

The Contribution of Digital Transformation, Innovation, and Technology Adoption To Business Opportunities For Msmes in Serang City

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Abstract.

This study aims to analyze the contribution of digital transformation, innovation, and technology adoption to business opportunities for MSMEs in Serang City. The development of the digital economy requires MSMEs to be able to adapt through the use of technology, increase business creativity, and continuous innovation in order to be able to compete and grow. The research method used is a quantitative approach with a questionnaire technique for data collection to 120 MSMEs in Serang City selected using purposive sampling. Data were analyzed using multiple linear regression with the help of SPSS version 26. The results show that digital transformation partially has a positive and significant effect on business opportunities, innovation has a positive and significant effect on business opportunities. Simultaneously, digital transformation, innovation, and technology adoption have a significant effect on MSME business opportunities in Serang City with a coefficient of determination of 61.2%. This indicates that MSME business opportunities are strongly influenced by the ability to utilize digital technology, create innovation, and adopt new technologies in business operations. This study implies that increasing digital literacy, strengthening innovation, and technological support need to be continuously developed to encourage the competitiveness and sustainability of MSMEs in the digital economy era.

Keywords: Digital Transformation; Innovation; Technology Adoption; Business Opportunities and MSMEs in Serang City.

I. INTRODUCTION

Management is the process of planning, organizing, directing, and controlling organizational resources to achieve goals effectively and efficiently. In the development of the modern business world, management not only focuses on managing internal resources, but also must be able to adapt to changes in the external environment, including technological developments, changes in consumer behavior, and market competition. According to Creswell and Creswell (2023), organizations that are able to adapt to environmental changes will have a better competitive advantage than organizations that are slow to respond to change. Therefore, the implementation of appropriate management is essential, especially in the Micro, Small, and Medium Enterprises (MSMEs) sector. One of the primary goals of business management is to create business opportunities. Business opportunities are opportunities that entrepreneurs can exploit to generate profits by meeting market needs, developing new products, expanding markets, and innovating services. According to Pratama and Munawaroh (2025), the development of the digital economy has opened up new business opportunities for MSMEs through broader market access, transaction efficiency, and ease of online promotion. This demonstrates that business opportunities are a crucial aspect of business sustainability, particularly for MSMEs. MSMEs in Serang City play a strategic role in driving regional economic growth. As the capital of Banten Province, Serang City boasts thriving economic activity in the trade, culinary, service, and creative industries sectors. The presence of MSMEs in this region supports the local economy and provides employment.

However, some MSMEs still face various obstacles, such as limited marketing, limited access to technology, weak product innovation, and increasingly fierce business competition. According to Aulia et al. (2024), the development of the digital economy in Serang City has not been optimally utilized by all MSMEs, thus leaving ample opportunities for increasing revenue. A factor influencing business opportunities is digital transformation. Digital transformation is a change in business models through the use of digital technology in operational processes, marketing, and customer service. According to Sijabat and Ikhsan (2024), the application of information technology in MSMEs in Serang City can increase business effectiveness, expand marketing networks, and accelerate transaction processes. Thus, digital transformation can be a key driver in creating new business opportunities for MSMEs. Innovation is also a crucial factor in increasing business opportunities. Innovation includes product development, packaging updates, creative

promotional strategies, and improving service quality. According to Octaviani et al. (2025), packaging innovation and business digitalization can increase the competitiveness of MSMEs in Serang, Banten. This indicates that innovative MSMEs tend to be more able to attract consumers and open new markets than stagnant businesses. Another factor is technology adoption, which is the level of acceptance and use of new technologies in business activities. Technology adoption can include the use of marketplaces, digital payments, financial recording applications, social media, and customer management systems. According to Dewi and Arifin (2024), the use of financial technology and digital literacy have a positive influence on strengthening MSME businesses in Serang City.

