

Institutional Readiness and Digital Service Quality as Determinants of Entrepreneur Trust in Risk Based Business Licensing Services

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Abstract

This study examines digital licensing governance in risk-based business licensing services by integrating institutional readiness, digital service quality, service dependability, procedural transparency, public trust, entrepreneur satisfaction, and compliance intention. A quantitative explanatory design was applied using 300 valid responses from entrepreneurs who had used local government licensing services and the Online Single Submission system. The respondent profile shows that 73.0% were micro and small enterprises, 60.7% operated in medium- and high-risk categories, 50.4% used assisted online services at the DPMPTSP office, and 38.3% experienced permit processing durations of more than seven days. The measurement model demonstrated strong validity and reliability, with Composite Reliability values ranging from 0.908 to 0.936 and AVE values ranging from 0.663 to 0.701. The structural model revealed that institutional readiness significantly affected digital service quality and service dependability, while digital service quality strongly influenced service dependability and procedural transparency. Procedural transparency had the strongest direct effect on public trust, with a path coefficient of 0.547, followed by entrepreneur satisfaction toward compliance intention at 0.511 and public trust toward entrepreneur satisfaction at 0.452. Mediation analysis confirmed that digital service quality contributed to satisfaction through service dependability, procedural transparency, and public trust. The findings show that digital licensing reform does not depend solely on system availability, but on the alignment of institutional capacity, digital quality, reliable service delivery, transparent procedures, and public trust. This study contributes a comprehensive governance model for explaining how digital public services strengthen satisfaction and formal compliance among entrepreneurs.

Keywords: Digital Licensing Governance, Risk-Based Business Licensing, Institutional Readiness, Service Dependability, Procedural Transparency, Public Trust

1. Introduction

Digital transformation has become a central agenda in public administration because governments are increasingly expected to provide services that are faster, more transparent, more accountable, and more responsive to citizens and business actors. In business licensing, digital reform is particularly important because licensing procedures directly affect investment certainty, business formalization, regulatory compliance, and regional economic competitiveness [1], [2]. The introduction of risk-based business licensing through digitally integrated platforms reflects an effort to reduce bureaucratic complexity and accelerate administrative services. However, the implementation of digital licensing systems in local government remains uneven because technological reform often interacts with institutional capacity, employee competence, infrastructure readiness, and user literacy [3].

Risk-based business licensing is designed to classify business activities according to their level of risk so that administrative requirements become more proportional and efficient. In principle, low-risk businesses can obtain permits through simpler procedures, while medium- and high-risk businesses require additional verification and institutional coordination. This model, as discussed in digital governance literature [4], is expected to reduce unnecessary administrative burdens while maintaining regulatory control. Nevertheless, the effectiveness of risk-based licensing does not depend only on the formal design of regulation. Entrepreneurs still encounter delays, unclear requirements, repeated document corrections, fragmented information, and uncertainty in permit approval processes [5], [6]. These problems indicate that digital platforms alone are insufficient to guarantee reliable public services.

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In local government contexts, licensing services often operate as a hybrid system that combines online platforms and direct assistance from public officers. Entrepreneurs may access the Online Single Submission system, but many still require support from local licensing offices to understand requirements, correct data, upload documents, and interpret permit status. This situation creates a practical challenge for digital governance because the service experience is shaped by both system performance and human service reliability [7]. When the system is accessible but officers provide inconsistent information, service quality decreases. Conversely, when officers are responsive but the system is unstable or difficult to use, entrepreneurs may still perceive the licensing process as inefficient [8].

Previous studies on public service quality have frequently emphasized reliability, responsiveness, and satisfaction as key indicators of service performance [9]. However, many studies still examine public service quality through relatively simple causal models, such as the effect of service reliability on satisfaction. While this relationship is important, it does not fully explain how digital licensing governance operates in a risk-based administrative environment. Digital licensing involves institutional readiness, digital service quality, procedural transparency, trust formation, and behavioral compliance. Therefore, a more comprehensive model is needed to explain not only whether entrepreneurs are satisfied, but also how satisfaction emerges and whether it encourages formal compliance [10], [11].

The main gap addressed in this study concerns the limited integration between digital governance theory, public service quality, procedural transparency, public trust, and compliance intention in the context of risk-based business licensing. Existing research has often examined service quality and satisfaction as final outcomes, while fewer studies position entrepreneur satisfaction as an intermediate governance outcome that can influence regulatory compliance. In addition, public trust is rarely placed as a central mediating mechanism, even though trust is critical in public administration because citizens and entrepreneurs comply more willingly when they perceive government institutions as competent, fair, transparent, and predictable [12], [13]. This study responds to that gap by developing a digital licensing governance model that connects institutional and technological determinants with satisfaction and compliance outcomes.

The objective of this study is to examine how institutional readiness, digital service quality, service dependability, procedural transparency, and public trust influence entrepreneur satisfaction and compliance intention in risk-based business licensing services. More specifically, this study investigates the direct effects among governance constructs, the mediating role of service dependability, procedural transparency, and public trust, and the moderating effects of digital literacy and business risk level. By doing so, the study moves beyond a single-variable service quality model and provides a layered explanation of how local digital licensing services produce public value [14].

The novelty of this study lies in its comprehensive governance model for explaining risk-based digital licensing services at the local government level. First, the study integrates institutional readiness and digital service quality as upstream determinants of service dependability and procedural transparency. Second, it positions public trust as a key governance mechanism linking transparency with satisfaction and compliance. Third, it expands the outcome of licensing service research from entrepreneur satisfaction to compliance intention, which is more closely related to regulatory effectiveness and business formalization [15], [16]. This model offers theoretical contributions to digital public administration and practical insights for local governments seeking to improve licensing reform through institutional strengthening, better digital infrastructure, transparent procedures, and trust-oriented service delivery.

2. Literature Review

Institutional readiness is a fundamental condition for the successful implementation of digital licensing services because public service transformation depends on organizational capacity, internal coordination, leadership support, standard operating procedures, and employee competence. Digital platforms cannot function effectively when local institutions lack trained officers, integrated workflows, and monitoring mechanisms. Studies on digital government emphasize that technology adoption in the public sector must be supported by organizational readiness and adaptive administrative capacity [17], [18]. In the context of risk-based licensing, institutional readiness helps ensure that local agencies can interpret regulations, coordinate verification, provide technical support, and maintain consistency between national digital systems and local service delivery. Therefore, stronger institutional readiness is expected to improve perceived digital service quality.

H1. Institutional readiness has a positive and significant effect on digital service quality.

Institutional readiness also directly affects service dependability because reliable service delivery requires more than system availability. Entrepreneurs expect local licensing offices to provide accurate information, consistent procedures, timely responses, and competent assistance when problems occur. Public service literature identifies dependability as a core dimension of service quality because users evaluate institutions based on whether promised services are delivered accurately and consistently [19]. In local licensing services, institutional readiness determines whether officers understand digital procedures, whether service standards are implemented uniformly, and whether administrative problems can be solved without excessive delay [20]. Thus, organizational readiness is expected to strengthen the dependability of risk-based business licensing services.

