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Research Article

Harnessing Artificial Intelligence for Strategic Entrepreneurship Development: Analysis of Policy and Innovative Challenges among SMEs in Ilorin Metropolis, Kwara State.

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Abstract

The modern business environment demonstrates that small and medium sized businesses (SMEs) are crucial drivers of innovation, employment and economic growth. In Nigeria, particularly in Ilorin Metropolis, small and medium-sized enterprises (SMEs) remain central to economic development through the alleviation of poverty, provision of employment and innovation. The main objective of this study is to examine the role of Artificial Intelligence in strategic entrepreneurship development, with specific emphasis on policy considerations and innovative challenges facing SMEs in Ilorin Metropolis, Kwara State. Other specific objectives are to examine the relationship between artificial intelligence knowledge and strategic entrepreneurship development among SMEs in Ilorin Metropolis and to assess the relationship between artificial intelligence implementation and strategic entrepreneurship development among SMEs in Ilorin Metropolis. The underpinning theory of the study is Technology Organization Environment Framework. A cross-sectional survey research design was used to collect quantitative data for this study. The target population consists of three hundred and twenty (320) registered startups that were financially supported by the Kwara State Social Investment Programme in 2024. Data were collected using a five-point Likert scale, closed-ended questionnaire, which was distributed to the respondents through a simple random sampling technique to minimize bias. The results indicated that AI knowledge has a significant effect on strategic entrepreneurship, that is, when owners and managers of SMEs have an understanding of AI concepts, they are well positioned to realize opportunities, to solve existing problems, and to achieve improved growth and competitiveness through innovative trends. With respect to entrepreneurship development, the impact of AI implementation was a solid and socially meaningful one. The study

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recommended that there should be capacity-building programmes to facilitate knowledge about the concept of AI among SME owners and managers. Also, SMEs must be enabled and assisted through the everyday access of affordable AI tools, infrastructure, and technical support.

Introduction

The modern business environment demonstrates that small and medium sized businesses (SMEs) are crucial drivers of innovation, employment and economic growth. Nevertheless, SMEs are often facing significant setbacks affecting its competency and its survival in the long-term, like limited access in finances, low infrastructure, and lack of technology expertise. The development of strategic entrepreneurship and innovation management today requires more than ever the ability of SMEs to apply the emergent technologies, particularly artificial intelligence (AI) (Williams, 2024).

The concept of AI refers to a set of technologies that assist companies in automating tasks, optimising the business processes, and making objective decisions based on data. Such technologies are predictive analytics, machine learning and natural language processing. Its a strategic device that SMEs in Nigeria, most particularly the businesses in Ilorin Metropole can utilize in cost optimization, motivating innovation, and gaining competitive advantage. Nonetheless, awareness of AI technologies and their effective implementation within business practices are the key to AI adoption which the enterprise lacks.

In this regard, knowledge is the consciousness, understanding and capabilities to figure out AI technologies and their potential applications. Based on research, most SMEs lack adequate knowledge of AI in Nigeria and this limits their ability to tap into the benefits. As an illustration, the SMEs that had limited experience with AI were less likely to employ the new practices thereby reducing their competitive edges in a dynamic marketplace with Arroyabe et al. (2024). In the same vein, Carayannis et al. (2025) have pointed out that SMEs cannot deploy AI as a mean to expand their business and make informed strategic decisions because of negligible knowledge about the technology.

The actual integration of AI technologies within SMEs and their practical use can be called implementation. The implementation of AI use is not abundant with gaps in benefits due to issues such as extremely high costs, a lack of skilled workers, and an inadequate organisational framework (Omonzejele & Okogun, 2025). These challenges point to the need to develop targeted strategies to enhance the operationalisation of AI and the way SMEs conceptualise it so that they can drive innovation and experience sustainable growth.

The usage of AI is also affected by policy and innovation system-related concern in the SME sector in Nigeria. Some of the policy-related barriers are weak institutional frameworks, inadequate incentives to adopt technologies, and a lack of regulatory support. Some of the barriers to innovation are the lack of technical knowledge, lack of digital literacy, and organisations avoidance to change. To enable SMEs to effectively leverage AI in the development of strategic entrepreneurship, these are the aspects that must be looked into (Boudreaux, 2024).