This means that the higher the technology adoption, the greater the opportunity for business growth. Based on the survey A survey conducted on several MSMEs in Serang City found that some businesses have used WhatsApp Business, Instagram, and marketplaces as marketing tools. However, some businesses remain inconsistent in utilizing digital media, lack product innovation, and have yet to utilize technology for financial recording or market analysis. This situation indicates a gap between the potential for digitalization and its implementation on the ground. Current research shows that the development of digitalization has significantly changed the business patterns of MSMEs in Serang City. Many MSMEs have begun utilizing social media, marketplaces, and digital payment services to reach a wider consumer base. Changes in consumer behavior, which tend to favor fast, practical, and online-based transactions, present a significant opportunity for MSMEs to increase sales. However, the success rate of each business varies depending on the entrepreneur's ability to carry out digital transformation, create innovation, and adopt technology appropriately. According to Pratama and Munawaroh (2025), MSMEs that are responsive to technological developments tend to be more competitive than those that still use conventional business models. This phenomenon demonstrates that digitalization is no longer an option but a strategic necessity for business sustainability in the modern era. Despite this, MSMEs in Serang City face various challenges. Some business owners still have limited digital knowledge, low product innovation capabilities, limited capital for technology investment, and a lack of business mentoring from relevant parties.

Furthermore, some MSMEs are unable to optimally utilize consumer data, digital marketing strategies, or app-based financial systems. According to Dewi and Arifin (2024), low digital literacy is a major obstacle to MSME business development. This condition results in business opportunities that should be achieved being underutilized. Therefore, further research is needed to identify the contribution of digital transformation, innovation, and technology adoption in addressing these challenges so that MSMEs in Serang City can grow more competitively and sustainably. Studies show that digital transformation, innovation, and technology adoption are closely linked to increased business opportunities for MSMEs. Research by Hidayat and Nugroho (2023) explains that business digitalization through e-commerce and social media can significantly expand market reach and increase MSME sales volume. Furthermore, research by Rahmawati and Sari (2024) found that product innovation and marketing creativity positively influence the competitiveness of small businesses in urban areas. Meanwhile, Putra et al. (2024) stated that the adoption of digital payment technology and modern financial recording systems can improve MSME operational efficiency. Research by Lestari and Kurniawan (2025) also confirms that digital transformation contributes to the creation of new business opportunities through cross-regional consumer access. Furthermore, a study by Firmansyah et al. (2025) shows that the combination of continuous innovation and the use of information technology can increase MSME business resilience amidst dynamic market competition. Based on these research results, it is understandable that digital transformation, innovation, and technology adoption are strategic factors worthy of further examination in the context of MSMEs in Serang City. Based on various studies, there is a research gap that requires further study.

Most previous studies have focused on the partial impact of digital transformation, innovation, or technology adoption on business performance, competitiveness, and increased sales of MSMEs. Hidayat and Nugroho's (2023) research focused on digitalization and market expansion, while Rahmawati and Sari's (2024) focused on product innovation and business competitiveness. Putra et al. (2024) examined the adoption of financial technology on operational efficiency, while Lestari and Kurniawan (2025) discussed business opportunities from digital transformation in general. However, there is limited research examining

the simultaneous contribution of digital transformation, innovation, and technology adoption to business opportunities, particularly in the context of MSMEs in Serang City. Furthermore, most studies were conducted on a large scale or at a national scale, so the local characteristics of Serang City, with its diverse MSME structure, have not been empirically revealed. The novelty of this research lies in the development of an empirical model that integrates three strategic variables: digital transformation, innovation, and technology adoption, as the primary determinants of MSME business opportunities in Serang City. This research not only examines the influence of each variable individually but also assesses their collective contribution to creating new business opportunities, expanding markets, and improving business sustainability. Furthermore, this research focuses locally on MSMEs in Serang City, which have the potential for economic growth but face challenges in digital adaptation. Therefore, the research findings are expected to provide theoretical contributions to the development of MSME management science and practical recommendations for local governments, business actors, and stakeholders in designing strategies for strengthening the digital-based economy.

