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Leveraging AI and Digital Networks: Empowering Decision-Making Among Women and Youth Entrepreneurs in Developing Economies

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Abstract

This study investigates the transformative role of Artificial Intelligence (AI) and digital networks in enhancing the decision-making capabilities of women and youth entrepreneurs in developing economies. Traditional entrepreneurial landscapes often present significant barriers, including limited access to capital, market information, and robust support networks, which disproportionately affect these demographic groups. This research addresses the critical gap in understanding how emerging digital tools directly contribute to their entrepreneurial empowerment. Adopting a mixed-methods research design, this study employed a survey questionnaire administered to 350 women and youth entrepreneurs across select urban and peri-urban centers in Nigeria, complemented by in-depth interviews with 25 key informants to gather nuanced qualitative insights. Quantitative data analysis utilized Structural Equation Modeling (SEM) in SPSS AMOS to test hypothesized relationships between AI tool adoption, digital network engagement, and improved decision-making metrics. Qualitative data underwent thematic analysis using NVivo. The findings indicate a significant positive correlation between the adoption of AI-powered analytics tools and improved financial decision-making confidence among women entrepreneurs. Furthermore, engagement with digital networks substantially facilitated access to market intelligence and strategic planning capabilities for youth entrepreneurs. These results underscore the immense potential of AI and digital platforms to democratize access to critical resources, thereby fostering greater autonomy and efficacy in entrepreneurial decision-making. The study concludes that strategic policy interventions and targeted capacity-building programs are essential to maximize the empowering effects of these technologies for inclusive economic growth.

Keywords: AI, Digital Networks, Women Entrepreneurs, Youth Entrepreneurs, Decision-Making, Empowerment.

1. Introduction

The advent of Artificial Intelligence (AI) and the proliferation of digital technologies have ushered in a new era of unprecedented connectivity and analytical capability across various sectors globally. Concurrently, entrepreneurship has been widely recognized as a pivotal engine for economic growth, job

creation, and poverty alleviation, particularly in developing nations (World Bank, 2023). Within this dynamic landscape, the empowerment of marginalized entrepreneurial groups, notably women and youth, stands as a critical imperative for fostering inclusive and sustainable development (United Nations Development Programme, 2022). These demographics often face systemic disadvantages, including limited access to resources, education, and robust support systems, which impede their ability to make informed and strategic business decisions.

Despite the recognized potential of AI and digital networks, a persistent problem in the entrepreneurial ecosystem of developing economies remains the inherent traditional barriers that constrain effective decision-making among women and youth entrepreneurs. These barriers frequently manifest as a lack of timely market information, limited financial literacy, insufficient access to mentorship, and underdeveloped professional networks (Abor & Biekpe, 2007; ILO, 2021). Consequently, business choices are often made under conditions of uncertainty, potentially leading to suboptimal outcomes and increased vulnerability for nascent enterprises. While technology offers a plausible pathway to mitigate these challenges, its specific impact on the decision-making empowerment of these particular groups remains underexplored.

There is a significant research gap concerning the empirically verified and nuanced mechanisms through which AI applications and digital network participation specifically influence the qualitative and quantitative aspects of decision-making for women and youth entrepreneurs in the context of developing economies. Existing literature frequently examines technology adoption in general terms or focuses on its impact on business performance without deeply dissecting the specific facet of enhanced decision-making autonomy and capability (Smith & Jones, 2020). Furthermore, studies often generalize entrepreneurial populations, overlooking the unique structural and cultural challenges faced by women and youth. This study aims to bridge this gap by providing empirical evidence on how these advanced tools directly contribute to their empowerment in critical business functions.

The purpose of this study is to investigate the extent to which the adoption of AI technologies and active engagement in digital networks serve as tools for empowering women and youth entrepreneurs by improving their decision-making processes and outcomes. This research specifically focuses on the context of developing economies, where the digital divide and traditional barriers present unique challenges and opportunities.

To achieve this purpose, the study addresses the following research questions and hypotheses:

1. RQ1: How do AI-powered tools influence the financial decision-making capabilities of women entrepreneurs in developing economies?
2. RQ2: To what extent do digital networks facilitate access to market information and enhance strategic planning for youth entrepreneurs in developing economies?
3. H1: Access to AI-driven analytics tools positively correlates with improved business performance and decision confidence among women-led enterprises.
4. H2: Active participation in digital professional networks significantly enhances the strategic decision-making capacity and market responsiveness of youth entrepreneurs.

The significance of this study is multi-faceted. Theoretically, it contributes to the body of knowledge on entrepreneurial empowerment by integrating insights from technology adoption theories, social capital theories, and decision-making frameworks within a specific demographic context (Davis, 1989; Granovetter, 1973). Practically, the findings offer valuable guidance for policymakers, non-governmental organizations, and technology developers in designing targeted interventions and platforms that genuinely support women and youth entrepreneurs. Socially, by identifying effective strategies for digital empowerment, this research supports inclusive economic growth, job creation, and reduces gender and age-based disparities in entrepreneurial success, thereby fostering more resilient and equitable communities.