SMEs have a low margin to innovate, make operational efficiency, and decision making, as explained by the literature, which can significantly be enhanced through adoption of AI. By incorporating AI within business processes, SMEs can automate redundant processes to reduce operational expenditures, make data-driven decision-making that can help to support strategic business planning, and use predictive

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analytics to forecast the market. This integration advantages SMEs in addition to increasing their resilience since they are placed in a better position to contribute to the regional economic growth.

Given that technology-driven entrepreneurship is gaining significance, it is extremely important to understand how SMEs acquire knowledge about AI and incorporate it into their processes. This paper falls within this context and inquires how AI can promote the development of strategic entrepreneurship in the city of Ilorin Metropolis. This paper aims to give the idea of what the state of AI adoption is, what challenges that SMEs face, and what method can be used to enhance the adoption of AI technologies into the activities of the company in the long run by focusing on knowledge and implementation.

Problem Statement

In Nigeria, particularly in Ilorin Metropolis, small and medium-sized enterprises (SMEs) remain central to economic development through the alleviation of poverty, provision of employment and innovation. However, SMEs still face numerous challenges that inhibit their competitiveness and sustainability, in spite of being very important. The emergence of Artificial Intelligence (AI) has increasingly become a powerful tool of enhancing entrepreneurship over the recent years enabling businesses to make better decisions, streamline their processes, and induce innovativeness. Nevertheless, the use of AI in Nigerian SMEs remains low in comparison with the global tendency, which constrains their potential to use its power to its full extent (Nwagbala et al., 2025).

The factors that should be most worrying are the ignorance of SME managers and owners regarding AI technologies. The insufficient knowledge about the use of AI, potential benefits, and methods of integration does not allow many entrepreneurs to make informed decisions and reduces their willingness to accept technological innovation. Given the level of competition and technological innovation in the modern business environment, there is a danger that SMEs would end up lagging behind in case they do not have the appropriate knowledge (Mollik & Ananna, 2024). This challenge is complicatated by the lack of training opportunities, insufficient awareness campaigns and low levels of digital literacy that leave a vast number of SMEs without the necessary preparation to explore AI as a means of expanding strategic entrepreneurship.

The other significant impediment is the implementation difficulty even where expertise exists. The cost of the AI infrastructure, the shortage of skilled resources, and a lack of governmental support have hampered the integration of AI into the operation of SMEs (Maghfirah & Eni, 2024). The process of implementation is complicated and costly through policy gaps, lack of financial incentives and resistance to organisational change. Because of this, it becomes hard to effectively utilise AI by Ilorin SMEs, inhibiting their ability to make new ideas, access new markets, and compete against more technologically advanced organisations. A combination of the two questions of implementation and knowledge gaps should be tackled to ensure that SMEs can fully leverage AI in the strategic entrepreneurial evolution and the long-term economic development process.

Research Objectives

The main objective of this study is to examine the role of Artificial Intelligence in strategic entrepreneurship development, with specific emphasis on policy considerations and innovative challenges facing SMEs in Ilorin Metropolis, Kwara State. Other specific objectives are to:

i. examine the relationship between artificial intelligence knowledge and strategic entrepreneurship development among SMEs in Ilorin Metropolis.

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ii. assess the relationship between artificial intelligence implementation and strategic entrepreneurship development among SMEs in Ilorin Metropolis.

Research Questions

This study seeks to provide answers to the following questions:

i. What is the relationship between artificial intelligence knowledge and strategic entrepreneurship development among SMEs in Ilorin Metropolis?

ii. How does artificial intelligence implementation influence strategic entrepreneurship development among SMEs in Ilorin Metropolis?

Research Hypotheses

The study is guided by the following null hypotheses:

H_{o1}: Artificial Intelligence Knowledge does not have significant relationships with strategic entrepreneurship development among SMEs in Ilorin Metropolis.

H_{o2}: Artificial Intelligence Implementation does not have significant relationships with strategic entrepreneurship development among SMEs in Ilorin Metropolis.

