


Analysis of the Trends in AI-as-a-Service (AIaaS) Implementation in Technology Companies in Indonesia

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Article Info	ABSTRACT
<p>Article history: Received Aug, 2025 Revised Aug, 2025 Accepted Aug, 2025</p> <hr/> <p>Keywords: Adoption Drivers; Artificial Intelligence-as-a-Service (AIaaS); Implementation Challenges; Organizational Performance; Perceived Benefits</p>	<p>This study examines the impact of adoption drivers, perceived benefits, and implementation challenges of Artificial Intelligence-as-a-Service (AIaaS) on the organizational performance of technology companies in Indonesia. Using a quantitative approach, data were collected from 200 respondents through structured questionnaires and analyzed with multiple regression techniques. The results reveal that adoption drivers and perceived benefits have a significant positive influence on organizational performance, while implementation challenges exert a negative impact. These findings suggest that while AIaaS offers considerable potential for efficiency, innovation, and competitive advantage, unresolved barriers such as data security, system integration, and limited human resources hinder its effectiveness. This study contributes to the growing body of literature on AI adoption in emerging economies by highlighting the dual role of enablers and inhibitors in shaping AIaaS outcomes. Practical implications include the need for organizations to invest in digital skills development and risk management, and for policymakers to establish clear regulatory frameworks to accelerate responsible AIaaS adoption in Indonesia.</p> <p><i>This is an open access article under the CC BY-SA license.</i></p> <div></div>
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1. INTRODUCTION

The rapid development of Artificial Intelligence (AI) has reshaped the global technology landscape, enabling organizations to enhance decision-making, improve efficiency, and drive innovation. One of the most significant trends in this field is the emergence of Artificial Intelligence-as-a-Service (AIaaS), which provides companies with access to AI tools and infrastructure through cloud-based platforms without requiring heavy upfront investments. AIaaS allows businesses to leverage advanced technologies such as machine learning, natural language processing, and predictive analytics while reducing costs related to

development, deployment, and maintenance. This model democratizes AI capabilities by making them accessible even to small and medium-sized enterprises (SMEs), offering scalability and flexibility to handle large volumes of data and perform real-time analysis, while simultaneously enabling faster and more precise decision-making processes [1],[2]. However, despite these advantages, AIaaS also brings challenges such as data privacy and security concerns, integration and customization costs, and ethical as well as compliance issues in the context of data-intensive systems [2]. In practice, companies increasingly use AIaaS for predictive analytics, natural language processing, fraud detection, and enhancing consumer

experiences through personalized services, reflecting its growing role in driving digital transformation across industries.

In Indonesia, the adoption of AI-as-a-Service (AIaaS) is gaining momentum as technology companies seek to remain competitive in an increasingly digital economy, supported by the country's rapidly growing digital ecosystem characterized by expanding internet penetration, a flourishing start-up sector, and a surge in cloud computing services. AIaaS is increasingly viewed as a strategic enabler that allows businesses to streamline operations, enhance customer experiences, and accelerate product innovation, while at the same time driving operational efficiency through automation and resource optimization [3], fostering innovation and personalized services via predictive analytics [4], and benefiting from a supportive ecosystem driven by Indonesia's large population and vibrant startup culture [5]. Despite these opportunities, several challenges must be addressed for effective AIaaS implementation, including significant concerns around data privacy that require strong regulatory frameworks [2], the complexity of integrating AI into existing systems that demands substantial technological infrastructure and investments [3], and persistent skill gaps that highlight the need for workforce development and training programs to support adoption at scale [4].

