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ARTIFICIAL INTELLIGENCE-MEDIATETED OPERATIONS AS A PREDICTOR OF MICROFINANCE INSTITUTIONS' READINESS TO DRIVE THE DIGITAL ECONOMY IN SOUTH-SOUTH, NIGERIA

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Abstract

This study investigated artificial intelligence-powered operations and Microfinance Institutions' (MFIs) readiness to drive the digital economy in South-South, Nigeria. Two specific objectives were raised, two research questions were asked, and two hypotheses were formulated and tested at a 0.05 level of significance. Relevant literature was reviewed. The study adopted the predictivwe correlation research design and the student population was 915 operators from 59 registered MFIs from which a sample of 310 was drawn using multi-stage sampling technique. A 30-item structured questionnaire titled AI-enabled Operations and MFIs Readiness for Digital Economy Questionnaire was developed, validated, and used for data collection. The questionnaire was tested for reliability using the Cronbach Alpha statistics which produced a reliability index of 0.85. The obtained data were analysed using simple linear regression to answer the research questions and test hypotheses at a 0.05 level of significance. From the analysed data, the study found that Artificial intelligence-assisted cybersecurity and AI-enabled decision-making significantly predict MFIs' readiness to drive the digital economy. Based on the findings of this study, the study recommends that operators of MFIs should procure and utilise emerging technologies to generate intelligence to boost resilience against cyber threats, facilitate efficient communication, and sustain growth in the ever-changing landscape of the digital economy.

Keywords: Artificial intelligence-powered operations, readiness, drive, digital economy South-South, Nigeria

Introduction

New technologies are continually shaping the workplace, and firms are under pressure to transition as soon as possible (Lorenz *et al.*, 2020). Services and commerce are increasingly being provided digitally by default. Indeed, nearly all government and commercial operations are now conducted online. Over fifty per cent of the world's economic activity is predicted to be digitised. The push for digitalisation is fueled by the assumption that technological advances have enormous capacity to foster creative thinking, a trend that is expected to continue (Solberg *et al.*, 2020). Today, many industries are incorporating electronic devices into multiple facets of their operations to increase efficiency, productivity, enhance client relationships, better safety, make informed choices, foster creativity and entry to new marketplaces. The importance of automation stems not just from the use of nascent devices but also from the fundamental shifts that they bring to company structures, procedures, and initiatives. As a result, in our current rapidly changing, linked environment, the capacity to capitalise on the promise of modernisation is now a critical predictor of competitive advantage, longevity (Undie, 2021), and a

company's capacity to contribute to the online economy.

Artificial intelligence (AI) is one of the most recent and potentially most globally impacting breakthroughs that is changing the global environment. Artificial intelligence is the creation of electronic devices capable of doing things that would normally need intelligence from people (Uvindasiri, 2023). Automated learning, processing natural languages, image processing, and autonomous systems are among the methods and apps that fall under the umbrella of artificial intelligence. Artificial intelligence's powers allow it to transform numerous sectors, alter how we live, and tackle difficult issues in hitherto imagined ways. According to Accenture (n.d.), artificial intelligence (AI) is an assortment of innovations that enable robots to recognise, comprehend, behave, and gain knowledge on their own behalf or to supplement human operations. In the same vein, Kolbjørnsrud *et al.* (2016) posited that AI is capable of learning, reasoning, adapting, and carrying out activities similar to humans. In this study, artificial intelligence refers to the art of translating electronic devices into operational machines. They are meant to be capable of performing a specific activity and making judgments according to the data that is supplied. The explanation for its current global popularity is its ability to operate and understand as a person. According to Kolbjørnsrud *et al.* (2016), AI aims to strengthen individuals and increase output. The basis for this judgment is that certain businesses and entrepreneurs are currently creating solutions that allow them to employ AI to fix a few of the world's challenges.