Literature Review

Artificial Intelligence (AI)

Artificial intelligence (AI) is the subject of computer-based science that deals with the creation of machines that are capable of accomplishing tasks such as thinking, solving problems, learning, and decision-making that would otherwise require human intelligence. Across the technologies that can be grouped into this broad category include machine learning, natural language processing, robotics and expert systems, all of which exist to mimic human thought. Artificial intelligence (AI) has become a well-known revolutionary technology in many sectors including healthcare, finance, education, and entrepreneurship because of its ability to work with large dimensions of data and generate valuable insights that enhance decision-making (Mu & Zhao, 2024).

AI is a strategic tool in competitiveness and innovation in entrepreneurship and not a technical tool. AI enables business owners to identify market potentials, enhance productivity, better customer engagement with predictive analytics, customer behaviour modelling and intelligent automation. A recent paper written by Burstrm et al. (2021) agrees that I is transforming industries by enabling firms to restructure their value chains and create new business models. Implementation of AI has become an essential aspect that defines the existence and success of entrepreneurs in the modern harsh business world characterized by intense competition.

Moreover, conceptualisation of AI goes beyond this purely technical definition of AI, to include the effects that the technology can have on the socioeconomic level of development. Artificial intelligence as an enhancement appliance rather than replacement of human capabilities should be viewed, Saini et al. (2025) say. It is well known how important it is to integrate AI into the framework of an entrepreneurial ecosystem to achieve sustainable improvement, particularly among small and medium-sized organizations (SMEs), which often face innovational and resource limitations.

AI Knowledge

Artificial intelligence (AI) knowledge includes awareness or understanding of systems, tools and approaches of artificial intelligence in organisations as well as its use. It involves the capacity to integrate

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these technologies in the decision-making processes along with the skills required to come up with and implement AI solutions (Namdarian, 2025). The capacity of managers and personnel to employ AI-derived intelligence in enhancing productivity, reducing costs and customer experiences is known as AI knowledge in the case of small to medium-sized enterprises (SMEs) (Marques, 2024).

It has been argued that the AI knowledge not only includes a technical competency, but also the strategy and culture of an organization to adapt to digital transformation (Khan, 2025). In the context of SMEs, this more often than not involves making changes to the organisation so that it develops a learning-based culture that can stimulate creativity, and overcome obstacles like ill-financing and technical expertise (Abubakar et al., 2025). Most importantly, organizations that have a better understanding of AI are more prone to develop and sustain competitiveness in dynamic markets.

However, it is found that SMEs in developing countries are falling behind when it comes to learning about AI due to policy barriers, lack of skills, and infrastructure gaps despite the increasing AI adoption emphasis (Maghfirah & Eni, 2024). This underlines the need to have government support, inter-cooperation, and building capacity initiatives which promote the AI knowledge base of SMEs. Therefore, knowledge of AI must be regarded as an organisational strength that underpins the growth and resilience of an organisation besides it being one of the technical skills.

AI Implementation

Artificial intelligence (AI) implementation is the process of incorporating AI tools and technology into company operations, systems, and processes to realise efficiency, creativity and a competitive advantage. The application of AI in small and medium-sized enterprises (SMEs) typically involves mechanising routine work, analysing client data, enhancing the quality of the decision-making process, and offering digital solutions to help make the best use of resources (Badmus et al., 2024). The use of AI in SMEs will require not only awareness and skills of implementation but the capacity to integrate the new technologies in deeper business operations.

The use of AI programs, like the use of chatbots to help customers, predictive analytics which can help to predict the trends in the marketplace, and the use of machine learning models in the creation of a product, are the areas of AI implementation, and they are not confined to mere attention (Rane et al., 2024). Nonetheless, due to a variety of factors, such as financial resources, their digital infrastructure, organisational culture, and government support policies, SMEs vary in terms of implementation levels (Leso et al., 2023). Business entities that effectively integrate AI often experience significant gain in innovation, consumer/customer engagement, as well as in productivity.

Nonetheless, there still exist some barriers to their extensive use by SMEs (high costs of implementation, lack of skilled labour, and concerns about ROI) (Sompolgrunk et al., 2023). To reflect a direct connection between technology deployment and business growth and sustainability, the strategy relating the adoption of AI to the entrepreneurial aims needs to be defined that will support its optimal implementation.