H2. Institutional readiness has a positive and significant effect on service dependability.

Digital service quality refers to the perceived ability of an online licensing system to provide accessible, accurate, secure, stable, and user-friendly services. In risk-based business licensing, digital service quality is important because entrepreneurs interact with online forms, business classification menus, document upload features, tracking systems, and automated permit issuance mechanisms. Prior research on e-government service quality shows that system quality, information quality, and service quality influence user evaluation of digital public services [21], [22]. When the licensing platform is easy to access, provides accurate information, and supports smooth administrative processing, entrepreneurs are more likely to perceive the overall licensing service as dependable. Therefore, digital service quality is expected to improve service dependability.

H3. Digital service quality has a positive and significant effect on service dependability.

Digital service quality is also closely related to procedural transparency. A high-quality digital licensing system should not only process applications but also make requirements, processing stages, costs, verification status, and administrative decisions visible to users. Transparency is a central principle of digital governance because it reduces uncertainty and enables citizens or entrepreneurs to monitor public service processes [23]. In business licensing, unclear requirements and hidden procedural stages often create frustration, especially for medium- and high-risk business categories that require additional verification. If the digital system provides clear instructions, status tracking, and decision explanations, entrepreneurs can better understand the licensing process [24]. Thus, better digital service quality is expected to increase procedural transparency.

H4. Digital service quality has a positive and significant effect on procedural transparency.

Service dependability contributes to procedural transparency because accurate, consistent, and timely service delivery makes administrative procedures more predictable. Entrepreneurs perceive licensing procedures as transparent when officers provide the same information across service channels, explain requirements clearly, respond consistently to document corrections, and communicate processing timelines accurately. Public service studies show that reliability and transparency are mutually reinforcing because dependable service practices reduce ambiguity and strengthen user confidence in administrative rules [25]. In risk-based licensing, dependability is especially important because different risk categories may require different documentation and verification stages. When service officers and systems deliver consistent guidance, entrepreneurs gain clearer procedural understanding.

H5. Service dependability has a positive and significant effect on procedural transparency.

Procedural transparency is a major determinant of public trust because trust in government institutions emerges when citizens perceive administrative processes as clear, fair, explainable, and predictable. In digital licensing services, entrepreneurs need to know what documents are required, how long the process will take, what fees apply, how the application status can be monitored, and why an application is approved, rejected, or returned for correction. Transparency reduces suspicion of arbitrary decision-making and strengthens the perception that the institution operates according to formal rules [26], [27]. Since business licensing affects economic activity, transparent procedures are essential for creating confidence in local government service delivery. Therefore, procedural transparency is expected to strengthen public trust.

H6. Procedural transparency has a positive and significant effect on public trust.

Service dependability directly influences entrepreneur satisfaction because users evaluate licensing services based on whether the institution delivers accurate, consistent, and timely assistance. In public administration, satisfaction is shaped by the gap between service expectations and actual service experience [28]. Entrepreneurs expect licensing offices to provide clear information, solve administrative problems, process permits according to standards, and reduce uncertainty during the application process. When service delivery is dependable, entrepreneurs perceive the institution as capable of supporting business legality and continuity. This is particularly important for micro and small enterprises that often lack internal administrative expertise [29]. Therefore, service dependability is expected to increase entrepreneur satisfaction.

H7. Service dependability has a positive and significant effect on entrepreneur satisfaction.

Public trust is also expected to affect entrepreneur satisfaction because trust shapes how users interpret service experiences. Entrepreneurs who trust licensing institutions are more likely to view procedures as legitimate, accept administrative requirements, and perceive service outcomes positively. Trust reflects confidence in institutional competence, integrity, fairness, and predictability [30]. In digital licensing services, trust becomes even more important because entrepreneurs provide business data, follow online procedures, and depend on government systems for permit approval. When trust is high, technical difficulties or verification requirements are less likely to be interpreted as institutional failure. Thus, public trust strengthens satisfaction with risk-based business licensing services.

H8. Public trust has a positive and significant effect on entrepreneur satisfaction.

Entrepreneur satisfaction is expected to influence compliance intention because satisfied users are more willing to continue using formal administrative channels. In risk-based licensing, compliance intention includes willingness to renew permits, update business information, follow licensing requirements, report business changes, and recommend formal licensing procedures to other entrepreneurs. Public service research indicates that satisfaction can influence behavioral intention because positive service experiences increase willingness to cooperate with government institutions [31]. When entrepreneurs perceive licensing services as convenient, reliable, transparent, and useful for business continuity, they are more likely to comply with formal regulations [32]. Therefore, entrepreneur satisfaction is expected to strengthen compliance intention.

H9. Entrepreneur satisfaction has a positive and significant effect on compliance intention.

Public trust may also directly influence compliance intention because compliance is not only driven by satisfaction but also by perceived legitimacy. Entrepreneurs are more likely to comply with licensing requirements when they believe that the institution is competent, fair, and consistent in applying regulations. Trust-based compliance is especially important in public governance because excessive dependence on enforcement can produce resistance, while credible institutions can encourage voluntary compliance [33]. In the context of business licensing, trust reduces the perception that permits are merely bureaucratic burdens and increases the belief that formal licensing provides legal certainty and public value. Therefore, public trust is expected to increase compliance intention.

H10. Public trust has a positive and significant effect on compliance intention.

Digital literacy is expected to moderate the relationship between digital service quality and entrepreneur satisfaction because entrepreneurs with stronger digital skills can benefit more effectively from online licensing systems. Digital service quality may not produce equal satisfaction among all users if some entrepreneurs lack the ability to navigate online forms, upload documents, interpret digital instructions, or solve minor technical problems. Studies on digital inclusion show that user capability influences how digital public services are experienced [34], [35]. Entrepreneurs with higher digital literacy are more likely to perceive digital licensing as convenient and efficient, while those with lower literacy may still require officer assistance. Therefore, digital literacy strengthens the effect of digital service quality on satisfaction.

H11. Digital literacy positively moderates the effect of digital service quality on entrepreneur satisfaction.

Business risk level is expected to moderate the relationship between service dependability and entrepreneur satisfaction because low-, medium-, and high-risk business categories involve different levels of procedural complexity. Low-risk businesses may experience faster permit issuance through self-declaration, while medium- and high-risk businesses

often require additional verification, documentation, and inter-agency coordination. As a result, dependable service delivery may become more important for entrepreneurs facing higher risk classifications [36]. When requirements are complex, satisfaction depends heavily on whether officers and systems can provide accurate information, consistent guidance, and timely updates. Therefore, the effect of service dependability on satisfaction is expected to vary across business risk levels.

H12. Business risk level moderates the effect of service dependability on entrepreneur satisfaction.

3. Methodology

3.1. Research Design and Conceptual Framework

This study employs a quantitative explanatory design strengthened with a hybrid analytical strategy to examine digital licensing governance in risk-based business licensing services. The research does not only test the direct effect of service dependability on entrepreneur satisfaction, but also expands the model by integrating institutional readiness, digital service quality, procedural transparency, public trust, entrepreneur satisfaction, and compliance intention. This design is suitable because risk-based licensing services involve both technological and institutional mechanisms, where user satisfaction is shaped by digital system quality, employee capacity, procedural clarity, and perceived trust in local government institutions. Figure 1 illustrates the proposed conceptual framework that used in this study.