II. LITERATURE REVIEW

Digital Transformation

Digital transformation is the process of organizational change through the integration of digital technology into operational, marketing, and service activities to increase business value. In MSMEs, digital transformation drives work process efficiency, broader market access, and improved customer interaction. According to Verhoef et al. (2023), digital transformation is a crucial strategy for building competitive advantage for modern businesses. Meanwhile, Susanti and Ramadhan (2024) state that MSME digitalization can increase business flexibility in facing market changes.

Innovation

Innovation is the ability to create innovations in products, processes, services, and business strategies to generate added value. In the context of MSMEs, innovation is crucial for maintaining competitiveness and meeting changing consumer needs. According to Schumpeter (2023), innovation is a key driver of economic growth and the creation of new business opportunities. Research by Handayani and Putri (2025) confirms that continuous innovation in MSMEs contributes significantly to increased customer loyalty and market expansion.

Technology Adoption

Technology adoption is the level of acceptance by individuals or organizations of the use of new technology in work activities. The Technology Acceptance Model explains that perceived ease and usefulness influence technology adoption decisions. In MSMEs, technology adoption includes marketplaces, digital payments, and financial applications. According to Davis (2023), technology will be accepted if it provides tangible benefits to users. Furthermore, Nugraha and Siregar (2024) state that digital literacy accelerates technology adoption in the MSME sector.

Business opportunities

Business opportunities are conditions that enable entrepreneurs to profit by exploiting market needs, consumer trends, or new innovations. Entrepreneurship theory explains that opportunities arise from the ability to recognize environmental changes and create economically valuable solutions. According to Hisrich and Peters (2023), business opportunities arise from a combination of creativity, resources, and the courage to take risks. Meanwhile, Maulana and Azizah (2025) state that market digitalization increases the growth opportunities for small businesses in urban areas.

Thinking Framework

The framework of this research is based on the assumption that increasing business opportunities for MSMEs in Serang City is influenced by the ability of businesses to adapt to developments in the modern business environment. Digital transformation is seen as an effort to utilize digital technology in marketing, operations, and services that can expand market access and increase business efficiency. Innovation plays a role in the ability to create new products, services, and strategies that provide added value and competitiveness for MSMEs. Technology adoption indicates the level of acceptance and use of technologies

such as marketplaces, digital payments, and business management applications that can accelerate business processes. These three variables are believed to have a positive contribution to business opportunities, reflected in increased opportunities to acquire new customers, expand market networks, increase sales, and create sustainable businesses. Therefore, the higher the level of digital transformation, innovation, and technology adoption of MSMEs, the greater the business opportunities they can seize in Serang City.

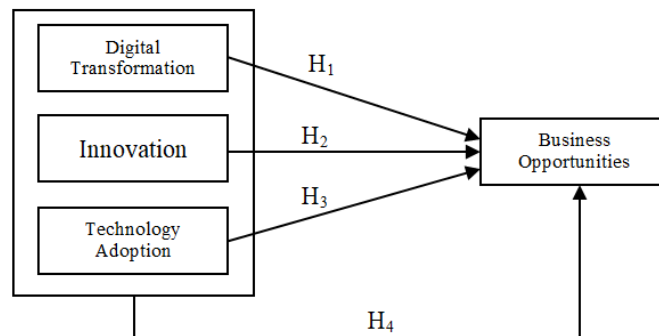


Fig 1. Thinking Framework

Hypothesis

H₁: It is suspected that there is an influence of Digital Transformation on Business Opportunities

H₂: It is suspected that there is an influence of innovation on business opportunities.

H₃: It is suspected that there is an influence of Technology Adoption on Business Opportunities

H₄: It is suspected that there is a simultaneous influence of Digital Transformation, Innovation, and Technology Adoption on Business Opportunities.

III. METHODS

The research method is a systematic process used to obtain data, analyze relationships between variables, and scientifically answer the problem formulation. This study uses a quantitative approach because it aims to examine the contribution of digital transformation, innovation, and technology adoption to business opportunities for MSMEs in Serang City through objective numerical measurements and statistical analysis (Creswell & Creswell, 2023).

