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How Government and Digital Innovation Enhance MSMEs' Income A Study of Kolaka Regency

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Article Info	ABSTRACT
Keywords: Government initiatives, Digital Innovation, MSME, UMKM.	This study investigates the influence of government support and digital innovation on the income of micro, small, and medium enterprises (MSMEs) in Kolaka Regency, Indonesia. Amidst the rapid evolution of the digital economy, MSMEs face both opportunities and challenges in adopting technology to enhance competitiveness and market access. Utilizing a quantitative research approach, data were collected through questionnaires distributed to 65 MSME actors selected via the Slovin formula. The research employed Structural Equation Modeling (SEM) using the Partial Least Squares (PLS) method for data analysis. The results indicate that both government roles—encompassing facilitation, mobilization, and regulation—and digital innovation—through design changes, technical innovation, and product development—positively and significantly affect MSME income levels. The study highlights that technological adoption improves business efficiency, market outreach, and revenue performance. However, constraints such as limited digital literacy and inadequate infrastructure remain. The findings emphasize the importance of collaborative efforts among governments, private sectors, and educational institutions to provide training, technology access, and policy support. This integrated approach is essential to accelerating digital transformation and fostering sustainable economic growth through empowered MSMEs.
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INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) constitute a significant pillar of Indonesia's economy, accounting for more than 60% of national GDP and absorbing the majority of the labor force (Tambunan, 2019). In the aftermath of the COVID-19 pandemic, a noticeable shift has occurred in consumer behavior, particularly with the migration of purchasing activities from offline to online platforms (Huwaina & Fakhrurozi, 2023). This transformation has created new challenges and opportunities for MSMEs, especially in rural and developing regions like Kolaka Regency, Southeast Sulawesi. While digital platforms offer immense potential for market access and revenue expansion, many MSMEs remain constrained by limited digital literacy and a lack of infrastructure and support (Warsiyah & Ahmad, 2023).

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The increasing need for digital transformation in business has underscored the importance of government intervention. Local governments are mandated by Indonesia's Law No. 23 of 2014 on Regional Government to facilitate economic development through empowerment and support of MSMEs (Monica & Prathama, 2022). In regions like Kolaka, the role of local government becomes pivotal, not only in offering attention but also in providing tangible support through training, infrastructure development, and access to digital tools that promote innovation. Such support is crucial to enable MSMEs to leverage digital platforms effectively for marketing and sales activities (Budiyanto & Effendy, 2020).

Technological advancement, especially in the realm of digital marketing, has emerged as a key enabler for MSME sustainability and competitiveness. Digital tools can enhance product visibility, streamline customer engagement, and reduce operational costs (Sufian, 2020). The adoption of digital marketing strategies, such as e-commerce platforms, social media marketing, and digital payment systems, offers MSMEs the ability to connect with broader consumer bases while maintaining cost efficiency (Satyo & Andriyansah, 2019). The increasing prevalence of online marketplaces also signifies a paradigm shift in consumer interaction with products and services, providing MSMEs with a unique opportunity to innovate and scale (Devid, 2024).

Despite these advantages, empirical data from Kolaka Regency shows a concerning trend. As depicted in Table 1, the proportion of MSMEs utilizing digital innovation tools has not only remained relatively low but has also shown a downward trend in recent years, raising concerns about stagnation in digital integration.

Table 1. Digital Innovation Adoption among MSMEs in Kolaka Regency

Year	Total MSMEs	MSMEs Using Digital Innovation
2020	4,386	236
2021	4,648	349
2022	5,273	294
2023	5,769	276

The decreasing trend in digital adoption suggests that many MSMEs in Kolaka are still grappling with the integration of technology into their business models. This is particularly disconcerting considering the steady increase in the number of MSMEs. Such a gap indicates an urgent need for targeted interventions, particularly from the local government, to boost digital competence among entrepreneurs. The government's role must extend beyond regulatory support to active facilitation through capacity building, infrastructure provision, and continuous digital mentoring (Solehah, 2020).

Research has consistently demonstrated that both government support and digital innovation are instrumental in improving MSME performance. Prior studies affirm the significant positive influence of government involvement on MSME income and sustainability (Habsari & Kholifah, 2023). Additionally, empirical findings have established a strong correlation between the use of digital tools and revenue growth in small business contexts (Nugroho, 2024). These findings highlight the synergistic impact of strategic governance and technological adoption in empowering local enterprises.

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In the context of Kolaka, the low uptake of digital technologies among MSMEs is symptomatic of systemic gaps in knowledge dissemination, digital infrastructure, and public-private collaboration. The disproportionately low number of MSMEs embracing digital marketing tools, despite their availability and proven effectiveness, suggests that structural and institutional barriers remain unaddressed. This study, therefore, seeks to explore the dual impact of government support and digital innovation on the income levels of MSMEs in Kolaka Regency. By assessing these two interrelated variables, the research aims to contribute to the growing literature on MSME development strategies in emerging economies, particularly in the digital age.