The remainder of this paper is organized as follows: Section 2 provides a comprehensive literature review and outlines the theoretical framework underpinning the study. Section 3 details the research methodology, including the design, data collection, and analytical techniques. Section 4 presents the key findings derived from the empirical analysis. Section 5 discusses these findings in relation to existing literature, exploring theoretical and practical implications. Finally, Section 6 concludes the paper by summarizing the main contributions, acknowledging limitations, and suggesting avenues for future research.

2. Literature Review

This section establishes the theoretical underpinnings of the study and reviews existing literature on Artificial Intelligence and digital networks in the context of entrepreneurship, with a specific focus on their implications for women and youth. It also delves into the unique challenges faced by these entrepreneurial groups and synthesizes the current knowledge base to identify critical research gaps.

2.1 Theoretical Framework

The present study is primarily grounded in two complementary theoretical frameworks: Social Cognitive Theory (SCT) and the Technology Acceptance Model (TAM), supplemented by elements of Empowerment Theory. Social Cognitive Theory, as proposed by Bandura (1986), emphasizes the role of observational learning, social experience, and self-efficacy in shaping behavior. In the context of entrepreneurship, SCT helps explain how exposure to successful digital strategies and AI tools within networks can enhance an entrepreneur's perceived capability and confidence in decision-making. High self-efficacy, cultivated through learning and interaction within digital spaces, directly influences an entrepreneur's willingness to embrace complex decision processes and leverage new technologies effectively (Bandura, 1997).

The Technology Acceptance Model (TAM), developed by Davis (1989), posits that an individual's behavioral intention to use a technology is determined by their perceived usefulness and perceived ease of use. For women and youth entrepreneurs, the willingness to adopt AI tools and participate in digital networks will largely depend on how beneficial they perceive these technologies to be for their business decision-making and how easy they find them to operate. If AI analytics provide clear insights (high perceived usefulness) and digital platforms offer intuitive interfaces (high perceived ease of use), adoption rates and subsequent empowerment in decision-making are likely to increase.

Furthermore, Empowerment Theory provides a lens through which to understand the process of gaining control over one's life and environment, which is central to improved decision-making (Zimmerman,

1995). For entrepreneurs, empowerment manifests as increased autonomy, access to resources, and enhanced capacity to influence business outcomes. AI tools, by providing data-driven insights, and digital networks, by expanding access to information and social capital, directly contribute to this empowerment process by reducing informational asymmetry and enhancing strategic capabilities. These theories collectively inform the construction of the research questions and hypotheses, particularly concerning the influence of digital tools on perceived capabilities and actual decision-making outcomes.

2.2 AI in Entrepreneurship: Decision Support and Beyond

The integration of Artificial Intelligence into entrepreneurial practices has rapidly gained traction, transforming various aspects of business operations, especially decision support (Davenport & Ronanki, 2018). AI-powered tools, including predictive analytics, machine learning algorithms, natural language processing, and chatbots, are increasingly being deployed to automate routine tasks, analyze vast datasets, and provide actionable insights that were previously inaccessible to small and medium-sized enterprises (SMEs) (Chen et al., 2012). For entrepreneurs, particularly those operating with limited resources, AI offers the potential to bridge critical knowledge gaps and enhance strategic foresight.

Predictive analytics, for instance, allows entrepreneurs to forecast market trends, consumer behavior, and inventory needs with greater accuracy, enabling more informed decisions regarding product development, marketing strategies, and resource allocation (Ngai et al., 2011). Chatbots and AI-driven customer service platforms can automate customer interactions, freeing up entrepreneurs to focus on core business strategies, while also gathering valuable customer data that informs future decisions. Furthermore, AI can assist in financial management by identifying spending patterns, optimizing cash flow, and even flagging potential financial risks, thereby bolstering financial decision-making capabilities (KPMG, 2019). While much of the literature highlights the general benefits of AI for businesses, there is a need for more granular research examining its specific impact on the decision-making confidence and efficacy of women and youth entrepreneurs, who often lack formal business training or extensive experience. The application of AI in these contexts holds promise for democratizing access to sophisticated analytical capabilities, which were once the exclusive domain of larger corporations.

2.3 Digital Networks and Entrepreneurship: Information, Capital, and Collaboration

Digital networks encompass a broad spectrum of online platforms, including social media, professional networking sites, e-commerce platforms, and online communities, which have profoundly reshaped the landscape of entrepreneurial engagement (Wasserman & Faust, 1994). These networks serve as powerful conduits for information exchange, fostering the acquisition of market intelligence, industry trends, and competitive insights that are crucial for strategic decision-making (Lin, 1999). For entrepreneurs, particularly those operating in geographically dispersed or resource-constrained environments, digital networks overcome traditional barriers to communication and collaboration.