Types and Approaches of Research

This study employed a quantitative method with a causal associative design. The quantitative approach was used because the research data were in numerical form, obtained through questionnaires distributed to respondents. According to Sugiyono (2024), quantitative research is used to examine a specific population or sample with the aim of testing a predetermined hypothesis. The causal associative design was chosen because this study aimed to determine the contribution of the independent variables, namely digital transformation (X_1), innovation (X_2), and technology adoption (X_3), to the dependent variable, namely business opportunities (Y).

Location and Time of Research

The research was conducted on MSMEs in Serang City, Banten Province. The location was selected based on the rapid growth of the MSME sector and the high demand for digital adaptation in the region. Serang City has a diverse range of businesses, including culinary, trade, services, and creative industries, all relevant to the research topic. The research period was from November 2025 to January 2026, starting with instrument development, questionnaire distribution, data collection, and research results processing.

Population and Sample

The population in this study was all active MSMEs in Serang City registered with the relevant agencies and operating for at least one year. Based on data from the Serang City Cooperatives and MSMEs Office in 2025, the estimated population was 10,321 MSMEs. Due to the relatively large population, a sampling technique was used. According to Hair et al. (2024), the sample size in multivariate research is at least 5–10 times the number of research indicators. With 20 indicators, the minimum sample size is 100 respondents. This study selected 120 respondents. using purposive sampling techniques, namely MSME actors who have used digital media or business technology.

Data Collection Techniques

Data collection techniques used questionnaires, observation, and documentation. The questionnaire was structured using a Likert scale of 1–5, ranging from strongly disagree to strongly agree. According to Sekaran and Bougie (2023), the Likert scale is effective for measuring respondents' perceptions, attitudes, and assessments of research variables. Observations were conducted to assess the actual state of digitalization utilization among MSMEs, while documentation was used to obtain data on the number of MSMEs and business profiles.

Data Analysis Techniques

Data were analyzed using SPSS version 26 through validity and reliability tests, classical assumption tests, multiple linear regression, coefficient of determination, t-test, and F-test. According to Ghazali (2023), multiple linear regression is used to determine the effect of several independent variables on one dependent variable partially or simultaneously. The results of the analysis are used to explain the contribution of digital transformation, innovation, and technology adoption to MSME business opportunities in Serang City.

IV. RESULT AND DISCUSSION

Research result

The research results represent an empirical overview obtained from processing questionnaire data from 120 MSME respondents in Serang City. The analysis was conducted using SPSS version 26, including instrument testing, classical assumption testing, multiple linear regression analysis, and hypothesis testing. The following results demonstrate the contribution of digital transformation, innovation, and technology adoption to MSME business opportunities in Serang City.

Table 1. Respondent Characteristics Based on Gender

Gender	Frequency	Percentage
Man	68	56,7%
Woman	52	43,3%
Total	120	100%

Source: Processed primary data, 2026

Based on the table above, the study respondents were predominantly male (68 people, or 56.7%), while female (52 people, or 43.3%) comprised SMEs. This indicates that MSME activities in Serang City actively involve both genders in business management. The relatively balanced composition of respondents suggests that digital transformation, innovation, and technology adoption are shared needs, regardless of business owner gender.

Table 2. Respondent Characteristics Based on Length of Business

Length of Business	Frequency	Percentage
1–3 Years	34	28,3%
4–6 Years	47	39,2%
>6 Years	39	32,5%
Total	120	100%

Source: Processed primary data, 2026

The table shows that the majority of respondents (47 respondents, or 39.2%) have been running their businesses for 4–6 years. This indicates that most MSMEs have considerable business experience. Business experience has the potential to enhance MSMEs' ability to identify market opportunities, innovate, and utilize technology. Respondents with longer experience tend to be more adaptable to changes in the competitive business environment.