METHODS

This study employed a quantitative research approach based on a positivist paradigm, which posits that social and physical realities are objective and can be observed or measured independently from the researcher (Wonua, 2021). The research was conducted in Kolaka Regency and involved micro, small, and medium enterprises (MSMEs) as the unit of analysis. The study sought to examine the influence of digital innovation and government involvement on the income of MSME actors. The sampling technique applied was a census method, deemed appropriate when the research aims to analyze all elements of a small population (Indriantoro & Supomo, 2020). The final sample size was calculated using Slovin's formula, resulting in 65 respondents from a population of 72. The data collected were quantitative in nature and derived from both primary and secondary sources. Primary data were obtained through structured questionnaires using a five-point Likert scale, complemented by observations and document analysis to strengthen the context. The measurement instruments were tested for validity and reliability using the Pearson product-moment correlation and Cronbach's Alpha coefficient, respectively, with all analyses performed using SPSS version 25 (Abdillah & Hartono, 2021).

To analyze the structural relationship between latent variables, the study utilized the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique, which is particularly suitable for predictive modeling and small sample sizes (Ghozali & Latan, 2022). The PLS-SEM method integrates the measurement model (outer model) and the structural model (inner model) in a single estimation process, enabling simultaneous testing of reliability, convergent validity, and discriminant validity (Abdillah & Hartono, 2021). Outer model analysis assessed indicator loadings and average variance extracted (AVE) to confirm construct validity, while composite reliability and Cronbach's Alpha values ensured internal consistency. Inner model analysis evaluated the coefficient of determination (R^2) and estimated path coefficients to test hypotheses regarding the effects of digital innovation and government roles on MSME income. Significance was determined through bootstrapping techniques, with hypotheses supported if the path coefficient was aligned with theoretical expectations and the t-statistic exceeded 1.96 at a 5% significance level (Abdillah & Hartono, 2021).

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RESULTS AND DISCUSSION

Characteristics of Sample

The sample in this study provides a representative snapshot of MSME actors in Kolaka Regency, offering valuable insights into their demographic and professional characteristics.

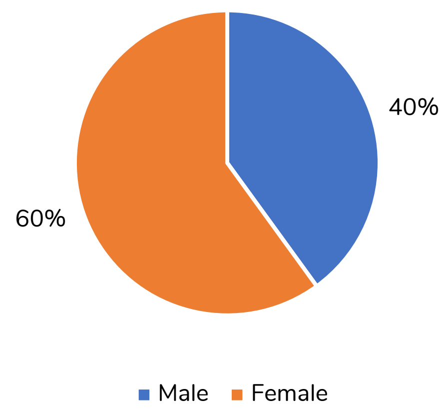

Figure 1. Distribution of Respondents by Gender

Out of the 65 respondents surveyed, a majority of 60% are women, while men make up the remaining 40%. This demonstrates the significant role women play in the entrepreneurial landscape of the region, highlighting their active participation in MSME development.

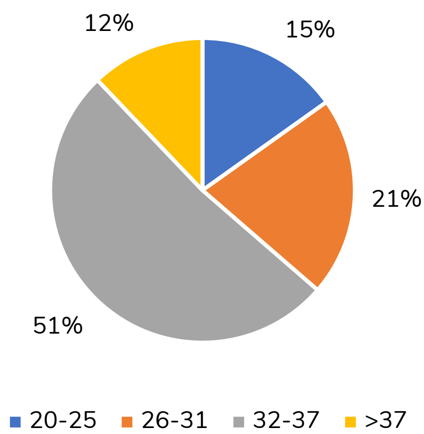

Figure 2. Distribution of Respondents by Age

In terms of age, most respondents fall within the 32–37 age bracket, accounting for 51% of the total sample. This indicates that the majority of MSME actors are in their prime working age, which may contribute to their business's growth and stability. Additionally, respondents aged 26–31 constitute 21%, followed by those aged 20–25 at 15%, and a smaller proportion of respondents over the age of 37, at 12%.

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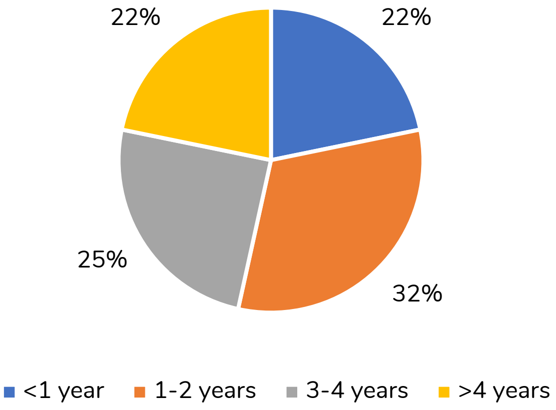

Figure 3. Work Tenure of Respondents

Regarding work experience, the respondents display a range of tenures. Approximately 32% have been engaged in their businesses for one to two years, showcasing a dynamic group of relatively new entrepreneurs. Another 25% have been active for three to four years, while 22% each are split between those working for less than one year and those with more than four years of experience. This spread indicates a mix of seasoned and newer business owners contributing to Kolaka's MSME ecosystem.