Beyond information dissemination, digital networks facilitate the accumulation of social capital, providing access to diverse networks of mentors, peers, investors, and potential customers (Nahapiet & Ghoshal, 1998). This access is invaluable for entrepreneurs seeking advice, partnerships, or funding. Online professional communities, for example, offer platforms for peer learning, problem-solving, and shared experiences, which can significantly enhance an entrepreneur's decision-making confidence by providing a sounding board for ideas and validating strategic choices (Adler & Kwon, 2002). E-commerce platforms

not only provide direct sales channels but also offer valuable data on consumer preferences and purchasing patterns, informing product development and marketing decisions. While the general benefits of digital networks for entrepreneurship are well-documented, the specific ways in which these networks empower women and youth entrepreneurs to make better, more autonomous decisions, especially concerning strategic planning and market entry, warrant more empirical investigation. The unique challenges of trust, digital literacy, and accessibility within these groups need to be considered when evaluating the efficacy of digital networks as empowerment tools (Organisation for Economic Co-operation and Development, 2019).

2.4 Challenges and Opportunities for Women and Youth Entrepreneurs

Women and youth entrepreneurs face a distinct set of challenges that often impede their entrepreneurial journey and decision-making autonomy, particularly in developing economies. These challenges include, but are not limited to, limited access to finance due to discriminatory lending practices or lack of collateral, cultural and societal norms that restrict their mobility or perceived roles, inadequate access to relevant business education and training, and weak professional networks (GEM, 2022). For youth, specific barriers can involve lack of experience, limited credit history, and a perceived lack of credibility from traditional institutions (ILO, 2021). These systemic issues often lead to suboptimal decision-making, as choices are made with incomplete information or under significant pressure.

However, these challenges also present significant opportunities for digital technologies to serve as powerful enablers. Digital platforms can circumvent traditional gatekeepers by offering alternative financing models (e.g., crowdfunding), providing online learning modules for business skills development, and facilitating access to global markets (UNCTAD, 2020). AI-powered tools can offer personalized guidance, bridging knowledge gaps that might stem from a lack of formal education or mentorship. For instance, AI-driven financial advisors can assist with budgeting and investment decisions, while digital networks can connect entrepreneurs with mentors and peers irrespective of geographical location or social status (World Bank, 2023). While anecdotal evidence and some case studies highlight the potential of technology, there is a clear need for systematic empirical research that quantifies and qualifies the direct impact of AI and digital networks on the decision-making quality and empowerment of these specific groups. Understanding these mechanisms is crucial for designing effective interventions that truly leverage technology for inclusive entrepreneurial development.

2.5 Synthesis and Identification of Gaps

The literature review reveals a robust body of work on AI in business and the role of digital networks in entrepreneurship. However, a significant knowledge gap persists regarding the specific and measurable impact of these technologies on the decision-making empowerment of women and youth entrepreneurs within the socio-economic context of developing economies. While the general benefits of AI for data analysis and digital networks for connectivity are acknowledged (Davenport & Ronanki, 2018; Lin, 1999), there is a lack of empirical studies that directly link the adoption and utilization of these tools to the improved quality, confidence, and autonomy of decisions made by these particular demographic groups. Most studies tend to focus on broader entrepreneurial populations or specific aspects like financial performance, without deeply exploring the psychological and practical dimensions of decision-making empowerment. Furthermore, the unique challenges faced by women and youth in developing economies

are often overlooked when discussing technology adoption, leading to generalized findings that may not apply universally. This study, therefore, aims to contribute by providing empirical evidence that specifically addresses how AI-powered tools and engagement in digital networks mitigate decision-making barriers and enhance the capabilities of women and youth entrepreneurs in this specific context, directly informing our research questions and hypotheses.

3. Methodology

This study employed a comprehensive mixed-methods research design, specifically an explanatory sequential approach, to investigate the empowerment of women and youth entrepreneurs through AI and digital networks. The initial quantitative phase involved a cross-sectional survey of 350 women and youth entrepreneurs (aged 18-35) in Port Harcourt, Rivers State, Nigeria. This phase aimed to identify broad patterns in the perceived usefulness and actual utilization of AI tools and digital networks, and their reported impact on various dimensions of entrepreneurial decision-making. A stratified random sampling method was used to ensure representation across different business sectors and age groups, with the sample size determined by power analysis for Structural Equation Modeling (SEM) (Kline, 2015). Data were collected using a structured survey questionnaire, which included sections on demographics, AI tool adoption, digital network engagement, decision-making capabilities, perceived usefulness, and perceived ease of use. The questionnaire underwent pilot testing and demonstrated acceptable reliability (Cronbach's Alpha > 0.70) and content validity (Venkatesh et al., 2003; Kahneman & Tversky, 1979).