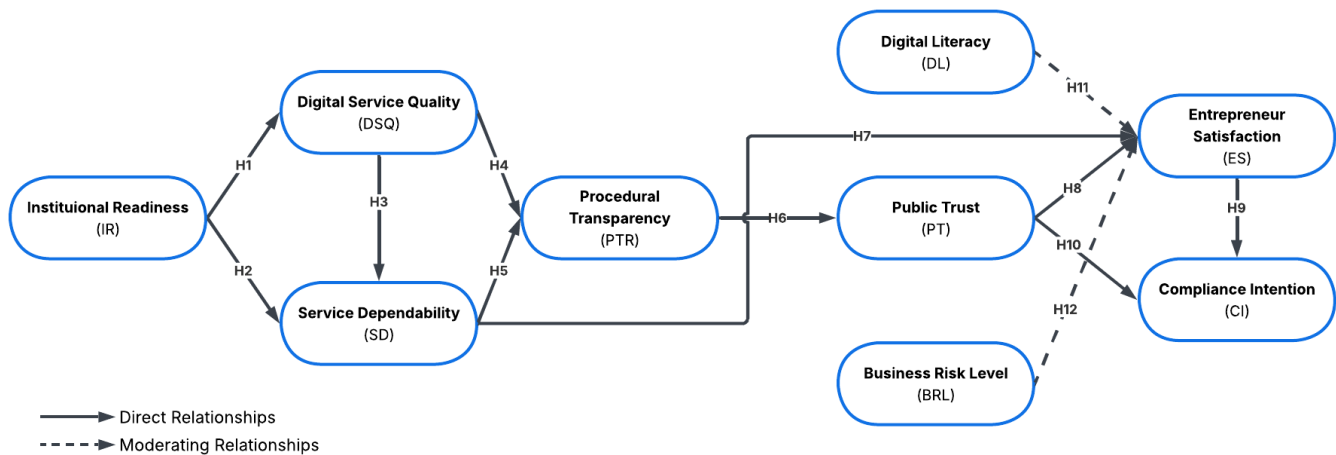


Figure 1. Proposed Conceptual Framework of Digital Licensing Governance in Risk-Based Business Licensing Services

The conceptual model is formulated through a structural relationship among latent variables. Institutional readiness and digital service quality are positioned as upstream determinants, while service dependability and procedural transparency function as governance mechanisms that influence public trust. Entrepreneur satisfaction and compliance intention are treated as outcome variables because effective licensing services are expected not only to satisfy users but also to encourage formal business compliance.

$$\eta = B\eta + \Gamma\xi + \zeta \tag{3.1}$$

In this formula, η represents endogenous latent variables such as service dependability, procedural transparency, public trust, entrepreneur satisfaction, and compliance intention [18]. The symbol ξ represents exogenous latent variables such as institutional readiness and digital service quality [27]. B explains the relationship among endogenous constructs, Γ explains the effect of exogenous constructs on endogenous constructs, and ζ represents the residual error. The model can also be specified more directly as:

$$ES = \beta_1SD + \beta_2PT + \beta_3PT_{rust} + \beta_4DSQ + \varepsilon \tag{3.2}$$

$$CI = \beta_5ES + \beta_6PT_{rust} + \beta_7SD + \varepsilon \tag{3.3}$$

ES denotes entrepreneur satisfaction, *SD* denotes service dependability, *PT* denotes procedural transparency, PT_{rust} denotes public trust, *DSQ* denotes digital service quality, and *CI* denotes compliance intention [31]. These formulas show that satisfaction and compliance are not treated as isolated outcomes, but as the final results of institutional and digital governance quality.

3.2. Population, Sampling, and Data Sources

The population of this study (table 1) consists of entrepreneurs or business actors who have used risk-based business licensing services through the local government licensing office and the Online Single Submission system. Respondents include micro, small, medium, and larger business actors whose licensing processes involve different risk categories. A multi-stage sampling approach is proposed to improve representativeness by considering business scale, business sector, risk category, and administrative region. This sampling structure allows the study to compare whether the governance experience differs across different types of users.

Table 1. Population Distribution Based on Business Scale, Risk Category, and Administrative Region

Administrative Region	Estimated Population of Registered Business Actors	Proportional Sample	Business Scale Distribution in Sample	Business Risk Category Distribution in Sample	Sampling Interpretation
Nias Regency	681	76	Micro: 33 Small: 24 Medium: 14 Large: 5	Low Risk: 30 Medium Risk: 34 High Risk: 12	Represents the main local government licensing area with a relatively high concentration of micro and small business actors.
Gunungsitoli City	574	64	Micro: 24 Small: 21 Medium: 14 Large: 5	Low Risk: 26 Medium Risk: 25 High Risk: 13	Represents a more urban licensing context with stronger exposure to digital public service interaction.
North Nias Regency	506	56	Micro: 25 Small: 17 Medium: 10 Large: 4	Low Risk: 23 Medium Risk: 25 High Risk: 8	Represents an administrative area where digital licensing adoption still depends heavily on officer assistance.
West Nias Regency	430	48	Micro: 21 Small: 15 Medium: 9 Large: 3	Low Risk: 19 Medium Risk: 22 High Risk: 7	Represents a smaller licensing population with higher vulnerability to infrastructure and procedural constraints.
South Nias Regency	493	56	Micro: 23 Small: 16 Medium: 11 Large: 6	Low Risk: 20 Medium Risk: 26 High Risk: 10	Represents a mixed licensing context with business actors distributed across low, medium, and high-risk categories.
Total	2,684	300	Micro: 126 Small: 93 Medium: 58 Large: 23	Low Risk: 118 Medium Risk: 132 High Risk: 50	The sample reflects proportional representation across administrative region, business scale, and business risk category.

The minimum sample size can be determined using a proportional sampling formula and adjusted according to the complexity of the structural model [29]. If the population size is known, the sample can be estimated using Slovin’s formula:

$$n = \frac{N}{1 + N(e^2)} \tag{3.4}$$

n is the required sample size, N is the population size, and e is the tolerated margin of error [34]. For a more proportional distribution across respondent groups, stratified sampling can be calculated as:

$$n_h = \frac{N_h}{N} \times n \tag{3.5}$$

n_h is the sample size for stratum h , N_h is the population size of stratum h , N is the total population, and nnn is the total sample size. This formula ensures that each business category is represented proportionally. This study also proposes the use of two types of data sources. The first source is primary survey data collected from entrepreneurs through structured questionnaires. The second source is administrative service data, such as permit processing duration, number of document revisions, number of complaints, response time, and permit completion status. Combining perception-

based data and administrative data strengthens the validity of the research because satisfaction scores can be compared with objective service performance.

