Results

Endogenous Latent Variable	Q^2 Value	Remark
Adoption Intention (Intention to Adopt)	0.503	Strong Predictive Relevance

Source: SmartPLS Data Processing Results, 2026

The Q^2 value that is positive and above zero ($0.503 > 0$) proves that the model has a good level of predictive accuracy and strong predictive relevance.

E. Hypothesis Testing

The significance testing of causal relationships among variables is determined based on T-Statistics values ($t\text{-count} > 1.96$) as well as P-Value at the 5% significance level ($\alpha = 0.05$) through the resampling (bootstrapping) procedure.

Testing through the bootstrapping procedure shows that only two hypotheses are significantly accepted at the 5% error level ($\alpha = 0.05$), namely H3 (Stakeholders has a significant positive influence; $\beta = 0.389$, $p = 0.001$) and H6 (Competency has a significant positive influence; $\beta = 0.415$, $p = 0.007$). The Competency variable becomes the main driver of adoption intention with the highest path coefficient (0.415). Meanwhile, the other hypotheses (H1, H2, H4, and H5) are rejected because they have p-values > 0.05 and t-count values < 1.96 .

Table 12. Structural Path Coefficient Test Results (Bootstrapping)

Hyp.	Path Relationship	Path Coef.	T-Stat	P-Value	Direction	Status
H1	Relative Advantage → Adoption Intention	0.180	1.592	0.112	Positive	Rejected
H2	Complexity → Adoption Intention	-0.047	0.676	0.499	Negative	Rejected
H3	Stakeholders → Adoption Intention	0.389	3.306	0.001	Positive	Accepted
H4	Laws and Regulations → Adoption Intention	0.247	1.663	0.097	Positive	Rejected
H5	Top Management Support → Adoption Intention	0.163	1.430	0.153	Positive	Rejected
H6	Competency → Adoption Intention	0.415	2.722	0.007	Positive	Accepted

Source: SmartPLS Data Processing Results, 2026

Discussion

1) The Influence of Relative Advantage on Blockchain Technology Adoption Intention in the Government of Kutai Kartanegara Regency

Relative Advantage does not significantly influence Blockchain adoption intention, so H1 is rejected. This result differs from Rogers' (2003) DOI theory and the UTAUT model of Venkatesh et al. (2012), which treat perceived benefits as a main driver of adoption.

In Kutai Kartanegara, Blockchain is still at the knowledge stage. Many apparatus know the term, but few have practical experience. Noman and Gwenhure (2025) also report that perceived benefits do not automatically become adoption intention when the ecosystem is not ready. With only 14.5% of respondents in the familiar or very familiar category, it is reasonable that Relative Advantage is weakly linked to intention.

Other explanations are also possible. The sample size ($n = 62$) has limited power for small effects, and the f^2 value of Relative Advantage is only 0.070. Cross-sectional perception measures may also understate benefits that appear only after a pilot project. In addition, limited local pilots reduce observability of results (Cagigas et al., 2021; Shareef et al., 2021). In short, technical usefulness may be necessary, but it is not sufficient in an early-stage and risk-averse regional bureaucracy.

2) The Influence of Complexity on Blockchain Technology Adoption Intention in the Government of Kutai Kartanegara Regency

Complexity also has no significant effect, so H2 is rejected. In DOI theory, higher complexity should reduce adoption (Rogers, 2003). In this study, however, technical issues such as cryptography and consensus mechanisms are still abstract for most respondents because they have not used the system directly.

This finding is consistent with Noman and Gwenhure (2025), who note that complexity is not a main concern at the early introduction stage in Indonesian government settings. Dwivedi et al. (2022) also argue that technical barriers matter more when organizational readiness is low. When exposure is limited, complexity scores may vary little and have weak predictive value. Overall, the results suggest that regional digital decisions at this stage are driven more by institutional and human capacity conditions than by pure technology features.

3) The Influence of Stakeholders on Blockchain Technology Adoption Intention in the Government of Kutai Kartanegara Regency

Stakeholders have a positive and significant effect on adoption intention, so H3 is accepted. This result supports Rogers' (2003) view that diffusion depends on social systems and communication networks. It is also in line with Zuiderwijk et al. (2021) on multi-stakeholder collaboration in

public Blockchain projects and Janssen et al. (2020) on external pressure and legitimacy.