Existing research on AI adoption in Indonesia has largely focused on broad applications of AI across industries, yet few studies have examined the specific trends of AI-as-a-Service (AIaaS) implementation in technology companies, even though this is essential given its potential to democratize AI usage, particularly for small and medium-sized enterprises (SMEs) that may lack the resources to develop AI capabilities independently. AIaaS, by combining AI and cloud computing, offers scalable and accessible solutions without the need for complex on-premise infrastructure, enabling SMEs to enhance operational efficiency, decision-making, and competitiveness. The benefits of AIaaS implementation include accessibility and scalability that provide SMEs

with advanced AI tools at lower costs [6], improved operational efficiency through automation and data-driven decision-making [3], [7], and increased market competitiveness by enhancing customer experiences and opening access to new markets [8]. However, its adoption also faces barriers such as high initial integration and training costs [9], limited digital literacy and infrastructure [8], [9], and critical concerns over data privacy compliance due to the handling of sensitive business data [3].

This study aims to analyze the implementation trends of AIaaS in technology companies in Indonesia, focusing on adoption drivers, perceived benefits, and challenges, this research contributes empirical evidence on the role of AIaaS in supporting organizational performance. The results are expected to inform policymakers, practitioners, and researchers in developing strategies to accelerate AIaaS adoption while addressing its limitations.

2. LITERATURE REVIEW

2.1 *Artificial Intelligence-as-a-Service (AIaaS)*

AI-as-a-Service (AIaaS) is revolutionizing the way organizations, particularly small and medium-sized enterprises (SMEs), access and implement artificial intelligence technologies by leveraging cloud-based platforms that provide scalable and cost-effective solutions without requiring extensive infrastructure or specialized expertise. This democratization of AI enables SMEs to integrate advanced functionalities such as machine learning, natural language processing, and predictive analytics into their operations, thereby fostering innovation and enhancing competitiveness. In the Indonesian context, where cloud computing penetration is rapidly growing, AIaaS exemplifies how technology-based firms can accelerate digital adoption. Key benefits include improved accessibility as SMEs can adopt AI without costly on-premise solutions [6], the availability of pre-built

models and APIs from platforms such as AWS, Google Cloud, and Microsoft Azure that lower technical barriers, and economic as well as operational advantages such as reduced reliance on in-house expertise, increased productivity, scalability, flexibility, and real-time data-driven decision-making. However, challenges remain, including concerns about data privacy, potential biases in AI models, and integration costs, which must be carefully addressed to maximize the value of AIaaS adoption [2].

2.2 *Digital Transformation in Technology Companies*

Digital transformation in Indonesia's technology sector is strongly influenced by the adoption of AI-as-a-Service (AIaaS), which enhances business performance, processes, and customer value creation, supported by growing internet penetration, a vibrant start-up ecosystem, and government initiatives. AIaaS offers scalability and flexibility, enabling firms to leverage analytics, automate tasks, and deliver personalized services to remain competitive. Studies show that digital transformation improves organizational performance, with digital innovation strengthening this effect, while the adoption of AI, IoT, and cloud computing boosts efficiency, productivity, and competitiveness [10]. Integrating AI, data analytics, and IoT is key to optimizing operations and customer experience [11], while digital transformation in operations management supports better planning and responsiveness [10]. However, challenges such as cultural resistance, limited collaboration, and structural or budget constraints in the government sector highlight the need for tailored strategies to maximize its potential [12].

2.3 *Adoption Drivers of AIaaS*

The decision to adopt Artificial Intelligence as a Service (AIaaS) in technology companies, particularly in Indonesia, is shaped by multiple factors

within the Technology-Organization-Environment (TOE) framework, where technological aspects such as compatibility and relative advantage act as strong drivers of adoption [13], [14], while complexity is often perceived as a barrier that deters integration [13], [15]. Organizational readiness, encompassing resources, skills, and management support, plays a critical role in facilitating successful adoption, with leadership and strategic alignment proving essential [13], [14]. From the environmental perspective, competitive pressures and government regulations strongly encourage firms to adopt AIaaS to maintain market positioning and regulatory compliance, while partnerships with vendors provide expertise and support that ease the transition [13], [14]. Empirical studies highlight efficiency improvement, cost reduction, and competitive advantage as key motivators, and in Indonesia, AIaaS adoption is particularly linked to enhancing customer service, streamlining operations, and improving product development.