Artificial intelligence (AI) has become known as one of the most significant revolutionary innovations of this century, having varying effects on civilisation. It is similar to a two-edged blade (Taddeo *et al.*, 2019). On the one hand, it provides sophisticated instruments for improving safety protocols, identifying risks quickly, and reacting to incidents quickly. On the other hand, AI encourages consumers through offering advanced techniques for carrying out criminal activities. Security cameras, closed-circuit television (CCTV) cameras, automatic gates, automatic doors, smartphones, mobile apps, Zoom, electronic calculators, and antivirus software are among the many instances of AI-enabled devices. Several companies are taking note and are implementing such fresh innovations as vital instruments in conducting AI-enabled business activities. Artificial intelligence-powered business activities are defined as the deliberate application of artificial intelligence (AI), machine learning (ML), and machine reasoning (MR) methods to assist individuals by reducing complexity and streamlining procedures, as well as maximizing the use of technological assets (Kanade, 2023), such as maintenance planning, competitor evaluation, statistical analysis, writing content, forecasting of demand, client service, detection of images, cybersecurity, and making choices. The present research, nevertheless, is restricted to cybersecurity and decision-making activities that use AI incorporated in modern technologies.

AI-based cybersecurity (CS) is a collection of artificial intelligence-based systems, procedures, and processes that safeguard and defend networks, gadgets, applications, and information against assault, harm, or illegal access (Bhardwaj *et al.*, 2022). In modern organisations, fresh hazards arise at all hours of the day (Undie, 2021). A corporation is more likely to be attacked by an attacker if it has a link to the World Wide Web. As a result of this advancement, attacks are becoming more frequent, widespread, and impactful, necessitating the implementation of intelligence-driven security that manages huge data and provides quick defence against emerging attacks (Barrett, 2018). According to the Hiscox Cyber Readiness Report (2023), digital attacks have progressively increased over the past four years in a row, with a noticeable spike in attacks on smaller enterprises, hitting up to 36 per cent. The rapid development of linked gadgets, infrastructures, and platforms has made privacy and security more challenging. This is compounded by improvements in electronic

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commerce and technology, which have led to a large increase in assaults with devastating effects (Chithaluru *et al.,* 2023).

Artificial intelligence is a fascinating weapon that can offer insights and expertise to fight against ever-changing intrusions - rapidly monitoring billions of incidents and detecting an array of online dangers to predict and react to problems before they arise. As a result, AI is becoming increasingly incorporated into the defence infrastructure and utilised for automating a wide range of safety functions. The growing use of AI in cybersecurity is an exciting chance to improve the efficacy and efficiency of safety precautions. Artificial intelligence presents a variety of features that have the potential to alter traditional defensive approaches. It possesses the ability to greatly improve our ability to protect against emerging cyber-attacks by streamlining processes, boosting precision, and decreasing expenses.

Artificial intelligence generates Intelligent Agents that can take the shape of equipment or an application. These operatives are intended to successfully tackle certain safety issues by watching, learning, and making sound judgments. They can detect flaws in complex code, see strange trends in how people log in, as well as uncover novel kinds of malicious malware that conventional methods may overlook (Encryption Consulting, 2024). Smart Machines operate by analysing large amounts of information to comprehend trends. As utilised in security systems, they apply this expertise to examine data that comes in, particularly previously unseen facts. Artificial intelligence technology's usefulness in cyberspace stems from its capacity to deliver enhanced identification of risks, automate interventions, react to changing dangers, and manage massive amounts of data. Artificial Intelligence in cybersecurity enables enterprises to beef up their security measures, increase resistance to cyber-attacks, and promote effective interaction, decision-making, and continued development in the constantly shifting online business environment (Taddeo *et al.,* 2019).