Table 3. Validity Test of All Variables

Item	r Count	r Table	Information
X _{1,1}	0,672	0,179	Valid
X _{1,2}	0,701	0,179	Valid
X _{1,3}	0,655	0,179	Valid
X _{2,1}	0,689	0,179	Valid
X _{2,2}	0,711	0,179	Valid
X _{2,3}	0,673	0,179	Valid

X _{3.1}	0,721	0,179	Valid
X _{3.2}	0,698	0,179	Valid
X _{3.3}	0,667	0,179	Valid
Y ₁	0,734	0,179	Valid
Y ₂	0,709	0,179	Valid
Y ₃	0,681	0,179	Valid

Source: Processed primary data, 2026

Based on the validity test results, all statement items in the variables of digital transformation, innovation, technology adoption, and business opportunities had calculated r values greater than the table r of 0.179. Thus, all instrument items were declared valid and able to accurately measure the research constructs. Instrument validity indicates that the questionnaire is suitable for use as a data collection tool and can represent the actual conditions of MSMEs in Serang City.

Table 4. Reliability Test

Variables	Cronbach Alpha	Information
Digital Transformation	0,812	Reliable
Innovation	0,826	Reliable
Technology Adoption	0,838	Reliable
Business opportunities	0,801	Reliable

Source: Processed primary data, 2026

The reliability test results showed that all variables had Cronbach's Alpha values above 0.70. This indicates that the research instrument has a good level of internal consistency and is reliable. A reliable questionnaire will produce relatively stable answers when used under the same conditions. Therefore, the research data is worthy of further analysis to examine the relationships between variables.

Table 5. Normality Test

Asympt. Sig.	Information
0,200	Normal

Source: Processed primary data, 2026

The Asymp. Sig. value of 0.200 is greater than 0.05, indicating that the residual data is normally distributed. This condition indicates that the regression model meets the assumption of normality. Normal data is essential for unbiased regression estimation results and can be used to draw accurate statistical conclusions. Thus, the research model is suitable for further hypothesis testing.

Table 6. Multicollinearity Test

Variables	Tolerance	VIF
Digital Transformation	0,712	1,404
Innovation	0,685	1,460
Technology Adoption	0,701	1,426

Source: Processed primary data, 2026

All independent variables had tolerance values above 0.10 and VIFs below 10. This indicates that there was no multicollinearity between the independent variables. This indicates that digital transformation, innovation, and technology adoption are conceptually and statistically distinct variables, allowing each to be independently tested for its contribution to business opportunities in a regression model.

Table 7. Multiple Linear Regression Test

Variables	B	t Count	Sig.
Permanent	4,125	-	-
Digital Transformation	0,312	3,891	0,000
Innovation	0,287	3,442	0,001
Technology Adoption	0,298	3,667	0,000

Source: Processed primary data, 2026

The regression equation obtained is $Y = 4.125 + 0.312X_1 + 0.287X_2 + 0.298X_3$. All independent variables have positive and significant coefficients. This indicates that increasing digital transformation, innovation, and technology adoption will increase business opportunities for MSMEs. The digital

transformation variable has the largest coefficient, making it the dominant factor in driving business opportunities in Serang City.

Table 8. F Test and Coefficient of Determination

F Count	Sig.	R Square
39,876	0,000	0,612

Source: Processed primary data, 2026

The calculated F value of 39.876 with a significance level of 0.000 indicates that digital transformation, innovation, and technology adoption simultaneously have a significant effect on business opportunities. The R Square value of 0.612 means that 61.2% of the variation in business opportunities can be explained by the three independent variables, while the remaining 38.8% is influenced by other factors outside the study such as capital, business networks, and market conditions.

Discussion

The research discussion aims to explain the meaning of the statistical analysis results by linking them to theory and previous research. Based on the hypothesis testing results, digital transformation, innovation, and technology adoption have been shown to positively contribute to business opportunities for MSMEs in Serang City, both partially and simultaneously. The following description explains each hypothesis in detail as a basis for academic and practical interpretation.