2.4 *Empirical Studies on AI and AIaaS Adoption*

Several international studies have examined AI and AIaaS adoption, showing that organizations benefit from improved decision-making and faster innovation but also face challenges of trust and transparency. Trust in AI systems is crucial, as concerns about accountability and fairness can hinder adoption, making Explainable AI (XAI) vital for building user confidence [16]. Strengthening trust requires transparent practices, stakeholder engagement, and accountability mechanisms. Digital readiness, perceived usefulness, and ease of use also influence AI acceptance [16], while organizational culture must evolve toward innovation, agility, and continuous learning for successful integration [17]. Resistance to change and ethical concerns need to be managed through strong leadership and

transparent communication [17]. Enhancing adoption further requires regulatory frameworks, education, and collaboration among industry, academia, and policymakers [16]. Despite these global insights, research on AIaaS in Indonesian technology companies remains limited, underscoring the need for empirical evidence on its trends, benefits, and challenges.

2.5 *Research Gap and Contribution*

Although existing literature highlights the transformative role of AI and cloud services, limited empirical research has specifically examined AIaaS implementation in Indonesia's technology sector, with most studies focusing on AI adoption in general terms or in developed economies. To address this gap, this study contributes by identifying the drivers and challenges of AIaaS adoption in Indonesian technology companies, providing quantitative evidence on its impact on organizational performance, and offering insights for policymakers and practitioners to develop effective strategies for AIaaS integration in emerging markets.

3. RESEARCH METHODS

3.1 *Research Design*

This study employs a quantitative research design to analyze the implementation trends of Artificial Intelligence-as-a-Service (AIaaS) in technology companies in Indonesia. A quantitative approach is appropriate because it allows the systematic collection and statistical analysis of numerical data to identify patterns, relationships, and significant factors influencing AIaaS adoption. The research specifically examines adoption drivers, perceived benefits, and challenges of AIaaS implementation, as well as its impact on organizational performance.

3.2 *Population and Sample*

The population of this study consists of employees and managers working in technology companies in

Indonesia who have knowledge or direct experience related to AIaaS implementation. From this population, a total of 125 respondents were selected using a purposive sampling technique, ensuring that participants had relevant exposure to AIaaS either in decision-making, technical implementation, or strategic adoption processes. This sample size is considered adequate for statistical analysis using SPSS, ensuring reliable results while maintaining practicality in data collection.

3.3 *Data Collection Method*

Primary data were collected through a structured questionnaire distributed both online and offline, consisting of closed-ended questions measured on a five-point Likert scale, where 1 represented "strongly disagree" and 5 represented "strongly agree." The items were designed to capture four main dimensions: adoption drivers such as efficiency improvement, cost reduction, and competitive advantage; perceived benefits including enhanced decision-making, operational effectiveness, and customer satisfaction; implementation challenges related to data security, integration complexity, and organizational readiness; and organizational performance measured through indicators of innovation, productivity, and competitiveness. To ensure clarity, reliability, and validity, the questionnaire was pre-tested with a small group of respondents before full distribution.

3.4 *Data Analysis Technique*

The collected data were processed and analyzed using SPSS version 25 through several stages of analysis, including descriptive statistics to summarize respondent demographics and provide an overview of AIaaS implementation trends; reliability and validity testing using Cronbach's alpha to assess internal consistency and item correlation analysis to ensure construct validity; correlation analysis to examine the relationships between adoption

drivers, perceived benefits, challenges, and organizational performance; and regression analysis to test the strength and significance of the influence of independent variables—adoption drivers, benefits, and challenges—on the dependent variable, organizational performance.