In an early adoption setting, ASN may rely more on signals from external actors than on personal technical calculation. Support and pressure from academics, technology providers, regulators, and the public can reduce uncertainty (Rai and Al-Ghamdi, 2022). This helps explain why stakeholder support is significant, while Relative Advantage and Complexity are not.

4) The Influence of Laws and Regulations on Blockchain Technology Adoption Intention in the Government of Kutai Kartanegara Regency

Laws and Regulations do not significantly influence adoption intention, so H4 is rejected. In institutional theory and the TOE framework, regulation is often treated as coercive pressure that supports innovation. The present result differs from Zhao et al. (2022) and Kouhizadeh and Sarkis (2018), who found stronger regulatory effects in more mature digital settings.

The result is closer to Noman and Gwenthure (2025) and Janssen et al. (2020): at early diffusion stages, legal rules may still be general and not operational enough to guide daily decisions. In Indonesia, specific technical regulation for Blockchain in regional financial management is still limited. Methodological alternatives should also be considered. The indicators may capture general regulatory support rather than Blockchain-specific rules. Most respondents are also implementing staff, so macro-level legal signals may not yet translate into personal intention.

5) The Influence of Top Management Support on Blockchain Technology Adoption Intention in the Government of Kutai Kartanegara Regency

Top Management Support is not significant, so H5 is rejected. In TOE, leadership support should help innovation through policy direction, budget, and lower resistance. One reason for the weak result is the sample structure. Implementing staff make up 82.3% of respondents, while structural officials are only 6.5%. The data therefore mainly reflect operational staff who may not yet feel a concrete Blockchain roadmap from top leaders.

This finding differs from Nguyen et al. (2022) and Sun et al. (2021), who place leadership as a key driver of digital change. It is more consistent with Ifinedo (2011), who notes that management support has limited impact when

it stays symbolic and is not turned into operational policy. Other possible explanations include limited variation in perceived support, low staff awareness of leadership initiatives, and the pre-implementation stage where endorsement has not yet become training, budget, or pilot authority.

6) The Influence of Competency on Blockchain Technology Adoption Intention in the Government of Kutai Kartanegara Regency

Competency has a positive and significant effect on adoption intention, so H6 is accepted. In DOI terms, capability and digital literacy are important at the knowledge and persuasion stages (Rogers, 2003). This result is consistent with Susanti et al. (2023) and Dwivedi et al. (2022), who emphasize employee capability as part of organizational readiness in local government digital transformation.

Competency also works as a facilitating condition in technology acceptance research (Venkatesh et al., 2012) and can increase confidence while reducing resistance (Rai and Al-Ghamdi, 2022). Taken together, the significant roles of Competency and Stakeholders, and the non-significant roles of Relative Advantage and Complexity, suggest that early Blockchain readiness in regional public finance is mainly a human and institutional issue. Improving ASN capability is therefore a central step, not only a supporting activity.

4. Conclusion

This study concludes that only Stakeholders and Competency have positive and significant effects on Blockchain adoption intention in public financial management of Kutai Kartanegara Regency. Relative Advantage, Complexity, Laws and Regulations, and Top Management Support are not significant. Theoretically, the findings enrich DOI and TOE research in the regional public sector by showing that, at the early knowledge stage, human resource readiness and external stakeholder support matter more than technological attributes. The combined DOI-TOE-TPB model also shows that pre-implementation intention is shaped more by organizational capacity and institutional relations than by abstract technology appraisal alone.

For practice, regional governments need recommendations that can be implemented in stages. On organizational readiness, local governments should

first map Blockchain literacy among financial ASN, then design training by level: basic awareness for all staff, technical literacy for operators, and governance literacy for structural officials. On implementation stages, a limited permissioned-network pilot can start in BPKAD, Bapenda, and the Regional Inspectorate, focusing on transaction recording, budget monitoring, and audit trails. The pilot should have clear indicators and a review period of about 6 to 12 months before any scale-up. On governance mechanisms, a cross-unit task force is needed with clear roles for process ownership, data stewardship, compliance and audit, and external coordination. This task force should be linked to internal control procedures and more operational regional rules, not only broad policy statements. Budget priority should also move from infrastructure spending alone toward capacity building, change management, and collaboration with academics, vendors, and oversight institutions. This study still has limits, including the modest sample size, cross-sectional design, possible questionnaire bias, and single-regency scope. Future studies can expand to multiple regions, use mixed or longitudinal methods, and add variables such as technology readiness, risk perception, and organizational culture.

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