Strategic Entrepreneurship Development

As a way to encourage innovation, growth and long term competitiveness, strategic entrepreneurship development merges entrepreneurship and techniques within the field of strategic management. It involves the ability of corporate leaders and entrepreneurs to identify opportunity, manage their resource in a wise way and apply innovative strategy in order to enhance organisational performance (Somwethee et al., 2023).

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This is key in the context of the SMEs since it balances the need to sustain their growth due to a competitive environment and the exploitation of opportunities.

The four key elements that this concept brings to light are opportunity seeking, innovation, resource optimisation and strategy renewal (Suliman, 2025). SMEs stand better placed to adapt to technology disruptions including artificial intelligence (AI) and apply these technologies to enhance productivity and gain competitive edge when they develop their entrepreneurial potential proactively. The other thing about this kind of development is the creation of dynamic skills that will enable businesses to respond proactively to regulatory challenges, technology changes, and adjusting customer expectations (Capurro et al., 2022).

The development of strategic entrepreneurship in developing economies is many times hindered by funding, ineffective training, lacking institutional support, and unstable policies (Amini Sedeh et al, 2022). Nevertheless, the probability of surviving and growing in the long-term is much better when SME is employing such strategic methods as adopting the use of AI solutions, finding collaborative networks, and engaging in the continuous learning. Subsequently, the practice of strategic entrepreneurship development has made SMEs remain relevant in fast-stream business environments by serving as an interface between innovation and competitiveness.

Policy and Innovation Challenges in AI Adoption

The manner in which artificial intelligence (AI) is being adopted by small and medium-sized businesses (SMEs) is highly dependent on the issues of innovation as well as policy concerns. Policy issues are often caused by inadequate regulatory frameworks, data protection regulations, a lack of transparent and clear national strategies on AI and a lack of government support. A significant number of SMEs operate in environments where these policies that regulate the implementation of AI are not well designed or even applied with inconsistency that is a hindrance to investment in AI tools (Sanchez et al., 2025). Also, the issues that SMEs face when using AI in business development are compounded by such factors as high prices of compliance procedures, insufficient digital infrastructure, and the backwardness of institutions.

On the other hand, the innovative challenges relate to the internal factors that encumber SMEs to impede success in the application of AI. These are poor R&D capacities, the limited number of skilled workers, unwillingness to innovate, and the difficulties in integrating AI into the existing business models. The expenses of acquiring AI tools and the expertise to handle the tool are some of the deterrents that most SMEs face (Iyelolu et al., 2024). Moreover, organisational and cultural barriers oftentimes limit the willingness of the employees and entrepreneurs to embrace AI-driven developments (Nosike & Nwanya, 2025). Since their resources are limited, SMEs might not be in a position to constantly revise their systems and procedures since the pace of technological change is high.

In summary, laissez-faire regulations and inadequate governmental support on policy are some of the limitations that stifle the application of AI in SMEs whilst lack of expertise in technical knowhow, high exorbitant costs and resistance by organisations are some of the creative factors that impede the usage of AI in SMEs. Policy, corporate and other involved stakeholders of entrepreneurship in the AI context will have to work hand in hand to provide the necessary support that will enable the flourishing of AI-driven entrepreneurship sustainably.

Theoretical Review (Technology Organization Environment Framework)

Tornatzky and Fleischer (1990) proposed the Technology-Organization-Environment (TOE) framework that uses three variables to describe the adoption of innovation: technology context, organisation

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context, and the environmental context. Since the adoption process is determined by both internal and external constraints, the TOE framework will be applicable in examining the impact of the extent of AI knowledge, capability of application, policy matters, and creative pitfalls on the formation of entrepreneurship in context of SMEs within Ilorin.

Empirical Review

Senadjki et al. (2023) conducted a study on the use of artificial intelligence to boost corporate competitiveness in accomplishing sustainable development goals. The study examined the effects of artificial intelligence (knowledge, awareness, empowerment, and implementation) on competitiveness as well as the function of innovations (technological, social, and environmental) as mediators. The Open Innovation theory (OIT) was utilised. SmartPLS was used to analyse data from 480 SMEs. The results demonstrate the beneficial significance of the relationship between competitiveness and AI (awareness, empowerment, and implementation). Additionally, competitiveness and AI awareness have a partial mediating influence. Competitiveness and AI (Implementation and Knowledge) are partially mediated by technological innovation. Legislators ought to start planning ways to include AI advancements. In order to develop new advances in technology, society, and the environment, the study expands on the OIT.