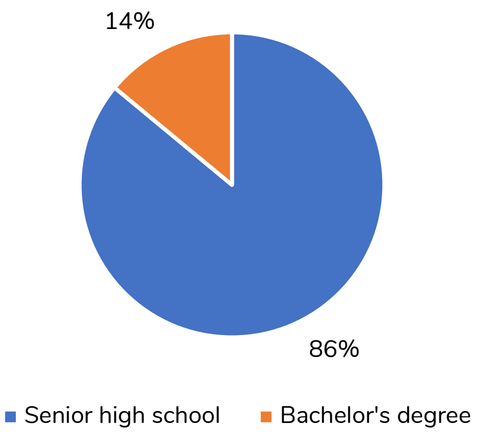

Figure 4. Educational Background of Respondents

Educationally, the sample is predominantly composed of respondents with a senior high school education, representing 86% of the total. The remaining 14% have attained a bachelor's degree (S1), while no respondents reported having completed a master's degree (S2). This suggests that the majority of the MSME actors have foundational educational qualifications but might benefit from additional training or higher education to enhance their business acumen.

Together, these characteristics provide a comprehensive understanding of the MSME actors in Kolaka Regency, reflecting their diversity in gender, age, experience, and education.

Such information is instrumental in shaping targeted policies and programs to support their growth and address specific challenges.

Findings

The findings of this study reveal the impact of government roles and digital innovation on the income of MSME actors in Kolaka Regency. Data analysis was performed using Structural Equation Modeling (SEM) through Smart PLS 3.0. Key results are summarized below.

Table 2. Summary of Path Coefficient Results

Path	Path Coefficient	P-Value	Significance
Government Role → UMKM Income	0.137	0.005	Significant
Digital Innovation → UMKM Income	0.859	0.000	Highly Significant

The study provides compelling evidence on how the role of government and digital innovation collectively influence the income levels of MSME actors in Kolaka Regency. Employing Structural Equation Modeling (SEM) through Smart PLS 3.0, the analysis revealed that both variables had a statistically significant impact, with digital innovation exerting a more pronounced effect. Specifically, the path coefficient for government involvement was recorded at 0.137 ($p = 0.005$), while digital innovation achieved a coefficient of 0.859 ($p = 0.000$), signifying a robust causal relationship. This implies that while institutional support plays a meaningful role, technological adaptability is a primary determinant in enhancing MSME financial outcomes. The explanatory power of the model is substantial, with an R^2 value of 0.793, suggesting that nearly 80% of the variance in MSME income is attributable to these two predictors.

The contribution of government agencies, particularly in their function as facilitators, regulators, and mobilizers, aligns closely with prior findings in the field. Research by (Habsari and Kholifah 2018) and (Budiyanto and Effendy 2020) affirms that structured governmental support, encompassing training programs, funding channels, and technical assistance, is pivotal in strengthening MSME capacity. In Kolaka Regency, the Department of Cooperatives and MSMEs exemplifies such engagement by offering access to capacity-building and promotional activities. These initiatives resonate with the argument presented by (Salam and Prathama 2022), who note that local governance plays a critical role in fostering economic resilience through MSME empowerment in digitally transforming environments.

The policy and regulatory dimensions further reinforce this dynamic. Effective government policies reduce bureaucratic burdens, streamline operational procedures, and improve access to essential resources, as evidenced by (Giri et al. 2024). In Kolaka's context, such regulations target the enhancement of digital literacy and address infrastructural limitations that hinder MSME productivity. Consistent with the findings of (Warsiyah et al. 2023), the government's ability to design and implement innovation-driven policies

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significantly contributes to the acceleration of digital engagement within MSMEs, thus improving their income-generating potential.

In addition to regulation and facilitation, the government's role in mobilizing key stakeholders also proves vital. According to (Habsari and Kholifah 2018), partnerships between public and private sectors offer synergistic benefits that can drive MSME development. In Kolaka, initiatives that encourage digital adoption and technological integration among MSMEs mirror the findings of (Nugroho and Firmanto 2024), who emphasize the strategic value of collaborative resource mobilization. Such efforts include promoting participation in digital marketplaces and enhancing digital competencies, which are instrumental in sustaining MSME competitiveness in evolving markets.

