Fairness, Trust, and Acceptance of Government Artificial Intelligence Services in Electronic Certification

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Abstract. This study examines how trust and perceived fairness shape user acceptance of Artificial Intelligence (AI) in government electronic certification services. A quantitative survey collected data from applicants with experience in telecommunications equipment and electronic certification services. Responses were analyzed using descriptive statistics, reliability testing, and multiple linear regression. Results show that both trust in AI and perceived fairness positively contribute to AI acceptance. Trust plays the stronger role, indicating that users are more likely to accept AI-supported services when they believe the system can work reliably and consistently in certification-related processes. Fairness also matters, as users consider whether AI-supported procedures are applied appropriately and in an even-handed manner. These findings suggest that acceptance of AI in electronic certification is shaped not only by expected service benefits but also by confi-dence in the system and perceptions of fairness. For government agencies, the in-troduction of AI should be accompanied by clear communication, consistent pro-cedures, and attention to fair service delivery. The study contributes to research on government AI adoption by highlighting trust and fairness as important user perceptions before full AI implementation.

Keywords: Artificial Intelligence Adoption, Trust, Perceived Fairness, Public Service, Electronic Certification, E-Government.

1 Introduction

Artificial Intelligence (AI) is increasingly used in public administration to support faster, more consistent, and data-informed public services. In government services, however, AI acceptance is not determined only by technical efficiency. Users also need to believe that AI-supported systems are reliable, understandable, fair, and compatible with public accountability. Studies on AI in government show that public organizations may gain service benefits from AI, but they also face challenges relat-ed to governance, transparency, accountability, and trust [1, 2, 3]. Therefore, this study examines how Trust in AI and Perceived Fairness influence users' Acceptance of AI in government electronic certification services.

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Electronic certification is a relevant setting because the service involves document checking, regulatory assessment, and administrative decisions that affect applicants. In telecommunication equipment certification, applicants such as brand owners, distributors, and manufacturers interact with digital government procedures before obtaining certification approval. AI may support this process, but user acceptance can remain uncertain when applicants do not clearly understand how AI-assisted decisions are produced, reviewed, or corrected. Previous studies on AI adoption in public organizations and AI-supported public services show that acceptance depends not only on organizational readiness, but also on how users perceive the system and its role in service delivery [4, 5, 6, 7, 8, 9].

Although prior research has discussed AI adoption, citizen acceptance, trustworthy AI, and fairness in public services, limited attention has been given to users' perceptions before AI is fully implemented in regulatory certification services [10, 11, 12]. This gap is important because early perceptions of trust and fairness may influence whether applicants are willing to accept AI-supported procedures when they are introduced. By focusing on electronic certification, this study contributes to research on government AI adoption. It extends discussions of technology acceptance and technology readiness by showing how Trust in AI and Perceived Fairness help explain Acceptance of AI before full implementation [13, 14, 15, 16].

2 Method

This study used a quantitative survey approach to examine users' perceptions of the potential use of Artificial Intelligence in electronic certification services. The study was cross-sectional, as data were collected at a single point in time from applicants who had used telecommunications equipment certification services in Indonesia. The respondents consisted of brand owners, distributors, and manufacturers. In total, 214 valid responses were obtained from applicants who had submitted certification applications within the previous 12 months.

The data were gathered through an online questionnaire distributed between May 25 and June 2, 2025. The questionnaire was designed to capture respondents' perceptions of three constructs: Trust in Artificial Intelligence (X1), Perceived Fairness (X2), and Acceptance of Artificial Intelligence (Y). Each construct was measured using six indicators, giving a total of 18 items. Respondents answered the items on a five-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree).

The collected data were processed using SPSS version 26. Descriptive statistics were first used to summarize the general pattern of responses for each variable. The reliability of the measurement items was then examined using Cronbach's Alpha and corrected item-total correlation. Finally, multiple linear regression was used to test whether Trust in Artificial Intelligence and Perceived Fairness influenced Acceptance of Artificial Intelligence.

3 Results and Discussion

3.1 Results

Respondents generally showed positive perceptions of Artificial Intelligence in electronic certification services. As reported in Table 1, Trust in Artificial Intelligence recorded the highest mean score (M = 3.81, SD = 0.43), followed by Acceptance of Artificial Intelligence (M = 3.77, SD = 0.34). Perceived Fairness had the lowest mean score among the three variables (M = 3.66, SD = 0.43), although it remained above the midpoint of the scale. The minimum and maximum values indicate some varia-tion in respondents' answers, but the overall pattern suggests that the three constructs were evaluated positively.