3.3. Instrument Development and Variable Measurement

The research instrument (table 2) is developed using a structured questionnaire based on several latent constructs. Institutional readiness is measured through indicators related to organizational capacity, standard operating procedures, employee competence, leadership support, and inter-unit coordination. Digital service quality is measured through system accessibility, ease of use, information accuracy, response speed, data security, and system integration. Service dependability is measured through accuracy, consistency, timeliness, and reliability of officer support. Procedural transparency is measured through clarity of requirements, service flow, cost information, processing status, and explanation of administrative decisions.

Table 2. Operational Definition of Variables and Measurement Indicators

Variable	Code	Measurement Indicator	Sources
Institutional Readiness	IR1	Availability of clear standard operating procedures for risk-based business licensing services	[18], [27]
	IR2	Coordination among licensing units in handling online and assisted licensing processes	[17], [18]
	IR3	Competence of service officers in explaining procedures and supporting digital licensing users	[18], [19]
	IR4	Leadership support for digital licensing reform and institutional service transformation	[17], [27]
	IR5	Adequacy of service facilities and infrastructure to support online licensing implementation	[18], [27]
	IR6	Monitoring and evaluation of licensing performance to ensure service accountability	[18], [31]
Digital Service Quality	DSQ1	Accessibility of the online licensing system for entrepreneurs across different business categories	[18], [21]
	DSQ2	Ease of use of the digital platform in completing licensing procedures	[18], [22]
	DSQ3	Speed of digital service response during registration, document submission, and permit processing	[21], [27]
	DSQ4	Accuracy of information provided by the system regarding requirements, status, and procedures	[18], [21]
	DSQ5	Stability of the system during permit processing and administrative interaction	[21], [22]
	DSQ6	Security and privacy of business data submitted through digital licensing services	[18], [35]
	DSQ7	Integration between the online licensing system and the local service office	[18], [27]
Service Dependability	SD1	Accuracy of permit information provided by officers and digital service channels	[19], [31]
	SD2	Consistency of service delivery across online platforms and local licensing offices	[18], [19]
	SD3	Timeliness of permit processing according to service standards and procedural requirements	[19], [31]
	SD4	Officer ability to solve service problems encountered by entrepreneurs during licensing procedures	[18], [19]
	SD5	Reliability of administrative guidance in helping entrepreneurs complete permit applications	[19], [29]
Procedural Transparency	PTR1	Clarity of licensing requirements for different business risk categories	[23], [24]
	PTR2	Clarity of service flow from registration, verification, correction, approval, and permit issuance	[23], [27]
	PTR3	Transparency of processing time during online and assisted licensing services	[24], [25]
	PTR4	Transparency of costs and administrative obligations in risk-based licensing services	[23], [26]
	PTR5	Availability of application status tracking to monitor licensing progress	[24], [27]
	PTR6	Explanation of approval, rejection, or correction decisions in the licensing process	[26], [27]
Public Trust	PT1	Trust in officer competence when providing licensing assistance and procedural explanations	[18], [30]
	PT2	Trust in institutional integrity in managing fair and accountable licensing services	[26], [31]
	PT3	Trust in fairness of licensing decisions for different business actors and risk categories	[26], [33]
	PT4	Trust in consistency of service procedures across officers, offices, and digital platforms	[18], [27]
	PT5	Confidence in the institution's ability to protect business data submitted through digital licensing services	[18], [35]
Entrepreneur Satisfaction	ES1	Satisfaction with service convenience during online and assisted licensing processes	[28], [31]
	ES2	Satisfaction with service speed in completing permit applications	[28], [31]
	ES3	Satisfaction with information clarity regarding requirements, procedures, and application status	[24], [31]
	ES4	Satisfaction with officer assistance during document submission, correction, and verification	[19], [29]
	ES5	Satisfaction with the overall digital licensing experience	[18], [31]
	ES6	Overall satisfaction with licensing service performance provided by local government institutions	[28], [31]
Compliance Intention	CI1	Intention to continue using formal licensing services for future administrative needs	[31], [33]
	CI2	Intention to renew or update business permits through official licensing channels	[29], [32]
	CI3	Intention to comply with risk-based licensing requirements according to business classification	[19], [33]
	CI4	Intention to report business changes through official government licensing channels	[29], [31]
	CI5	Intention to recommend formal licensing compliance to other entrepreneurs	[31], [33]
Digital Literacy	DL1	Ability to operate online licensing services independently	[34], [35]

	DL2	Ability to upload and manage digital documents required for permit applications	[34], [35]
	DL3	Ability to understand online instructions, digital menus, and licensing system guidance	[34], [35]
	DL4	Ability to solve minor technical problems independently when using digital public service platforms	[34], [35]
	DL5	Confidence in using digital public service platforms for business licensing purposes	[34], [35]
Business Risk Level	BRL1	Low-risk business category based on simplified licensing requirements	[19], [36]
	BRL2	Medium-risk business category requiring additional administrative verification	[19], [36]
	BRL3	High-risk business category requiring more complex verification and institutional coordination	[19], [36]

Each item is measured using a Likert scale, ranging from strongly disagree to strongly agree. The latent construct score can be calculated using the mean score of its indicators:

$$X_j = \frac{\sum_{i=1}^k x_{ij}}{k} \tag{3.6}$$

X_j is the score of construct j , x_{ij} is the score of indicator i in construct j , and k is the total number of indicators [18]. This formula allows each construct to be represented by an aggregated score before being evaluated further in the measurement model. The measurement model follows the reflective indicator logic because each observed indicator is assumed to reflect the underlying latent variable [31]. The reflective measurement equation is expressed as:

$$x_i = \lambda_i \xi + \delta_i \tag{3.7}$$

$$y_i = \lambda_i \eta + \epsilon_i \tag{3.8}$$

x_i and y_i are observed indicators, λ_i is the outer loading value, ξ is the exogenous latent variable, η is the endogenous latent variable, and δ_i and ϵ_i are measurement errors. A high loading value indicates that the indicator strongly represents its construct. This measurement structure is important because weak indicators may reduce construct validity and distort the interpretation of the governance model.

4. Results and Discussion

4.1. Respondent Demographics and Preliminary Diagnostics

The data analysis began by examining the demographic and service-related characteristics of the respondents. This stage is important because risk-based business licensing services are experienced differently by business actors depending on business scale, business risk level, digital literacy, service channel, and permit processing duration. Unlike conventional public service studies that treat respondents as homogeneous service users, this study positions entrepreneurs as administratively diverse actors whose satisfaction and compliance intention are shaped by both digital capacity and institutional service performance.

A total of 300 valid responses were processed after screening incomplete answers and inconsistent responses. The sample was dominated by micro and small enterprises, indicating that risk-based licensing services are highly relevant to business actors with limited administrative resources. This composition strengthens the importance of digital service quality, officer assistance, and procedural transparency because smaller business actors often depend on local government officers when navigating the OSS-based licensing process.

Table 3 shows that the empirical context of risk-based licensing is dominated by micro and small enterprises, which together account for 73.0% of respondents. This result indicates that local digital licensing governance must be evaluated not only as a technological reform but also as an assisted public service process. The dominance of assisted online service users, representing 50.4% of respondents, confirms that the OSS system has not fully replaced the role of local officers. Instead, digital licensing operates as a hybrid service mechanism in which entrepreneurs still depend on administrative guidance, technical clarification, and officer reliability.