4. RESULTS AND DISCUSSION

4.1 Descriptive Findings

This study collected data from 125 respondents representing employees, managers, and executives of technology companies in Indonesia who have knowledge or involvement in the implementation of Artificial Intelligence-as-a-Service (AIaaS). The descriptive findings provide an overview of respondents' demographic profiles, covering gender, age, education, job position, and company size. Of the total respondents, 62.4% were male and 37.6% were female, indicating a slight male dominance in AIaaS-related initiatives. In terms of age, the majority (45.6%) were between 25–35 years, followed by 32.8% aged 36–45 years, and 21.6% above 45 years, reflecting that younger professionals are more actively engaged in technology-driven innovation. Educationally, most respondents held at least a bachelor's degree (68.0%), with 24.8% holding a master's degree and 7.2% a diploma or other professional qualifications, suggesting that highly educated individuals dominate AIaaS-related decision-making and operations. Job positions were distributed across IT specialists or technical staff (41.6%), middle or senior managers (36.0%), and executives (22.4%), showing balanced representation between implementers and decision-makers. Respondents also came from small (22.4%), medium

(37.6%), and large technology companies (40.0%), indicating that AIaaS adoption spans across firm sizes, with larger firms more likely to lead adoption initiatives.

Perceptions of AIaaS adoption were measured using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Results show that adoption drivers, such as efficiency improvement, cost reduction, and competitive advantage, received a mean score of 4.12, suggesting that AIaaS is widely perceived as a practical solution for digital transformation. Perceived benefits, including enhanced decision-making, customer engagement, and innovation, had a mean score of 4.08, reflecting strong recognition of AIaaS as a performance-enhancing tool. Implementation challenges, such as data security, integration complexity, and skill readiness, scored moderately at 3.45, indicating that while these issues exist, they are not viewed as insurmountable. Meanwhile, organizational performance, measured through innovation, productivity, and competitiveness, received a relatively high mean score of 4.15, confirming that AIaaS adoption contributes meaningfully to improving organizational outcomes.

4.2 Reliability and Validity Analysis

Before testing the hypotheses, the measurement instruments were evaluated for reliability and validity to ensure data quality and accuracy, with reliability assessed using Cronbach's Alpha and validity examined through Corrected Item-Total Correlation, both conducted using SPSS version 25. Following Hair et al. (2019), Cronbach's Alpha values above 0.70 indicate acceptable internal consistency reliability, and the results of this analysis are presented in Table 1.

Table 1. Reliability Analysis (Cronbach's Alpha)

Construct	Number of Items	Cronbach's Alpha	Reliability Status
Adoption Drivers	6	0.822	Reliable
Perceived Benefits	6	0.857	Reliable

Implementation Challenges	5	0.783	Reliable
Organizational Performance	6	0.836	Reliable

Source: Results processing data (2025)

The results of the reliability analysis presented in Table 1 confirm that all constructs used in this study meet the reliability requirements, with Cronbach's Alpha values ranging from 0.783 to 0.857. The construct of Adoption Drivers ($\alpha = 0.822$) demonstrates that the items measuring efficiency improvement, cost reduction, and competitive advantage are internally consistent, making them reliable indicators of the factors motivating AIaaS adoption. Perceived Benefits obtained the highest reliability score ($\alpha = 0.857$), reflecting that items related to decision-making, customer engagement, and innovation strongly align in measuring the benefits of AIaaS adoption. Meanwhile, Implementation Challenges recorded the lowest alpha value ($\alpha = 0.783$), but it still exceeds the minimum threshold of 0.70, indicating that items measuring data security, integration complexity, and skill readiness consistently represent barriers to adoption. Lastly, Organizational Performance ($\alpha = 0.836$) also shows high reliability, confirming that the items measuring innovation, productivity, and competitiveness are coherent and dependable.

Validity was assessed using Corrected Item-Total Correlation with a

minimum acceptable value of 0.30, and the results showed that all items across the four constructs had correlation values ranging from 0.42 to 0.71, confirming that each item is significantly correlated with its respective construct and therefore valid. Combined with the reliability analysis, these findings confirm that the research instrument is statistically sound and appropriate for further analysis, as all constructs demonstrate strong internal consistency and all items serve as valid indicators of their respective variables. Thus, the dataset can be considered both reliable and valid for conducting correlation and regression analyses in the subsequent sections.