The economy of the digital age is built on computers and other techniques, but is frequently thought of as conducting businesses via marketplaces that utilise internet connectivity and the global web (Bukht & Heeks, 2019). The economy of the internet is one in which intangible items, such as computer technology, have an important function in the creation, delivery, and trade of products and services (Johnson & Nissenbaum, 2020; Patel & Sundararajan, 2022). The online marketplace is a fast-expanding segment of the world economic system. It is anticipated that by 2025, the internet-based economy will be responsible for more than 20 per cent of global Gross Domestic Product (GDP). This is because digital marketplaces can provide enormous socioeconomic advantages to individuals. Further research has found that digitalisation can increase productivity, generate fresh employment opportunities, and improve our general standard of living (Habibi & Zabardast, 2020). In the fast-changing environment of the online economy, where enterprises progressively utilise interrelated networks and technology, numerous nations throughout the globe, particularly nations that are developing, are focusing on ways they can expand their economic systems and enter the club of new markets. As a result, enterprises which have thus far functioned exclusively in the conventional marketplace have to transition to the online marketplace or risk falling behind. The path that lies forward may provide challenges because of the vulnerabilities in cybersecurity that define the online marketplace. Knowing ways cybercrime affects the economy of the internet is nowadays critical.

The function of CS is crucial in the Digital Economy (DE). As a growing number of aspects of our daily lives and organisations migrate to the internet, the importance of protecting electronic possessions and data from online dangers grows. Security is critical to retaining the belief and trust of people and organisations in the DE, which is necessary for its continued growth and prosperity. Cybersecurity is important in the

DE for various reasons (Ursillo & Arnold, 2023). To begin with, it is critical for safeguarding electronic possessions and documents, such as private data, inventions, and financial data, from loss, destruction, or illegal access. Effective cybersecurity measures are required to avoid assaults such as phishing, hacking, and infections with malware, which can have grave implications for people as well as businesses. Second, CS is critical to ensuring the honesty and dependability of electronic networks and system components. Attacks by hackers can impair computer systems and infrastructure, creating disruption and interfering with the normal operations of governments and other entities (Yenugula *et al.,* 2024). Effective cybersecurity solutions can reduce the detrimental effects of cyberattacks while guaranteeing that electronic infrastructure and systems remain functional and safe. Thirdly, CS is crucial for building credibility and trust in the DE. People as well as companies may be hesitant about participating in online transactions such as internet shopping, banking via the internet, and working remotely if appropriate cybersecurity safeguards are not in place (Chandwani, 2023; Upadhyay, 2020). This can hinder the DE's expansion and progress, reducing its ability to innovate and grow economically. The role of CS in the DE cannot be emphasised. Good cybersecurity procedures are critical for safeguarding electronic property and data, ensuring the reliability of electronic systems and infrastructure, and instilling confidence and faith in the DE.

The thriving sector of digital security, as well as the increasing passion of academics in both AI and online safety, has culminated in a plethora of research efforts addressing issues connected to cyberattack recognition, defence, detection, reaction, and restoration. Santos *et al.* (2020) investigated the application of artificial intelligence approaches to identify and avoid distributed denial of Service (DDoS) attacks. They discovered that the employment of automated learning methods increased the precision and efficacy of DDoS monitoring. Tosun *et al.* (2021) investigated the association between computer hacking and the performance of the stock market. They discovered that hacking attacks had a considerable negative influence on the stock market's performance, emphasising the importance of strong cybersecurity measures to avoid these risks. Another study, Yenugula *et al.* (2024), looked at the usage of AI techniques in CS. They found that automated learning approaches could be useful in identifying and reducing cyber-attacks, especially when combined with other security precautions. Sobb *et al.* (2020) investigated the issues of CS risk administration in the setting of managing the supply chain. They reported that CS hazards were a major problem for the management of supply chains and that appropriate risk control solutions were required to handle them.

Similarly, Litvinenko (2020) studied the relationship between CS and financial development in South Korea. The research discovered that making investments in CS had a beneficial relationship with growth in the economy, implying that CS policies might have an important role in supporting the development of the economy. Another study by Lis and Mendel (2019) looked at how online crimes affect the world's economy. The report claimed that attacks from hackers might cost the world's economies up to $2.1 trillion by 2019, emphasising the financial consequences of CS risks. Yudhiyati *et al.* (2021) surveyed the effects of CS on online transactions in Indonesia. The research discovered that CS issues were a key impediment to the rise of online shopping in Indonesia, and that appropriate CS policies were required to encourage the expansion of this crucial business sector. Furthermore, Sturgeon (2021) explored the connections between CS and monetary security. According to the report, CS hazards constituted a substantial danger to the stability of the economy, and reliable CS solutions were required to manage these hazards and keep the banking sector stable. These investigations highlight the relevance of CS in encouraging job creation and

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security, as well as the possible economic consequences of CS concerns. They emphasise the importance of continuing studies and investments in CS solutions to tackle these issues and support the economy's growth.