Table 3. Respondent Demographics and Licensing Service Characteristics

Dimension	Category	Frequency	Percentage
Business Scale	Micro Enterprise	126	42.0%
	Small Enterprise	93	31.0%

	Medium Enterprise	58	19.3%
	Large Enterprise	23	7.7%
Business Risk Category	Low Risk	118	39.3%
	Medium Risk	132	44.0%
	High Risk	50	16.7%
Digital Literacy	Very Low	31	10.3%
	Low	82	27.3%
	Moderate	121	40.4%
	High	66	22.0%
Service Channel	Fully Online through OSS	97	32.3%
	Assisted Online at DPMPTSP Office	151	50.4%
	Hybrid Online and Manual Consultation	52	17.3%
Permit Processing Duration	1–3 Days	76	25.3%
	4–7 Days	109	36.4%
	8–14 Days	79	26.3%
	More than 14 Days	36	12.0%

The distribution of permit processing duration also shows that digital licensing has not completely eliminated service delay. Although 61.7% of respondents completed their permits within seven days, 38.3% experienced longer processing times. This finding is analytically important because delay is closely related to procedural uncertainty, document correction, and coordination problems. Therefore, the later structural model must be interpreted by considering that entrepreneur satisfaction is not shaped by digital access alone, but by the combined performance of institutional readiness, system quality, dependability, transparency, and trust. This finding is consistent with studies emphasizing that MSMEs require legal empowerment and accessible digital support to participate effectively in formal economic systems [29], [34].

4.2. External Model and Validation

The external model assessment was conducted to evaluate the validity and reliability of all latent constructs. This stage follows the PLS-SEM logic in which the measurement model must be confirmed before interpreting structural relationships. The assessed constructs include institutional readiness, digital service quality, service dependability, procedural transparency, public trust, entrepreneur satisfaction, and compliance intention. Each construct was evaluated using factor loading, Cronbach’s Alpha, Composite Reliability, Average Variance Extracted, HTMT, and VIF.

The results indicate that all constructs achieved acceptable measurement quality. The factor loading range for each construct exceeded the minimum acceptable threshold, showing that the indicators consistently represented their latent variables. Composite Reliability values ranged from 0.908 to 0.936, while AVE values ranged from 0.663 to 0.701. These results indicate strong internal consistency and convergent validity. HTMT values remained below the recommended boundary, confirming that the constructs were empirically distinguishable.

Table 4 demonstrates that the proposed constructs are statistically suitable for further structural analysis. Digital service quality produced the highest Composite Reliability value, indicating that platform accessibility, system speed, information accuracy, security, and integration are coherent dimensions of digital licensing services. This result is important because the transformation of licensing services depends not only on regulatory reform but also on the perceived quality of the digital system used by entrepreneurs.

Service dependability also showed strong measurement quality, with Composite Reliability of 0.920 and AVE of 0.697. This confirms that accuracy, consistency, timeliness, and officer capability remain central elements of public service performance in the digital licensing environment. The finding strengthens the argument that digital transformation does not remove the importance of human service reliability. Instead, the quality of officer support becomes more important when entrepreneurs face system errors, unclear requirements, or document correction requests. This supports the view

that public service effectiveness in digital government depends on measurable dimensions of institutional capacity, service quality, transparency, and trust [18], [27], [31].

Table 4. Reliability Analysis, Convergent Validity, Discriminant Validity, and Collinearity Results

Construct	Code	Indicators	Factor Loading Range	Cronbach's Alpha	Composite Reliability	AVE	Maximum HTMT	VIF Range	Validation Result
Institutional Readiness	IR	6	0.741–0.887	0.901	0.924	0.671	0.742	1.684–2.913	Accepted
Digital Service Quality	DSQ	7	0.718–0.903	0.918	0.936	0.678	0.781	1.721–3.106	Accepted
Service Dependability	SD	5	0.763–0.912	0.889	0.920	0.697	0.736	1.552–2.487	Accepted
Procedural Transparency	PTR	6	0.732–0.895	0.907	0.929	0.686	0.793	1.638–3.214	Accepted
Public Trust	PT	5	0.755–0.901	0.884	0.916	0.685	0.764	1.477–2.639	Accepted
Entrepreneur Satisfaction	ES	6	0.746–0.918	0.913	0.933	0.701	0.801	1.802–3.335	Accepted
Compliance Intention	CI	5	0.729–0.874	0.872	0.908	0.663	0.758	1.438–2.764	Accepted

The VIF values remained below the critical threshold, indicating that the constructs did not suffer from serious multicollinearity problems. This means that institutional readiness, digital service quality, dependability, transparency, trust, satisfaction, and compliance intention can be interpreted as distinct yet related dimensions of digital licensing governance. Therefore, the structural model can be evaluated with sufficient confidence.

4.3. Inner Model Results and Hypothesis Testing

The inner model was assessed to examine the causal relationships among the latent constructs. This stage evaluates whether institutional readiness and digital service quality influence service dependability, procedural transparency, public trust, entrepreneur satisfaction, and compliance intention. The results are presented through a hypothesis table and a structural model figure. The table provides the statistical details of each relationship, while the figure visualizes the direction and strength of the accepted pathways.

The results in table 5 show that almost all proposed hypotheses were supported, except the moderating effect of business risk level on the relationship between service dependability and entrepreneur satisfaction. The strongest structural relationship was found in the path from procedural transparency to public trust, with a path coefficient of 0.547 and a t-value of 10.320. This finding indicates that trust in local licensing institutions is strongly shaped by whether entrepreneurs perceive procedures, requirements, service status, costs, and administrative decisions as clear and predictable.

Table 5. Summary of Inner Model Results and Hypothesis Testing

Hypothesis	Structural Path	Path Coefficient	t-value	p-value	Effect Size	Result	Substantive Interpretation
H1	IR → DSQ	0.421	7.214	0.000	Medium	Accepted	Institutional capacity improves perceived quality of digital licensing services
H2	IR → SD	0.319	5.682	0.000	Medium	Accepted	Organizational readiness strengthens service accuracy and consistency
H3	DSQ → SD	0.438	8.007	0.000	Large	Accepted	High-quality digital systems improve dependable licensing service delivery
H4	DSQ → PTR	0.312	5.311	0.000	Medium	Accepted	Digital service quality increases clarity of requirements and service status
H5	SD → PTR	0.386	6.914	0.000	Medium	Accepted	Dependable services improve procedural clarity and administrative predictability
H6	PTR → PT	0.547	10.320	0.000	Large	Accepted	Transparent procedures strongly increase trust in the licensing institution
H7	SD → ES	0.291	4.874	0.000	Medium	Accepted	Reliable service delivery directly improves entrepreneur satisfaction
H8	PT → ES	0.452	7.936	0.000	Large	Accepted	Trust becomes the strongest direct determinant of satisfaction