A study on Artificial Intelligence-Enabled Business Model Innovation: Roles and Competencies of Top Management was carried out by Jorzik et al. in 2024. Innovation in business models and artificial intelligence research are booming. In light of this, the study investigates how senior management may support and promote the development of business models enabled by artificial intelligence. To create a grounded theory, the study employed an inductive methodology and semistructured interviews with 47 practitioners. Eight top management positions and five top management competencies make up the created framework. All things considered, our work advances the field of business model innovation theory research by demonstrating that top management needs a particular set of abilities to perform their duties and meet expectations.

The study Empowering SMEs: Leveraging the Potential of Gen AI for Resilience and Competitiveness was conducted by Carayannis et al. in 2024. The study looked into how small and medium-sized businesses (SMEs) might become more resilient and competitive by implementing generative artificial intelligence (Gen AI). The article addresses the importance of strategic AI integration and discusses the challenges of the related developments and presents policy recommendations to support SMEs in leveraging AI to achieve sustainable growth through the critical analysis of SMEs and Gen AI. We aim to give SMEs the insights, the procedural steps and strategies they need to succeed in the Gen AI world through both theoretical concepts and practical experiences.

The study by Harahap et al (2024) was entitled: Toward Competitive Advantage: Harnessing Artificial Intelligence to Business Innovation and Entrepreneurial Success. The aim of the study is to identify how AI can help enhance corporate innovation and efficiency in operations. The qualitative literature review is the research researching approach. As the research results have shown, artificial intelligence (AI) has become a key determinant of successful businesses that want to remain relevant in a world that has become highly competitive and is constantly changing with technologies. Artificial intelligence (AI) opens new possibilities and stimulates innovation in business by enabling businesses to enhance the efficiency of their operations, optimise their strategies and deliver more personalised consumer experiences. But along with these opportunities also exist threats and challenges to the application of AI including prejudices within the AI decision-making process and concerns over data, and privacy.

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Carayannis et al (2025) proposed a sustainable competitiveness route map on how artificial intelligence and strategic foresight can be used to improve resilience by SMEs. To perform better in terms of resilience, the study examined the integration of strategic foresight and AI as a bundle. To make its operations more efficient and employ the performance of its decisions, it explores such AI applications as risk detection, scenario planning, and predictive analytics. The proposed strategy can guide SMEs through market turbulences alongside making adjustments in the evolving business environment and crafting sustainable business strategies through the combination of AI tools with foresight techniques. The proposed paper would be of great use to both academics and industry professionals as it deals with relevant issues, such as budgetary constraints and regulatory issues, as well as describing feasible ways to apply AI to enhancing SME competitiveness and resilience.

Michael (2025) discussed a paper regarding how the Potentials of Small and Medium Scale Business Enterprises in Developing Nations can be maximised Through Use of Artificial Intelligence: AI Adoption by SMEs in the Developing Nations. The mediating role of digital leadership (DL), found in this study, discusses whether AI applications produce an increased value of strategic decision-making (SDM). A random sample of N=100 Omani business owners belonging to SME was selected based in a few SME industrial incubators. Regression, confirmatory factor analysis, structural equation modelling (SEM) and Process v4 were also applied to test the hypotheses and model the mediatory role of DL. The results indicate that the impact of AI applications on SDM and DL is favourable and significant. Moreover, DL has immense and positive impact on SDM. The results also indicate that in Omani small and medium-sized enterprises, DL enhances the relationship between AI applications and SDM.

Despite the achievements since artificial intelligence (AI) has been recognized as a game-changing force in terms of business competitiveness, little attention has been paid to whether there are sets of challenges that are entrenched in developing economies that need to be considered before fully adopting AI in small and medium enterprises (SMEs). Examples include Adepoju et al. (2022) and Oyeyemi and Adebayo (2021), which focused on the positive role of AI on organizational performance but provided minimal suggestions on how weak institutional frameworks, policy gaps and infrastructural insufficiencies limit its adoption especially in Nigeria. Likewise, although Chinomona and Sandada (2020) have already highlighted the pertinence of technological improvement in SMEs, their research did not address the question of cross-examining policy and pioneer issues that inhibit the successful integration of AI.