4.3 Correlation Analysis

To examine the relationships among the main constructs—Adoption Drivers, Perceived Benefits, Implementation Challenges, and Organizational Performance—a Pearson Product-Moment Correlation analysis was conducted using SPSS version 25. Correlation values (r) range from -1.0 to $+1.0$, where positive values indicate a direct relationship and negative values indicate an inverse relationship. A correlation is considered strong when $r > 0.50$, moderate when r is between 0.30 – 0.49 , and weak when $r < 0.30$.

Table 2. Pearson Correlation Matrix

Variables	1. Adoption Drivers	2. Perceived Benefits	3. Implementation Challenges	4. Organizational Performance
1. Adoption Drivers	1.000	0.642**	-0.298*	0.589**
2. Perceived Benefits	0.642**	1.000	-0.312*	0.711**
3. Implementation Challenges	-0.298*	-0.312*	1.000	-0.354*
4. Organizational Performance	0.589**	0.711**	-0.354*	1.000

Source: Results processing data (2025)

The correlation analysis results show significant relationships among the key constructs, with varying strengths and directions. Adoption Drivers and Perceived Benefits exhibit a strong positive correlation ($r = 0.642$, $p < 0.01$), indicating that stronger motivations such as efficiency and cost savings are associated with higher perceived benefits from AIaaS. Similarly, Adoption Drivers and Organizational Performance also demonstrate a strong positive relationship ($r = 0.589$, $p < 0.01$), suggesting that firms driven to adopt AIaaS tend to achieve better performance outcomes. The strongest positive correlation is found between Perceived Benefits and Organizational Performance ($r = 0.711$, $p < 0.01$), highlighting that benefits like improved decision-making and customer satisfaction play a critical role in enhancing organizational results. Conversely, Implementation Challenges show a significant negative relationship with Organizational Performance ($r = -0.354$, $p < 0.05$), meaning that barriers such as data security, integration complexity, and skill gaps reduce the effectiveness of AIaaS adoption.

Challenges also display moderate negative correlations with both Adoption Drivers ($r = -0.298$, $p < 0.05$) and Perceived Benefits ($r = -0.312$, $p < 0.05$), suggesting that organizations facing greater obstacles are less able to realize the potential drivers and benefits of AIaaS adoption.

4.4 Regression Analysis and Hypotheses Testing

To further test the proposed hypotheses, a multiple linear regression analysis was conducted with Organizational Performance as the dependent variable and Adoption Drivers, Perceived Benefits, and Implementation Challenges as the independent variables, using SPSS version 25. The results show that the model achieved an R value of 0.749, with $R^2 = 0.561$ and Adjusted $R^2 = 0.548$, indicating that the three independent variables collectively explain 56.1% of the variance in Organizational Performance, thus demonstrating that Adoption Drivers, Perceived Benefits, and Implementation Challenges play a substantial role in shaping organizational outcomes related to AIaaS adoption.

Table 3. ANOVA (Model Significance)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	18.742	3	6.247	32.71	0.000
Residual	14.679	121	0.121		
Total	33.421	124			

Source: Results processing data (2025)

The ANOVA results presented in Table 3 confirm the overall significance of the regression model used in this study. The regression sum of squares (18.742) compared to the residual sum of squares (14.679) indicates that a substantial portion of the variance in organizational performance is explained by the independent variables—Adoption Drivers, Perceived Benefits, and Implementation Challenges. The F-statistic value of 32.71, with a significance level of 0.000 ($p < 0.001$), demonstrates

that the model is highly significant and not due to random chance. This finding suggests that the independent variables, when considered together, have a statistically meaningful influence on organizational performance in the context of AIaaS adoption. In other words, the model provides strong evidence that the drivers, benefits, and challenges of AIaaS adoption collectively contribute to explaining variations in organizational outcomes, thereby validating the relevance of the proposed

framework for understanding AIaaS implementation in Indonesian technology companies.