The current social and commercial setting is undergoing an enormous tide of automation. The world's economies have transitioned from physical stores to easy access at the push of a button. This transformation affects company operations and impacts businesses and society (Wirtz & Zeithaml, 2018). Vast quantities of data continue to be generated as advances in technology impact and connect humanity to the workplace (Obschonka & Audretsch, 2020). A key component of data in contemporary companies is its continuous rapid increase in quantity. Corporations today survive based on data, as well as the ability of corporate entities to collect, examine, handle, and use data to distinguish their products (George *et al.,* 2014). Companies use data to gain an in-depth knowledge of their activities, particularly knowledge about their clients' conduct, to make strategic decisions. Making choices for companies entails recognising data-supported shifts and trends in corporate growth.

In the present-day electronic environment where innovation occurs at a rapid pace, corporations must make educated, accurate, and swift decisions to ensure survival. Given the rise of AI, a revolutionary shift when making choices has begun, profoundly disrupting old choice models around the world. Artificial intelligence's breadth and effect on how decisions are made have been extensive, spanning healthcare, banking, production, and commerce. Artificial intelligence-enabled choice-making is a method of applying AI approaches to make decisions utilising data, regulations, and various other factors. AI-powered choice-making often consists of numerous processes, involving data gathering, preparation, evaluation, and forecasting. Usually, several phases are involved in AI-based decision-making, such as gathering data, processing, analysis, and forecasting. Algorithms using artificial intelligence can provide suggestions and choose the best line of action to take according to the analysis and forecasts (Gupta, 2023). By utilising huge data sets, artificial intelligence-driven choice-making enables companies to arrive at well-informed decisions quickly, correctly, and reliably. Artificial intelligence's capacity to correctly evaluate large data sets helps companies focus on activities related to their areas of specialisation. Such qualities allow firms to digitally transform their operations and enhance their connectedness, which can lead to more income, better pricing models, and improved productivity (Soni *et al.,* 2019).

Every business's activities are driven by a variety of choices, and the success of those decisions determines how well the business performs. One special opportunity brought about by the advancement of computational intelligence is the ability to make more informed choices. Conventional methods for making choices usually rely on presumptions and historical data that may not be adequate in environments that are unpredictable and complex (Charitha & Hemaraju, 2023). As sectors continue to undergo technological evolution, incorporating Artificial Intelligence (AI) into corporate operations has become a significant factor propelling the shift. Traditional choice-making processes inside corporate structures are being proactively reshaped by the range of AI tools, such as natural language processing, machine learning, and analytics for prediction (Kubatko *et al.,* 2024; Prakash *et al.,* 2023). Studies indicate that a mere 39 per cent of businesses have a plan for AI in existence, only 20 per cent of businesses have included AI in some products, and only 5 per cent have completely implemented AI, even though company excitement about AI has been growing steadily (Bughin *et al.,* 2017). Notable instances of AI initiatives gone wrong, such as the Microsoft Chatbot Tay tweeting racist epithets, provide the most straightforward rationale for this seeming reluctance (Reese, 2016). The complex relationship between AI-driven choices and

their ability to propel digital commerce must be carefully examined in light of this unhealthy mindset and the readiness of organisations to drive the digital economy.