Hypothesis	Relationship	Coefficient	t-statistic	p-value	Effect Size	Status	Description
H9	ES → CI	0.511	9.104	0.000	Large	Accepted	Satisfied entrepreneurs are more likely to comply with formal licensing requirements
H10	PT → CI	0.283	4.625	0.000	Medium	Accepted	Public trust directly strengthens formal compliance intention
H11	DSQ × Digital Literacy → ES	0.146	2.689	0.007	Small	Accepted	Digital literacy strengthens the satisfaction effect of digital service quality
H12	SD × Business Risk Level → ES	0.078	1.542	0.123	Weak	Rejected	Risk category does not significantly change the effect of dependability on satisfaction

Digital service quality also had a strong effect on service dependability, with a coefficient of 0.438. This means that the perceived quality of the OSS-based service environment contributes directly to the reliability of licensing services. When the platform is accessible, stable, accurate, and easy to use, entrepreneurs perceive the overall licensing process as more dependable. However, the significant effect of institutional readiness on both digital service quality and service dependability confirms that technology alone is insufficient. Organizational capacity, trained officers, internal coordination, and leadership support remain essential foundations of digital licensing governance.

The relationship between entrepreneur satisfaction and compliance intention was also strong, with a coefficient of 0.511. This finding expands the contribution of the model beyond satisfaction measurement. In the context of risk-based licensing, satisfaction is not merely a subjective service outcome but also a behavioral driver that encourages entrepreneurs to remain within the formal regulatory system. Therefore, improving satisfaction can support broader public administration goals, including business formalization, regulatory compliance, and regional economic governance.

Figure 2 visualizes the governance mechanism identified in the structural model. The figure shows that institutional readiness serves as an upstream determinant that influences both digital service quality and service dependability. This means that the performance of digital licensing services cannot be separated from internal organizational readiness. Even when the licensing platform is available, the service will not become dependable without trained personnel, clear SOPs, leadership support, and coordination among administrative units.

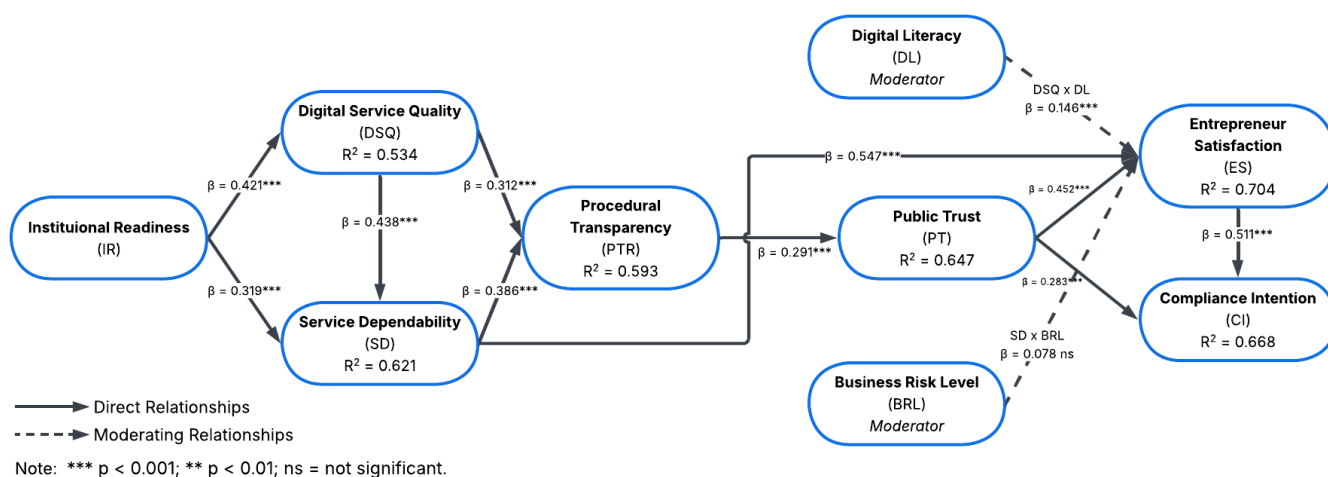


Figure 2. Inner Model Results Framework

The figure also shows that procedural transparency is the main bridge between service performance and public trust. The strongest path in the model, PTR → PT, indicates that entrepreneurs do not build trust merely because the system is digital. Trust emerges when the institution makes procedures understandable, service status traceable, requirements predictable, and administrative decisions explainable. This finding is highly relevant to risk-based licensing because entrepreneurs often face uncertainty when business risk categories require additional verification.

The final part of the model shows that entrepreneur satisfaction and public trust jointly influence compliance intention. This means that public service quality has consequences beyond immediate service evaluation. When entrepreneurs are satisfied and trust the licensing institution, they are more likely to maintain formal business permits and comply

with licensing obligations. Therefore, the model positions digital licensing governance as a mechanism for strengthening both service satisfaction and regulatory compliance.

4.4. Testing for Mediating Effects

The mediation analysis was conducted to identify whether the influence of institutional readiness and digital service quality on entrepreneur satisfaction and compliance intention occurs through intermediate governance mechanisms. This analysis is important because the model assumes that digital licensing governance does not operate through a single direct effect. Instead, service outcomes are shaped through a sequence of institutional, technological, procedural, and trust-based mechanisms.

Table 6 shows that all mediation paths were statistically significant. The strongest indirect effect was found in the path PTR → PT → ES, with an indirect effect of 0.247. This finding confirms that procedural transparency is not only a technical service attribute but also a trust-building mechanism. Entrepreneurs become more satisfied when they understand why certain documents are required, how long the verification process takes, how service status can be tracked, and how administrative decisions are made.

Table 6. Mediation Test Results

Mediation Path	Indirect Effect	t-value	P-value	Mediation Type	Interpretive Meaning
IR → SD → ES	0.093	3.957	0.000	Partial Mediation	Institutional readiness improves satisfaction partly through dependable service delivery
DSQ → SD → ES	0.127	4.839	0.000	Partial Mediation	Digital service quality improves satisfaction by increasing perceived service dependability
DSQ → PTR → PT	0.171	5.416	0.000	Complementary Mediation	Digital service quality strengthens trust by making procedures more transparent
SD → PTR → PT	0.211	6.104	0.000	Complementary Mediation	Dependable service delivery increases trust through clearer and more predictable procedures
PTR → PT → ES	0.247	7.224	0.000	Strong Mediation	Procedural transparency improves satisfaction primarily by building public trust
PT → ES → CI	0.231	6.772	0.000	Partial Mediation	Public trust strengthens compliance intention through entrepreneur satisfaction
DSQ → SD → PTR → PT → ES	0.041	2.914	0.004	Sequential Mediation	Digital service quality contributes to satisfaction through dependability, transparency, and trust
IR → DSQ → SD → PTR → PT → CI	0.028	2.381	0.017	Sequential Mediation	Institutional readiness indirectly supports compliance through the full governance pathway

The sequential mediation path DSQ → SD → PTR → PT → ES was also significant. This result is important because it explains the mechanism through which digital licensing quality becomes entrepreneur satisfaction. Digital service quality does not directly create satisfaction in isolation. It first improves service dependability, then strengthens procedural transparency, then builds trust, and finally increases satisfaction. This chain demonstrates that digital transformation in public licensing requires alignment between system quality, administrative reliability, procedural openness, and institutional credibility.