Table 4. Regression Coefficients

Independent Variable	Unstandardized B	Std. Error	Standardized Beta (β)	t-value	Sig. (p)	Hypothesis Result
Constant	0.812	0.231	–	3.513	0.001	–
Adoption Drivers	0.286	0.084	0.291	3.415	0.001	Supported (H1)
Perceived Benefits	0.423	0.080	0.452	5.278	0.000	Supported (H2)
Implementation Challenges	–0.205	0.076	–0.218	–2.682	0.008	Supported (H3)

Source: Results processing data (2025)

The regression coefficients presented in Table 4 provide detailed insights into the influence of each independent variable on organizational performance in the context of AIaaS adoption. The constant value of 0.812 ($p = 0.001$) indicates the baseline level of organizational performance when the independent variables are held constant. Adoption Drivers show a positive and significant effect with an unstandardized coefficient (B) of 0.286, standardized beta (β) of 0.291, t-value of 3.415, and $p = 0.001$, supporting H1 and confirming that stronger drivers such as efficiency, cost reduction, and competitive advantage significantly enhance organizational outcomes. Perceived Benefits exhibit the strongest positive influence with $B = 0.423$, $\beta = 0.452$, t-value = 5.278, and $p = 0.000$, supporting H2 and highlighting that benefits like improved decision-making, innovation, and customer engagement play a crucial role in driving performance improvements. Conversely, Implementation Challenges demonstrate a negative and significant effect with $B = -0.205$, $\beta = -0.218$, t-value = –2.682, and $p = 0.008$, supporting H3 and indicating that higher challenges, such as data security, integration complexity, and skill gaps, reduce the effectiveness of AIaaS adoption in enhancing organizational performance. Overall, these results validate all three hypotheses and suggest that while

adoption drivers and perceived benefits positively contribute to organizational outcomes, implementation challenges remain a critical barrier that can diminish the overall impact of AIaaS.

4.5 Discussion

The results of this study provide important insights into the implementation trends of Artificial Intelligence-as-a-Service (AIaaS) among technology companies in Indonesia. The findings confirm that adoption drivers and perceived benefits significantly enhance organizational performance, while implementation challenges act as inhibitors. These results highlight both the opportunities and constraints that technology firms face in leveraging AIaaS for digital transformation.

First, the positive influence of adoption drivers on organizational performance aligns with previous studies emphasizing efficiency improvement, cost reduction, and competitive advantage as key motivators for AI adoption, showing that Indonesian technology companies increasingly recognize AIaaS as a strategic pathway to innovation without heavy infrastructure investments. This finding is consistent with the Technology-Organization-Environment (TOE) framework, where technological advantages such as compatibility and relative advantage facilitate integration with existing systems and provide clear

benefits over older technologies [13], [14]. Cost-effectiveness also plays a critical role, as AI adoption reduces operational expenses and enhances efficiency [14]. From an organizational perspective, readiness and management support are crucial to ensure adequate infrastructure, leadership, and resources for adoption [13], while effective innovation management strengthens competitive advantage by aligning AI initiatives with strategic planning [18]. Externally, government support and competitive pressure create a favorable environment for technological advancement [13], [14], and partnerships with vendors provide access to cutting-edge AI solutions and expertise that further drive successful implementation [13].