Organisational readiness, according to Dubey (2024), is the degree of personality traits, mental capacities, and technological expertise possessed by the staff of a company that aids in their ability to adjust and oversee the course of technological change. It shows whether or not the staff members have the brainpower, appropriate behavioural dispositions, and AI technology capabilities needed for successful handling of the change. Only if a company has the needed facilities, knowledgeable staff, and an innovative culture in place can it reach this level of readiness. Being Intelligence-ready entails getting the business's infrastructure, culture, and architecture suitable for using AI efficiently. Recognising the abilities of AI, integrating them with company objectives, and creating an atmosphere that supports the incorporation of AI are all part of the preparedness pathway. In this setting, readiness refers to how ready enterprises are to adopt change that incorporates AI-related tools and technologies in ways that benefit the business (Holmstrom, 2022), setting them up for success in an era that is becoming increasingly connected and fueled by data (Anser *et al.*, 2020; Gronroos, 2017). The contemporary marketplace is changing, and microfinance institutions (MFIs) are not an exception.

Microfinance Institutions (MFIs) are organisations created expressly to assist in empowering communities and the growth of businesses, particularly for entrepreneurs with small enterprises (Lee, 2017). Microfinance Institutions collect money and handle investments, just like monetary bodies like central banks, commercial banks, and other entities of the same type. However, their main function is to transform money into credit for entrepreneurs with small enterprises and offer services for business growth like advisory, professional and administrative assistance, funding for input purchases and sales of output, leasing for plant and machinery, and funding for the growth of communities. They serve as a conduit for savings and investment, thereby promoting overall financial wellness and fueling economic expansion. As a result, microfinance organisations are in an advantageous position to push the boundaries of financing and encourage the growth and utilisation of society's prospects. Microfinance has been instrumental in improving the conditions of those who suffer from economic hardship throughout the past couple of decades. Millions of people have been lifted out of impoverished circumstances thanks in large part to micro-credit, which has also helped a lot of entrepreneurs to achieve their goals (The NorthCap University, 2024). Businesses have continuously looked for methods to access new customers and have made large investments in these initiatives. As Artificial Intelligence (AI) is incorporated into the realm of microfinance, the most recent stage of the technological shift is taking shape. In addition to accelerating expansion, this combination of AI and microfinance is increasing accessibility to the developing marketplace (The Northcap University, 2024).

Despite AI's crucial role in the banking sector, the investigator has observed that many MFI's operators are struggling to keep up with the rapidly evolving digital world, most likely due to the perceived difficulty, along with the elevated expenses related to integrating solutions based on AI. Additionally, there are worries about the possibility of upsetting current procedures and the requirement for certain technological know-how to oversee systems using AI. Concerns about how AI will affect employment prospects also exist, which might result in opposition from employees and worries about loss of employment. Although big businesses used to be the key to unlocking AI's abilities, the situation has drastically changed. Artificial Intelligence is now readily available and reasonably priced thanks to cloud computing, big data analytics, the Internet of Things (IoT) (Herdem *et al.*, 20222), and other intuitive systems, which have swung the odds in favour of smaller

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corporate enterprises. Micro companies may successfully rival each other, expand their clientele, and seize fresh growth prospects by adopting AI. According to Demirci (2024), small business owners who use AI technology report several advantages, including increased effectiveness in operations (82%), greater rivalry against bigger companies (77%), reduced rising expenses (69%), and maintained progress even in difficult circumstances (69%). In the upcoming years, these indicate a substantial expansion of Nigeria's electronic marketplace. According to Wilson and Dawson (2018), AI is changing companies, and the adoption of solutions powered by AI within companies is growing quickly. Similarly, Demirci (2024), reported that 25 per cent of small firms are currently incorporating AI into their business processes, and many are reporting improved happiness and efficiency, notably in promotional and communication initiatives to engage clients. Artificial intelligence (AI) has transformed the corporate sector, opening up new opportunities for development, effectiveness, and creativity. As entrepreneurs negotiate the constantly shifting electronic environment, it is critical to adopt AI, which offers potential for companies of every kind.