Table 1. Descriptive Statistics of Trust, Fairness, and Acceptance Variables

Variable	Mean	Std. Deviation	Minimum	Maximum
Trust in AI (X_1)	3.81	0.43	2.83	5.00
Perceived Fairness (X_2)	3.66	0.43	2.83	4.83
Acceptance of Artificial Intelligence (Y)	3.77	0.34	3.00	4.67

Source: Author's work

The measurement results also showed acceptable reliability and item consistency. Cronbach's Alpha values were 0.897 for Trust in Artificial Intelligence, 0.898 for Perceived Fairness, and 0.837 for Acceptance of Artificial Intelligence, as shown in Table 2. These values indicate that the three constructs were internally consistent. The corrected item-total correlation values also supported the quality of the items, with 0.772–0.841 for Trust in Artificial Intelligence, 0.786–0.831 for Perceived Fair-ness, and 0.688–0.780 for Acceptance of Artificial Intelligence.

Table 2. Reliability and Validity Measures of Research Constructs

Variable	Indicators	Corrected Item-Total Correlation Range	Cronbach's Alpha
Trust in AI (X_1)	6 (Q1 – Q6)	0.772 – 0.841	0.897
Perceived Fairness (X_2)	6 (Q7 – Q12)	0.786 – 0.831	0.898
Acceptance of AI (Y)	6 (Q13 – Q18)	0.688 – 0.780	0.837

Source: Author's work

The regression analysis confirmed that both predictors had significant positive ef-fects on Acceptance of Artificial Intelligence. Trust in AI had a standardized coeffi-cient of 0.467 with a p-value below 0.001, supporting H1. Perceived Fairness also showed a positive and significant effect on Acceptance of AI, with a standardized coefficient of 0.427 and a p-value below 0.001, supporting H2. The model summary reported in Table 3 shows an R^2 value of 0.657, meaning that Trust in AI and Per-ceived Fairness explained 65.7% of the variance in Acceptance of AI.

Table 3. Regression Analysis of the Effects of Trust and Fairness on Acceptance of AI

Hypothesis	Predictor Variable	Dependent Variable	Standardized Coefficient (β)	p-value	Decision
H1	Trust in AI	Acceptance of AI	0.467	<0.001	Supported
H2	Perceived Fairness	Acceptance of AI	0.427	<0.001	Supported

Source: Author's work

3.2 Discussion

The results suggest that Trust in Artificial Intelligence has the strongest role in explaining Acceptance of Artificial Intelligence. This interpretation is supported by two findings: Trust in Artificial Intelligence had the highest descriptive mean in Table 1 and the largest standardized coefficient in Table 3. In public-sector Artificial Intelligence studies, trust is often associated with users' confidence in a system's reliability and trustworthiness [8, 9]. In this study, the positive regression coefficient indicates that higher trust is associated with stronger acceptance of AI in electronic certification services [12].

Perceived Fairness also plays an important role, although its descriptive mean was slightly lower than the other two variables. The result in Table 3 shows that Perceived Fairness still had a positive and significant effect on Acceptance of AI. This means that fairness remains relevant in explaining acceptance, even when respondents rated it lower on average than trust. Previous studies on AI-supported public services also indicate that fairness and procedural considerations are related to users' acceptance of AI systems [6, 10, 11].

The reliability findings provide additional support for the interpretation of the results. The Cronbach's Alpha values in Table 2 were all above 0.70, showing that the items used to measure Trust in Artificial Intelligence, Perceived Fairness, and Acceptance of Artificial Intelligence were internally consistent. The corrected item-total correlation ranges also indicate that the items contributed adequately to their respective constructs. Therefore, the relationships shown in the regression results can be interpreted based on reliable measurement items.

Overall, the three tables show a consistent pattern. Respondents tended to evaluate Artificial Intelligence positively in the context of electronic certification services, the measurement items were reliable, and both Trust in AI and Perceived Fairness significantly predicted Acceptance of AI. The higher coefficient for Trust in AI indicates that trust made the stronger contribution, while the significant coefficient for Perceived Fairness shows that perceptions of fairness also shaped acceptance. These findings indicate that acceptance of AI in electronic certification services is closely related to both users' trust and their perception of fairness.

4 Conclusion

This study concludes that Trust in Artificial Intelligence and Perceived Fairness are important factors in shaping Acceptance of Artificial Intelligence in electronic certification services. The findings suggest that users are more willing to accept AI-supported public services when they perceive the system as reliable and fair in its support for certification-related processes. This study contributes to the discussion of government AI adoption by highlighting the role of user perceptions prior to full AI implementation in a regulatory service context. Practically, government agencies need to strengthen trust and fairness when introducing AI into electronic certification, particularly through clear communication and consistent service procedures. Since this study focused on applicants of telecommunication equipment certification ser-vices, future research may involve broader public service contexts and examine addi-tional factors that may influence user acceptance.

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