The final sequential mediation path IR → DSQ → SD → PTR → PT → CI indicates that institutional readiness indirectly contributes to compliance intention through the full digital governance pathway. This supports the argument that effective digital public services must integrate technological quality with institutional accountability and user-oriented service design [18], [27], [31]. This means that entrepreneurs are more likely to comply with formal licensing requirements when the licensing institution is internally prepared, the digital system works effectively, service delivery is dependable, procedures are transparent, and public trust is formed. Therefore, the practical contribution of this model lies in showing that compliance is not only a matter of regulation enforcement, but also the outcome of credible and user-oriented public service governance.

5. Conclusion

This study developed and examined a digital licensing governance model for risk-based business licensing services by integrating institutional readiness, digital service quality, service dependability, procedural transparency, public trust, entrepreneur satisfaction, and compliance intention. The findings show that the quality of risk-based licensing services

is not determined only by the availability of the OSS platform, but by the interaction between organizational capacity, digital system performance, officer reliability, and procedural clarity. Institutional readiness strengthens digital service quality and service dependability, while digital service quality supports more accurate, accessible, and consistent licensing processes. These results confirm that digital transformation in local public services requires strong institutional foundations, not merely technological adoption. This supports institutional and smart governance perspectives arguing that digital public service performance depends on the alignment between technology, administrative readiness, and public accountability [15], [18], [27].

The structural model demonstrates that procedural transparency and public trust are central mechanisms in explaining entrepreneur satisfaction. Transparent procedures increase trust because entrepreneurs can better understand licensing requirements, processing stages, service status, administrative costs, and decision outcomes. Public trust then becomes a major determinant of satisfaction, indicating that entrepreneurs evaluate licensing services not only based on speed and convenience, but also based on fairness, predictability, and institutional credibility. The mediation results further show that digital service quality contributes to satisfaction through a sequential pathway involving service dependability, procedural transparency, and public trust. This confirms that satisfaction is produced through a layered governance process rather than a single direct service factor.

Overall, this study expands previous research on service dependability and entrepreneur satisfaction by offering a more comprehensive public service governance model. The findings suggest that local governments need to improve employee competence, strengthen internal coordination, simplify procedures, enhance digital service infrastructure, and provide transparent information throughout the licensing process. Improving these dimensions can increase entrepreneur satisfaction and encourage stronger compliance intention among business actors. Future studies can extend this model by using longitudinal data, comparing several regions with different digital readiness levels, and integrating objective administrative data such as processing time, complaint records, revision frequency, and permit completion status to provide a more robust evaluation of digital licensing governance.

6. Declarations

6.1. Author Contributions

Conceptualization: T.S., M.A.H.; Methodology: T.S., A.Y.S.; Software: M.A.H.; Validation: A.Y.S., T.S.; Formal Analysis: T.S.; Investigation: M.A.H., A.Y.S.; Resources: M.A.H.; Data Curation: A.Y.S.; Writing – Original Draft Preparation: T.S.; Writing – Review and Editing: M.A.H., A.Y.S.; Visualization: M.A.H.; All authors have read and agreed to the published version of the manuscript.

6.2. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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The authors received no financial support for the research, authorship, and/or publication of this article.

6.4. Institutional Review Board Statement

Not applicable.

6.5. Informed Consent Statement

Not applicable.

6.6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

- [1] L. Heemsbergen and R. Fordyce, "Positioning innovation and governance for 3D printing in clinical care: An Australian case," *J. 3D Print. Med.*, vol. 3, no. 4, pp. 161–169, Dec. 2019, doi: 10.2217/3dp-2019-0008.

- [2] F. Von Hafe, Y. Wagle, F. Guede-Fernández, A. P. Giordano, L. Silva, and S. Azevedo, “Legal frameworks for blockchain applications: A comparative study with implications for innovation in Europe,” *Frontiers in Blockchain*, vol. 8, no. Jan., pp. 1–15, Jan. 2025, doi: 10.3389/fbloc.2025.1655230.
- [3] B. P. Singh and A. K. Tripathi, “Blockchain technology and intellectual property rights,” *Journal of Intellectual Property Rights*, vol. 24, no. 1–2, pp. 41–44, Jan. 2019.
- [4] A. O. Alshaymi and F. A. Atallah, “Governing open educational resources as sustainable knowledge commons: A policy and institutional framework for higher education,” *Sustainability*, vol. 18, no. 8, pp. 1–20, Apr. 2026, doi: 10.3390/su18084024.
- [5] K. Rozgonyi, “The governance of spectrum: A possible venue of accountability for global telecommunication,” *Digital Policy, Regulation and Governance*, vol. 20, no. 3, pp. 273–287, Jun. 2018, doi: 10.1108/DPRG-09-2017-0050.
- [6] J. Rogers and S. Sparviero, “Copyright, the music business, and the evolution of performing rights organisations,” *International Communication Gazette*, vol. 87, no. 4, pp. 283–290, Apr. 2025, doi: 10.1177/17480485251327398.
- [7] P. Chauhan and J. Mathew, “Evolution and regulation of telecommunication and internet in India: A study of the policy governing the development of telecommunication and internet in India,” *Revista de Direito, Estado e Telecomunicações*, vol. 15, no. 1, pp. 225–255, Jan. 2023, doi: 10.26512/lstr.v15i1.45322.
- [8] A. Pokrovskaya, “Infringement of photographic works on marketplaces: A study of the Chinese experience,” *Journal of Intellectual Property Rights*, vol. 30, no. 3, pp. 285–294, May 2025, doi: 10.56042/jipr.v30i3.8484.
- [9] O. Narzullaev, S. Fayziev, N. Rajabov, S. Khaydarov, and O. Otamirzaev, “Integrating environmental monitoring policy on state control frameworks for energy security,” *Journal of Human Rights, Culture and Legal System*, vol. 5, no. 3, pp. 982–1014, Sep. 2025, doi: 10.53955/jhcls.v5i3.720.
- [10] D. Kumar and N. Suthar, “Assessing the prospects and constraints of blockchain technology for intellectual property management,” *Journal of World Intellectual Property*, vol. 28, no. 1, pp. 124–140, Jan. 2025, doi: 10.1111/jwip.12324.
- [11] S. Al Ali, I. Al Shawabkeh, and E. M. Alqodsi, “Facial recognition technology: Protecting biometric privacy in the digital age,” *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, vol. 18, no. 2, pp. 1–12, Jun. 2026, doi: 10.1061/JLADAH.LADR-1435.
- [12] G. Machovec, B. Harloe, P. Hulst, and A. Traub, “What’s the use of use?: Return on investment strategies for consortial DDA,” *Journal of Library Administration*, vol. 55, no. 3, pp. 249–259, Apr. 2015, doi: 10.1080/01930826.2015.1034055.
- [13] A. Alqatawna, Z. Czekmann, and A. Nagy, “Implementation challenges of AI in judicial decision-making in Jordan,” *Law and Development Review*, vol. 19, no. 1, pp. 403–432, Jan. 2026, doi: 10.1515/ldr-2025-0076.
- [14] D. Nursidi, N. Chotidjah, and R. M. Syam, “Revisiting coastal spatial permitting regulations toward sustainable coastal zone management,” *Journal of Human Rights, Culture and Legal System*, vol. 6, no. 1, pp. 285–318, Jan. 2026, doi: 10.1016/j.marpol.2022.105171.
- [15] H. Galperin, “Beyond interests, ideas, and technology: An institutional approach to communication and information policy,” *The Information Society*, vol. 20, no. 3, pp. 159–168, May 2004, doi: 10.1080/01972240490456818.
- [16] J. Rogers and S. Sparviero, “Navigating performing rights in music: Digital-native organizations, changing values, and industry shifts in the United States and beyond,” *International Communication Gazette*, vol. 87, no. 4, pp. 376–397, Apr. 2025, doi: 10.1177/17480485251327273.
- [17] J. van den Boom, “The search for meaningful results: FRAND access conditions under Article 6(11) DMA,” *European Competition and Regulatory Law Review*, vol. 9, no. 4, pp. 302–319, Dec. 2025, doi: 10.21552/core/2025/4/4.
- [18] A. Suradi and H. D. Purnomo, “A user-centred e-government service design framework to enhance public trust in sustainable policies,” *Engineering, Technology & Applied Science Research*, vol. 16, no. 1, pp. 31852–31862, Jan. 2026, doi: 10.48084/etasr.14851.
- [19] R. Varia, A. Sudiro, M. I. F. Rahayu, and T. T. U. Rakhmonov, “Effectiveness of online single submission policy for faster land transactions compliance,” *Journal of Human Rights, Culture and Legal System*, vol. 5, no. 3, pp. 865–896, Sep. 2025, doi: 10.53955/jhcls.v5i3.781.
- [20] S. Fantaccini, L. Grassi, and S. Howell, “Innovating pharma: Bridging traditional acquisition and emerging technologies,” *Blockchain in Healthcare Today*, vol. 9, no. 1, pp. 1–12, Jan. 2026, doi: 10.30953/bhty.v9.435.