Unfortunately, researcher observed noticed that just a few industries in South-South, Nigeria are digitalising their businesses, including banking, electronic shopping, tourism, transportation, internet-based schooling, and financial technology. The researcher also observed that, while organisations in those sectors appreciate the value of electronic devices, the picture appears distinct for small enterprises, since there is a clear difference between desire and implementation of AI. This is demonstrated in recent investigations. According to Panetta's (2018) poll, 59 per cent of firms are still collecting data to develop their AI plans. On the other hand, according to the Price Waterhouse Coopers Report (2020), most Nigerian entrepreneurs do not place a high value on technological tools such as artificial intelligence and the digital world of devices. Only 10 per cent of Nigerian entrepreneurs expect AI to have an important effect on their operations in the near future. This could be because while some organisations perceive preparedness for change as a vital characteristic that separates progressive companies and actively embrace intelligence technologies, numerous others do not. This might have far-reaching consequences, since some MFI operators' reluctance to implement AI in their operations could result in missed chances, decreased rivalry, lower market share, decreased revenue volume, limited creative ability, ineffectiveness in operations, and company loss. As a result, MFIs, particularly those operating in South-South, Nigeria, will be unable to make major contributions to the growth of the digital economy. This study was undertaken in light of this context.

Purpose of the study

The main purpose of this study was to investigate artificial intelligence-powered operations as a predictor of MFIs' readiness to drive the digital economy in South-South, Nigeria. Specifically, the study determined the extent to which:

1. artificial intelligence-powered cybersecurity predicts MFIs' readiness to drive the digital economy in South-South, Nigeria.
2. artificial intelligence-powered decision-making predicts MFIs' readiness to drive the digital economy in South-South, Nigeria.

Research questions

This study was guided by the following research questions:

1. to what extent does artificial intelligence-powered cybersecurity predict MFIs' readiness to drive the digital economy in South-South, Nigeria?
2. to what extent does artificial intelligence-powered decision-making predict MFIs' readiness to drive the digital economy in South-South, Nigeria?

Statement of hypotheses

The following null hypotheses gave direction to the study:

1. artificial intelligence-powered cybersecurity does not significantly predict MFIs' readiness to drive the digital economy in South-South, Nigeria.
2. artificial intelligence-powered decision-making does not significantly predict MFIs' readiness to drive the digital economy in South-South, Nigeria

Method

This study adopted the predictive research design. The choice of predictive research design was informed by the fact that the study investigated the predictive relationship between AI-enabled operations and Micro Finance Institutions' readiness to drive the digital economy. The rationale for using predictive research design also informed the choice of the tool for data analysis. The study population was 915 operators of MFIs from 49 registered MFIs (Small and Medium Enterprise Development Agency of Nigeria, 2024). From this population, a sample of 315 operators was randomly selected. The choice of MFIs is informed by the fact that they are known not only for their robust online presence but also as organisations that make use of digital technologies embedded with AI. Some of these technologies include security cameras, closed-circuit television (CCTV) cameras, automatic gates, automatic doors, Smartphones, Mobile apps, Zoom, electronic calculators, and Antivirus software. A 30-item structured questionnaire titled Artificial Intelligence-Assisted Operations and MFI's Readiness for Digital Economy Questionnaire (AIAOMFIRDEQ) was used to collect the data required for this research. The questionnaire was made up of three sections. Sections A and B contained 10 items each, developed to measure the two independent sub-variables, while Section C comprised 10 items constructed to measure the dependent variable. The questionnaire was developed on a five-point scale of very great extent (VGE)-5 points, great extent (GE)- 4 points, moderate extent (ME)-3 points, little extent (LE)-2 points, and very little extent VLE)-1 point. The questionnaire was validated by five experts at the University of Calabar, with two from Measurement and Evaluation, two from Business Education, and one from Educational Technology. Corrective feedback from these experts was used to improve the questionnaire before the final draft was administered to the respondents using the hand delivery method. The administered research instrument was collected one week after its administration, since not all the respondents were disposed to respond at the time of its administration. Out of 315 distributed copies, 310 were retrieved. The questionnaire was tested for reliability using the Cronbach Alpha statistics which yielded a reliability coefficient of 0.85. Data obtained after the administration of the study questionnaire were analysed using simple linear regression to answer the research questions and test the hypotheses at a 0.05 level of significance. For the null hypotheses, a null hypothesis was retained if the P-value was $\geq .05$ level of significance, but if the P-value was $\leq .05$ level of significance, the null hypothesis was rejected.