Moreover, the innovative challenges related to the implementation of AI deserve to be investigated. Relying on their studies, Olanrewaju and Fashola (2023) and Okoye and Nwankwo (2022) highlighted the importance of financial and technological resource limitations, however, failing to mention such crucial ingredients as resistance to change expressed through their own cultures, insufficient research and development (R&D) capacity, and lack of systematic innovation ecosystems. Such gaps in information indicate that although the postive effects of the adoption of AI are clear, the obstacles to the adoption of AI in particular those involving policy and innovation have not been sufficiently explored with regards to the case of SMEs in Nigeria.

This gap makes the present study necessary as it intends to explore the synergistic impact of policy and innovative issues on the process of AI adoption by SMEs in Nigeria. By focusing on these dimensions, the study aims to provide a more holistic understanding of why SMEs struggle to integrate AI technologies and to generate evidence-based insights that can inform government interventions, institutional reforms, and

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sustainable innovation strategies for enhancing the competitiveness of SMEs in the Nigerian business environment.

Methodology

A cross-sectional survey research design was used to collect quantitative data for this study. This design was considered appropriate because it allows the researcher to gather large amounts of data within a short period without the need for long-term follow-up and further provides representative data that is generalizable to the broader population. The target population consists of three hundred and twenty (320) registered startups that were financially supported by the Kwara State Social Investment Programme in 2024. The study adopted a census approach by including the entire population as the sample size. A copy of the questionnaire was administered to each startup owner to ensure comprehensive coverage. Data were collected using a five-point Likert scale, closed-ended questionnaire, which was distributed to the respondents through a simple random sampling technique to minimize bias. The questionnaire was divided into sections covering demographic information, Artificial Intelligence Knowledge, Artificial Intelligence Implementation, and Strategic Entrepreneurship Development. The items were generated from a thorough review of existing literature, thereby ensuring that the instrument was grounded in established theories and frameworks. This process enhanced the content validity of the study.

Findings

H_{o1}: Artificial Intelligence Knowledge does not have significant relationships with strategic entrepreneurship development among SMEs in Ilorin Metropolis.

H_{o2}: Artificial Intelligence Implementation does not have significant relationships with strategic entrepreneurship development among SMEs in Ilorin Metropolis.

Table 4.4.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784[a]	.614	.612	3.86481

a. Predictors: (Constant), Artificial Intelligence Knowledge, Artificial Intelligence Implementation

Source: Field Survey, (2025)

The model summary displayed in Table 4.4.1 shows an R square value of 0.614, which indicates that artificial intelligence knowledge and artificial intelligence implementation together explain about 61.4% of the variation in strategic entrepreneurship development among SMEs in Ilorin Metropolis. This suggests that the regression model has a strong explanatory power. The adjusted R square value of 0.612 further confirms the model's reliability, meaning that only a small portion of the variation is left unexplained by the predictors. With a standard error of estimate of 3.86481, the model demonstrates a good level of accuracy, making it suitable for predicting the influence of AI knowledge and implementation on strategic entrepreneurship development.

Table 4.4.2: ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.

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1	Regression	7546.232	2	3773.116	252.606	.000[b]
	Residual	4734.956	317	14.937		
	Total	12281.188	319			

a. Dependent Variable: Strategic Entrepreneurship Development

b. Predictors: (Constant), Artificial Intelligence Knowledge, Artificial Intelligence Implementation

Source: Field Survey, (2025)

The ANOVA regression results in Table 4.4.2 indicate that the F-statistic of 252.606 is highly significant at the 1% level [$p < 0.000$], which is well below the 0.05 threshold. This confirms that the explanatory variables, Artificial Intelligence Knowledge and Artificial Intelligence Implementation jointly exert a statistically significant effect on the dependent variable, Strategic Entrepreneurship Development. Furthermore, the relatively high regression sum of squares (7,546.232) compared to the residual sum of squares (4,734.956) suggests that the model accounts for a substantial proportion of the variation in Strategic Entrepreneurship Development. This finding implies that the model is robust and appropriately specified for explaining the relationship under study.