Global perspectives further contextualize the relevance of these findings. Studies such as (Telukdarie et al. 2022) and (Estiri et al. 2022) highlight that governmental support, particularly in enabling digital transformation, is a universal driver of MSME growth. The Kolaka experience, therefore, serves as a microcosm of broader international trends, wherein state-led interventions and infrastructural support mechanisms facilitate inclusive economic development. However, the study acknowledges persistent structural challenges such as financial constraints, low digital literacy, and infrastructure disparity, all of which mirror global concerns identified by (Ghobakhloo et al. 2022). Addressing these systemic limitations requires a multi-pronged policy response that includes fiscal incentives, targeted education programs, and equitable infrastructure expansion.

The study also underlines the transformative role of digital innovation in redefining MSME operations and outreach. The utilization of digital platforms such as social media and e-commerce channels has allowed MSMEs in Kolaka to transcend traditional market limitations, thereby enhancing visibility and consumer interaction. These findings are supported by (Sampurnaningsih et al. 2022), who document a direct relationship between digital platform engagement and revenue growth. Furthermore, the integration of technological tools such as online payment systems and inventory software has enabled efficiency gains, reflecting observations by (Ghobakhloo et al. 2022) that link automation with strategic business scaling.

Nonetheless, the diffusion of digital tools among MSMEs in Kolaka remains limited. Data from the Department of Cooperatives and MSMEs in 2024 indicate that only a small fraction of enterprises—276 out of 5,769—actively engaged in digital technology adoption. Financial limitations are a critical barrier, as underscored by (Hendrawan et al. 2024), who note that MSMEs in rural areas often lack access to credit facilities necessary for investing in digital infrastructure. This constraint is exacerbated by a general lack of technical expertise among MSME actors, especially those with limited formal education or those from older age groups, as described by (Warsiyah et al. 2023).

Moreover, the cultural resistance to adopting technology and skepticism about its return on investment contribute to the sluggish pace of innovation. As reported by (Ghobakhloo et al. 2022), such resistance is rooted in a lack of trust and perceived complexity of digital tools, often deterring MSMEs from embracing transformative practices. Furthermore, the unequal distribution of infrastructure across Kolaka's rural regions limits digital accessibility, thereby exacerbating disparities and impeding inclusive growth.

These challenges are further compounded by the absence of systemic support structures, including mentoring networks, long-term technical assistance, and tailored innovation ecosystems. Although local government bodies actively advocate for digitalization, their efforts are yet to be institutionalized into comprehensive programs that facilitate sustained digital transformation among MSMEs. Without such systemic interventions, the impact of digital innovation will remain fragmented and concentrated in more developed or accessible regions.

The study also integrates respondent demographics to provide nuanced insight into how socio-economic characteristics affect the adoption of digital innovation and the utilization of government support. The predominance of female respondents (60%) reflects the increasing participation of women in entrepreneurial activities in Kolaka, reinforcing findings by (Salam and Prathama 2022) and (Habsari and Kholifah 2018), who advocate for gender-sensitive policies in MSME development. Tailored interventions such as digital training for women could therefore amplify the inclusive potential of digital transformation.

Age distribution and work tenure further influence digital adaptability. Respondents aged 32–37, who dominate the sample, are generally more receptive to innovation, consistent with (Ghobakhloo et al. 2022). Meanwhile, the presence of younger and less experienced entrepreneurs signals a need for foundational training in digital competencies. Similarly, MSMEs with longer work tenure may benefit from more advanced technological strategies aimed at business scaling, aligning with recommendations from (Nugroho and Firmanto 2024).

The educational background of the respondents, with the majority holding a high school degree, suggests a potential gap in digital literacy that must be addressed through practical, skills-based programs. (Warsiyah et al. 2023) highlight that limited education often translates into lower capacity for technological adoption, particularly in rural areas. By aligning educational interventions with MSME needs, it is possible to strengthen their capacity to benefit from digital and governmental support mechanisms.

CONCLUSION

This study concludes that both government involvement and digital innovation significantly influence the income growth of micro, small, and medium enterprises (MSMEs) in Kolaka Regency. The empirical findings demonstrate that the integration of digital technologies—such as e-commerce platforms, big data analytics, and Internet of Things (IoT)—has enhanced operational efficiency, expanded market reach, and increased competitiveness among MSMEs. However, barriers such as limited digital literacy, inadequate infrastructure, and human capital constraints persist. Government support, through policy facilitation, training programs, and access to financing, along with collaboration from the private sector and educational institutions, is crucial in overcoming these challenges. The positive and significant relationship identified between digital innovation, governmental roles, and MSME income underlines the necessity of a coordinated and inclusive approach to accelerate digital transformation. As such, fostering a robust digital ecosystem can position MSMEs as key drivers of sustainable economic development in emerging regions.

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