1. The Impact of Digital Transformation on Business Opportunities

The t-test results show that digital transformation has a positive and significant impact on MSME business opportunities. This means that the greater the utilization of digital technologies such as social media, marketplaces, and online marketing systems, the greater the business's opportunities to acquire new customers and expand its market. Digitalization also accelerates transactions and improves operational efficiency. This finding aligns with research by Hidayat and Nugroho (2023), which states that digital transformation can increase the competitiveness and sales volume of MSMEs. In Serang City, businesses that actively use digital platforms have been shown to more easily reach consumers outside the region. Therefore, digital transformation is a crucial strategy for the sustainability of MSMEs in the modern competitive era.

2. The Impact of Innovation on Business Opportunities

The research results show that innovation has a positive and significant impact on business opportunities. This indicates that the ability to create new products, design attractive packaging, and creative promotional strategies can increase consumer interest. Innovative MSMEs tend to be more adaptive to changing market trends and customer needs. These results support the research of Rahmawati and Sari (2024), which found that product innovation significantly increases the competitiveness of small businesses. In the context of Serang City, innovation can take the form of developing distinctive culinary delights, varying services, or utilizing creative digital content. With continuous innovation, MSMEs can create differentiation and open up new market opportunities more broadly.

3. The Impact of Technology Adoption on Business Opportunities

Technology adoption has been shown to have a positive and significant impact on MSME business opportunities. This means that the use of digital payments, financial recording applications, marketplaces, and online communication systems makes it easier for entrepreneurs to run their businesses. Technology helps speed up work processes, reduce administrative errors, and increase customer satisfaction. This finding aligns with Putra et al. (2024) who stated that the use of financial technology contributes to MSME operational efficiency. In Serang City, MSMEs that utilize technology tend to have more organized business management and are more responsive to market needs. Therefore, improving digital literacy is a crucial requirement for entrepreneurs.

4. The Simultaneous Impact of Digital Transformation, Innovation, and Technology Adoption on Business Opportunities

The F-test results show that digital transformation, innovation, and technology adoption collectively have a significant impact on MSME business opportunities. This finding confirms that business opportunities are not determined by a single factor, but rather by a combination of digital strategy, business creativity, and

technological readiness. When MSMEs are able to integrate these three aspects, the opportunity to expand their market, increase sales, and maintain business sustainability will be greater. These results support the research of Firmansyah et al. (2025) which states that the combination of innovation and technology utilization strengthens MSME business resilience. Therefore, the local government and business actors in Serang City need to encourage a digital ecosystem that supports innovation and accelerates sustainable technology adoption.

V. CONCLUSION

Based on research findings on the contribution of digital transformation, innovation, and technology adoption to business opportunities for MSMEs in Serang City, it can be concluded that these three variables play a crucial role in driving business growth and sustainability. Partially, digital transformation has a positive and significant impact on business opportunities. This demonstrates that the use of social media, marketplaces, digital marketing, and online transaction systems can expand market reach, increase customer numbers, and enhance business opportunities for profitability. Innovation has been proven to have a positive and significant impact on business opportunities. MSMEs that are able to update their products, improve service quality, create attractive packaging, and implement creative promotional strategies tend to be more competitive in the market.

Innovation is a crucial factor in creating added value and sustainably maintaining consumer interest. Technology adoption has a positive and significant impact on business opportunities. The use of technologies such as digital payments, financial recording applications, marketplaces, and online communication tools facilitates operations and increases business efficiency. MSMEs that adapt to technology are better able to respond to market changes and modern consumer needs. Simultaneously, digital transformation, innovation, and technology adoption significantly influence business opportunities for MSMEs in Serang City. This confirms that business success cannot rely solely on a single factor but requires an integration of digital strategy, innovative creativity, and technological readiness. Therefore, MSMEs in Serang City need to continuously improve their digital competency, culture of innovation, and utilization of technology to compete, grow, and create new business opportunities in the digital economy era.

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