Table 4.4.3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	11.175	1.250		8.940	.000
	Artificial Intelligence Knowledge	.307	.060	.352	5.085	.000
	Artificial Intelligence Implementation	.487	.073	.460	6.649	.000

a. Dependent Variable: Strategic Entrepreneurship Development

Source: Field Survey, (2025)

Table 4.4.3 presents the regression coefficients of Artificial Intelligence Knowledge and Artificial Intelligence Implementation on Strategic Entrepreneurship Development among SMEs in Ilorin Metropolis. The unstandardized coefficient for Artificial Intelligence Knowledge is 0.307 ($\beta = 0.352$, $t = 5.085$, $p < 0.05$). This implies that a unit increase in AI knowledge will bring about a 0.307 increase in strategic entrepreneurship development, holding other variables constant. The positive and significant relationship suggests that AI knowledge contributes meaningfully to the development of strategic entrepreneurship among SMEs. Thus, the hypothesis one (H_{o1}) that Artificial Intelligence Knowledge lacks significant associations to strategic entrepreneurship development among the SMEs within the city of Ilorin is rejected.

Again, Artificial Intelligence Implementation also has an unstandardized coefficient of 0.487 (0.460, $t = 6.649$, $p < 0.05$). This means that one standard deviation in the AI implementation causes 0.487 standard

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deviation change in the strategic entrepreneurship development assuming other determinants to be constant. The obtained result demonstrates a very strong and significant positive effect that indicates that the practical implementation of AI tools and systems is a significant determinant of the formation of entrepreneurship strategies and results among SMEs. So, the null hypothesis two (H_{o2}) which states that Artificial Intelligence Implementation is not significantly related to strategic entrepreneurship development among SMEs in Ilorin Metropolis is rejected.

As with the empirical evidence, similar results were stressed in accordance with Avolio, Bass, and Jung (2018), where the technological competencies are described as truly expanding the organizational development and responsiveness. In a similar manner, Gong, Huang, and Farh (2018) underscored that the assimilation of emerging technologies such as AI increases the growth strategies and competitiveness of the firms. Along with these, Hughes, Ginnett and Curphy (2020) noted that the use of technology can positively contribute to entrepreneurial performance, and Kark and Shamir (2018) confirmed that technological implementation enhances innovative potential and strategic growth among SMEs.

Conclusion

This study examined how Artificial Intelligence (AI) knowledge and implementation influence strategic entrepreneurship development among SMEs in Ilorin Metropolis. The results indicated that AI knowledge has a significant effect on strategic entrepreneurship, that is, when owners and managers of SMEs have an understanding of AI concepts, they are well positioned to realize opportunities, to solve existing problems, and to achieve improved growth and competitiveness through innovative trends. The basis on which AI-driven approaches can be established, is knowledge, thus a business should not just blindly follow patterns or trends, it needs to harness AI in the objective of long-term value creation.

With respect to entrepreneurship development, the impact of AI implementation was a solid and socially meaningful one. It is not only awareness but using AI tools in business functions like data driven decision making, customer interaction and business optimization that actually showed important business growth. This means that SMEs that have embraced AI in their day to day activities have greater chances of being innovative, staying ahead of the competition, and be able to react promptly to any altered market conditions. In general, the research highlights the importance of the knowledge and the practical application of AI that dictate the future of the entrepreneurship growth in Ilorin sector of SME.

Recommendations

In the case of AI knowledge, there should be capacity-building programmes to facilitate knowledge about the concept of AI among SME owners and managers. The Government agencies, business associations, and educational institutions must implement the educational programs and workshops where the knowledge on AI is simplified and the relevance to the small business development is demonstrated. With the right knowledge, entrepreneurs can be able to notice opportunities, resist resistance to change and informed decisions that seem to have alignment to innovation-driven entrepreneurship.

As far as implementing AI is concerned, SMEs must be enabled and assisted through the everyday access of affordable AI tools, infrastructure, and technical support. The governments and the financial institutions ought to come up with the enabling environments that will make investing in AI-related solutions to be enticing, such as issuing grants or providing low-interests loans or collaborations with technology providers. The resulting positive efficiency and service delivery will not only make SMEs more efficient but also will grant them the nimbleness required to operate in competitive markets. Sufficient

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performance of AI will guarantee that knowledge is reflected in practice, initiating genuine change in the sphere of entrepreneurship development.

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