Second, perceived benefits were found to have the strongest positive impact on organizational performance, supporting prior findings that AIaaS enhances decision-making and accelerates product innovation. In the Indonesian context, the high mean scores for perceived benefits reflect that technology companies gain tangible value from AIaaS in terms of operational effectiveness, customer engagement, and innovation, thereby justifying investments and encouraging adoption across firms of different sizes, including start-ups and SMEs. In terms of operational effectiveness, AI improves efficiency by automating repetitive tasks, optimizing resource utilization, and reducing operating costs (Contreras & Guerrero, 2024; [19], while also transforming traditional business models in Indonesia to achieve higher productivity [20]. For customer engagement, AI-driven personalization strengthens customer satisfaction and loyalty [19], with evidence from Indonesian marketing practices showing significant effects on customer interactions, supported by a robust R^2 value of 0.783 [21]. Moreover, AI fosters continuous innovation and better

decision-making through advanced data analytics (Contreras & Guerrero, 2024; [19], with Indonesian firms particularly leveraging AI to shift business paradigms and strengthen strategic decisions [20].

Third, the negative relationship between implementation challenges and organizational performance reflects persistent barriers to successful AIaaS integration, with respondents highlighting data security concerns, integration complexity with legacy systems, and limited human resource capabilities as major issues. This finding is consistent with research emphasizing the inadequacy of current regulatory frameworks, where the PDP Law, although providing a foundation for personal data protection, faces enforcement challenges due to recurring data breaches [22] and does not fully address AI-related risks such as rapid data processing and potential misuse, thereby necessitating further reforms [23]. AI's capacity to handle large-scale data raises privacy risks, underscoring the need for specialized oversight agencies [23], while low user awareness of privacy policies complicates efforts to balance personalization and data protection in AI applications [24]. Scholars argue that reliance on external AIaaS platforms intensifies concerns over privacy and compliance, especially in Indonesia, where data localization and cybersecurity regulations are still evolving [25], [26]. Without robust governance, transparency, and digital skill development, these challenges may slow AIaaS adoption, making organizational readiness and regulatory adaptation critical to mitigating risks and ensuring sustainable performance outcomes.

These results highlight a dual perspective: while AIaaS adoption offers significant opportunities for performance enhancement, unresolved challenges can erode its effectiveness. For practitioners, this suggests that firms

must balance enthusiasm for adoption with investments in risk management, workforce training, and system integration capabilities. For policymakers, the findings suggest the need to strengthen digital infrastructure, establish clear regulatory guidelines on data usage, and support capacity-building initiatives to ensure that technology companies can fully capitalize on AIaaS.

In broader theoretical terms, this study contributes to the literature by empirically validating the role of AIaaS adoption in shaping organizational performance within a developing country context. Unlike studies in developed economies where infrastructure and digital readiness are more advanced, the Indonesian context highlights the critical role of overcoming organizational and environmental barriers. The evidence suggests that successful AIaaS adoption depends not only on technological benefits but also on the ability of organizations to navigate challenges effectively.

5. CONCLUSION

The findings of this study underscore the transformative role of AIaaS in enhancing organizational performance among technology companies in Indonesia. Adoption drivers such as efficiency, innovation, and competitive advantage significantly

encourage firms to integrate AIaaS into their operations, while perceived benefits emerged as the strongest determinant, confirming that tangible improvements in decision-making, customer engagement, and operational efficiency are central to successful adoption. Nevertheless, implementation challenges remain a critical barrier, with data security concerns, integration with legacy systems, and limited expertise negatively influencing performance outcomes.

These insights carry both theoretical and practical implications. From a theoretical standpoint, the study validates the relevance of the TOE framework in explaining AIaaS adoption within a developing country context, where infrastructure readiness and regulatory support are crucial. Practically, organizations are encouraged to complement adoption enthusiasm with investments in workforce training, robust integration strategies, and risk mitigation. At the same time, policymakers must strengthen data governance frameworks, expand digital infrastructure, and initiate capacity-building programs to ensure that firms can fully leverage AIaaS. In conclusion, AIaaS provides a powerful pathway for Indonesian technology companies to achieve digital transformation and long-term competitiveness, but its success will depend on collaborative efforts among firms, regulators, and stakeholders to address challenges and maximize its organizational and economic value.

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