Result

Research question 1

To what extent does artificial intelligence-powered cybersecurity predict MFIs' readiness to drive the digital economy in South-South, Nigeria?

Table 1

Simple Linear Regression of the prediction of MFIs' readiness to drive the digital economy by AI-powered cybersecurity.

Model	R	r-square	Adjusted R-square	St. Error of the estimate	Durbin-Watson
1	.965	.923	.923	.333	.502

a. Predictor variable: AI-powered cybersecurity

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b. Criterion variable: Readiness to drive the digital economy.

This coefficient of determination, R^2 of 0.923, implies that a 92.3 per cent variation in the dependent (Readiness to drive the digital economy) was predicted by the explanatory variable (AI-powered cyber security). This suggests that other variables might account for the remaining 7.7 per cent of the variance in the criterion variable. Based on Table 2, it is predicted that a 1per cent increase in MFIs' readiness to drive the digital economy is associated with a 96.5 per cent improvement in AI-enabled cyber security operations, other things being equal. The result suggests that AI-powered cybersecurity predicts MFIs' readiness to drive the digital economy. To what extent does artificial intelligence-powered decision-making predict MFIs' readiness to drive the digital economy in South-South, Nigeria?

Table 2

Simple Linear Regression of the Prediction of MFIs' readiness to drive the digital economy by AI-powered decision-making.

Model	R	r-square	Adjusted R-square	St. Error of the estimate	Durbin-Watson
1	.892	.822	.822	.333	.502

a. Predictor variable: AI-powered cybersecurity
b. Criterion variable: Readiness to drive the digital economy.

This coefficient of determination, R^2 of 0.822, implies that 82.2 per cent variation in the dependent variable (Readiness to drive the digital economy) is attributable to AI-powered decision-making. This suggests that other variables might account for the remaining 17.8 per cent of the variance in the criterion variable. Based on Table 2, it is predicted that a 1per cent increase in MFIs' readiness to drive the digital economy is associated with an 89.2 per cent improvement in AI-enabled decision-making operations, other things being equal. The result suggests that AI-powered decision-making predicts MFIS's readiness to drive the digital economy.

Hypothesis one

AI-powered cybersecurity does not significantly predict MFIs' readiness to drive the digital economy.

Table 3

Simple Linear Regression of the prediction of MFIs' readiness to drive the digital economy by AI-powered cybersecurity.

Model	Sum of Squares	Df	Means Square	F	Significant Level
Regression (X)	22.676	1	22.676	654.821	.00[b]
Residual (Y)	10.666	308	.035		
Total	33.642	309			

N = 310; Critical F = 3.92

Table 3 presents the result of linear regression of the prediction of MFIs' readiness to drive the digital economy by AI-powered cybersecurity. The result shows that the calculated F-value of 654.821 is higher than the critical F-value of 3.92 with the degrees of freedom being 1 and 308 at the .05 level of significance. The result shows that the p-value of .00 is less than the 0.05 alpha level. Therefore, the null hypothesis, that AI-powered cybersecurity does not significantly predict MFIs' readiness to drive the digital economy, is rejected. The study concludes that AI-assisted cybersecurity significantly predicts MFIs' readiness to drive the digital economy in South-South, Nigeria.

Hypothesis two

AI-powered decision-making does not significantly predict MFIs' readiness to drive the digital economy.

Table 4
Simple Linear Regression of the prediction of MFIs' readiness to drive the digital economy by AI-powered decision-making.