- [21] J. Zhang, T. Wu, J. Ren, H. Pan, and X. Bao, "Analysis of blockchain application and effectiveness in tracing abnormal cigarette flows," *International Journal of Information Systems and Supply Chain Management*, vol. 18, no. 1, pp. 1–15, Jan. 2025, doi: 10.4018/IJISSCM.390253.
- [22] R. Ghose and T. Welcenbach, "'Power to the people': Contesting urban poverty and power inequities through open GIS," *The Canadian Geographer*, vol. 62, no. 1, pp. 67–80, Mar. 2018, doi: 10.1111/cag.12442.
- [23] K. Bairamova, A. Gavrilov, A. Kharitonova, and V. Nikolaev, "Technological development models in the context of speech corpora imbalance," *Technology and Language*, vol. 7, no. 1, pp. 80–102, Jan. 2026, doi: 10.48417/technolog.2026.01.06.
- [24] A. N. Zainab, "Open access repositories and journals for visibility: Implications for Malaysian libraries," *Malaysian Journal of Library & Information Science*, vol. 15, no. 3, pp. 97–119, Dec. 2010.
- [25] Y.-H. Shr and H.-H. Chang, "The effects of participating in digital ride-hailing on taxi drivers' business operations," *Transportation Research Part A: Policy and Practice*, vol. 187, no. Sep., pp. 1–15, Sep. 2024, doi: 10.1016/j.tra.2024.104167.
- [26] Y. Yu and L. Zhang, "A trade-based approach to resolving escalating FRAND-based disputes in the digital age," *Queen Mary Journal of Intellectual Property*, vol. 12, no. 2, pp. 265–287, Jun. 2022, doi: 10.4337/qmjip.2022.02.06.
- [27] P. Radika, R. Rachmawati, and R. Rijanta, "Analysing smart governance in public service delivery: Evidence from 61 smart cities in Indonesia," *Human Geography*, vol. 19, no. 2, pp. 1–15, Jun. 2025, doi: 10.5719/hgeo.2025.192.5.
- [28] Y. Pereguda, I. Petrunenko, M. Serbov, M. Barskyi, and T. Salnykova, "Socio-economic benefits of using public-private partnership for the implementation of social projects," *Journal of Applied Economic Sciences*, vol. 20, no. 3, pp. 573–598, Sep. 2025, doi: 10.57017/jaes.v20.3(89).13.
- [29] Y. Hetharie, I. Ikhwanayah, and E. Rahmawati, "Legal empowerment of Indonesian micro small medium enterprises in the digital era: A comparing with China," *Jurnal IUS Kajian Hukum dan Keadilan*, vol. 13, no. 2, pp. 326–345, Aug. 2025, doi: 10.29303/ius.v13i2.1688.
- [30] C. Blomgren and S. Henderson, "Addressing the K-12 open educational resources awareness niche: A virtual conference response," *Alberta Journal of Educational Research*, vol. 67, no. 1, pp. 1–12, Mar. 2021.
- [31] I. B. M. P. Dharmika and I. N. Subanda, "The effectiveness of public services in realizing good governance," *APTISI Transactions on Technopreneurship*, vol. 5, no. 1SP, pp. 77–83, Jan. 2023, doi: 10.34306/att.v5i1Sp.327.
- [32] E. M. Rebelo and D. L. Aquino, "Crisis, cities, and cuisine: Urban governance for gastronomic sector recovery in Porto and João Pessoa," *Geoforum*, vol. 170, no. Jan., pp. 1–15, Jan. 2026, doi: 10.1016/j.geoforum.2026.104560.
- [33] J. A. Cadavid, "The origin and purpose of legal protection for the integrity of copyright metadata," *IIC - International Review of Intellectual Property and Competition Law*, vol. 54, no. 8, pp. 1179–1202, Oct. 2023, doi: 10.1007/s40319-023-01364-1.
- [34] A. Abdurrahman, "Extending the IBCDE framework to explore barriers and drivers in Indonesia's digital economy," *Journal of Digital Economy*, vol. 4, no. Aug., pp. 123–143, Aug. 2025, doi: 10.1016/j.jdec.2025.08.003.
- [35] M. S. Alaloosh, A. Shaker, and S. H. Eliwy, "Securing digital trade: A techno-legal analysis of e-commerce safeguards in Iraq's Regulation No. 4/2025," *Nusantara Journal of Law Studies*, vol. 5, no. 1, pp. 44–60, Jan. 2026, doi: 10.5281/zenodo.18452737.
- [36] F. A. Ramos-Zaga, "Toward a cooperative governance of digital cultural goods: Limits and transformations of the classical copyright paradigm," *Revista Iberoamericana de la Propiedad Intelectual*, vol. 2025, no. 23, pp. 197–225, Dec. 2025, doi: 10.26422/RIPI.2025.2300.ram.