Model	Sum of Squares	Df	Means Square	F	Significant Level
Regression (X)	1488.983	1	1488.983	761.381	.00[b]
Residual (Y)	602.336	308	1.956		
Total	2091.319	309			

N = 310; Critical F = 3.92

Table 4 presents the result of linear regression of the prediction of MFIs' readiness to drive the digital economy by AI-powered decision-making. The result shows that the calculated F-value of 761.381 is greater than the Tabled F-value of 3.92 with degrees of freedom being 1 and 308 at the .05 level of significance. The result shows that the p-value of .00 is less than the 0.05 alpha level. Therefore, the null hypothesis, that AI-powered decision-making does not significantly predict MFIs' readiness to drive the digital economy, is rejected. The study concludes that AI-assisted decision-making significantly predicts MFIs' readiness to drive the digital economy in South-South, Nigeria.

Discussion

This study found that MFIs' ability to promote the digital economy in South-South, Nigeria is heavily reliant on AI-assisted cybersecurity. This result corresponds with Santos *et al.* (2020), who discovered that using artificial intelligence techniques enhanced both the precision as well as efficiency of DDoS monitoring. The study's finding also support Litvinenko's (2020) observation that investing in safety and security is correlated positively with economic expansion, implying that CS policies may play an important role in supporting the growth of the economy. The finding of this study is consistent with Demirci's (2024) discovery that 25 per cent of MFIs are currently incorporating AI into their business processes, and many are reporting higher levels of fulfilment and efficiency, especially concerning communication and marketing initiatives designed for attracting clients. The finding of this study may be as reported because when a company understands its present electronic situation, its digital capabilities and weaknesses, it can efficiently utilise currently available technologies and add new ones to boost defence against online assaults while keeping the company running smoothly.

This study found that MFIs' ability to promote the digital economy in South-South, Nigeria is heavily reliant on AI-assisted choice-making. The finding of this study is consistent with Soni *et al.'s* (2019) opinion that AI-driven choice-making enables enterprises to make educated decisions quickly, precisely, and reliably by exploiting enormous databases. The ability of artificial intelligence to properly evaluate large data sets assists company personnel in focusing on activities that are relevant to their speciality. These traits can lead to higher earnings, lower costs, and greater efficiency, allowing firms to digitise operations and enhance interconnectivity. The finding of this study support Kubatko *et al.'s* (2024) and Prakash *et al.'s* (2023) view that a variety of AI tools, including machine learning, natural language processing, and predictive analytics, are proactively altering traditional choice models within the company structures. The result of the investigation could be as stated herein because some small firms can employ AI technologies to help them arrive at choices in a variety of industry sectors, including accounting, customer service, marketing, security, and recruitment. Aside from that, several MFIs seem to be open to alterations and ready to adjust to the growing AI field.

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Conclusion

The outcomes of this study suggest that artificial intelligence-powered activities performed by MFIs can have a significant impact on the digital economy if they take advantage of AI's revolutionary capabilities. Microfinance institutions can gain an edge in modern times by encouraging creativity and implementing appropriate AI operations. As we negotiate this changing terrain, a deliberate effort to gain access to AI technology will be critical to unlocking the full potential of AI for MFIs. Artificial Intelligence provides MFIs with numerous benefits, including improved productivity, better safety and security, and decision-making guided by data. In fact, artificial intelligence is now available to both small and large organisations. While discrepancies persist, small-scale enterprises may easily access and adopt most AI innovations, even if the more complex ones are more difficult to understand. While large corporations may outperform small businesses, MFIs are increasingly adopting this technological innovation, particularly if they focus on areas that are directly related to their business. The implications of the findings of this study suggest that organisations that do not move quickly enough to integrate such technologies into their business processes risk missing out on potential advantages and being surpassed by other enterprises in which operations have been automated.

Recommendations

Based on the findings of this study, the study recommends that:

1. Operators of MFIs should procure and utilise emerging technologies with embedded security-specific AI to generate intelligence to safely guide their digital assets and contribute to the development of the digital economy.
2. Operators of MFIs should leverage the transformative power of AI for decision-making to situate their enterprises to contribute meaningfully towards the advancement of the digital economy.

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