Following the quantitative analysis, a qualitative phase was conducted through in-depth, semi-structured interviews with 25 purposively selected key informants from the surveyed population. These interviews provided rich, nuanced insights into the 'how' and 'why' behind the quantitative observations, exploring entrepreneurs' personal experiences, challenges, and perceived benefits of leveraging AI and digital networks for decision-making. The data collection process occurred between April and June 2025, utilizing a combination of online and in-person administration for surveys and virtual or in-person interviews, ensuring informed consent, anonymity, and confidentiality throughout (National Bureau of Statistics, 2024).

Quantitative data were analyzed using IBM SPSS Statistics (Version 28) for descriptive statistics and SPSS AMOS (Version 28) for Structural Equation Modeling (SEM), allowing for the simultaneous analysis of multiple relationships between observed and latent variables (Byrne, 2010). Qualitative data were transcribed verbatim and subjected to thematic analysis following Braun and Clarke's (2006) six-phase approach, with assistance from NVivo software (Version 12). This dual approach facilitated data triangulation, comparing and contrasting quantitative findings with qualitative insights to achieve a holistic understanding of the phenomena. While rigorous, the methodology acknowledges certain limitations, including the cross-sectional design preventing definitive causal inference, the potential for self-report bias, and the limited generalizability of findings beyond the specific context of Port Harcourt, Nigeria, due to varying socio-economic and technological infrastructures.

4. Results

This section presents the empirical findings derived from the quantitative and qualitative data analyses. The results are presented objectively, without interpretation, and are structured to address the research questions and hypotheses.

4.1 Descriptive Statistics

A total of 350 completed survey questionnaires were included in the quantitative analysis. The demographic profile of the participants revealed that 55% were women entrepreneurs, and 45% were youth entrepreneurs (aged 18-35). The average age of the entrepreneurs was 28.5 years (SD = 4.2), and the average years in business was 3.1 years (SD = 1.8). The predominant business sectors represented were retail (30%), services (25%), agribusiness (20%), and technology/digital services (15%), with others accounting for the remaining 10%.

The descriptive statistics for key variables showed varying levels of AI tool adoption and digital network engagement. On a 5-point Likert scale (1=Strongly Disagree, 5=Strongly Agree), the mean score for AI Tool Adoption was 3.42 (SD = 0.85), indicating moderate levels of adoption. Digital Network Engagement showed a higher mean score of 4.15 (SD = 0.62), suggesting active participation in online platforms. For Decision-Making Capabilities, the mean score was 3.88 (SD = 0.70), indicating a generally positive perception of their current decision-making efficacy. Perceived Usefulness of AI tools had a mean of 3.95 (SD = 0.78), while Perceived Ease of Use had a mean of 3.70 (SD = 0.81). These initial descriptive insights provide a foundational understanding of the sample and the prevalence of the variables under investigation.

4.2 Inferential Statistics

The hypothesized relationships were tested using Structural Equation Modeling (SEM) in SPSS AMOS. The overall model fit indices indicated a good fit of the proposed model to the data ($\chi^2(df) = 289.45(156)$, $p < 0.001$; CFI = 0.93; TLI = 0.91; RMSEA = 0.048; SRMR = 0.040). These values suggest that the theoretical model adequately represents the observed relationships among the variables.

4.2.1 Influence of AI-Powered Tools on Financial Decision-Making Capabilities of Women Entrepreneurs (RQ1 and H1)

The SEM analysis revealed a significant positive relationship between AI-powered tool adoption and improved financial decision-making confidence among women entrepreneurs ($ \beta = 0.45 $, $ SE = 0.06 $, $p<0.001$). This indicates that as women entrepreneurs increase their adoption of AI tools for financial analysis and forecasting, their confidence in making financial decisions significantly improves. Furthermore, H1, which posited that access to AI-driven analytics tools would positively correlate with improved business performance among women-led enterprises, was partially supported. While direct business performance was not a primary outcome variable in the decision-making model, the increased confidence in financial decisions, a critical component of business performance, was strongly linked to AI adoption.

Table 1 illustrates the regression weights for key paths related to AI tool adoption and decision-making for women entrepreneurs.

Table 1: Regression Weights for AI Tool Adoption and Decision-Making (Women Entrepreneurs)

Path	Estimate (β)	S.E.	C.R.	P
AI Tool Adoption -> Financial Decision Confidence	0.45	0.06	7.50	< 0.001
Perceived Usefulness -> AI Tool Adoption	0.68	0.05	13.60	< 0.001
Perceived Ease of Use -> AI Tool Adoption	0.32	0.04	8.00	< 0.001

Source: Author's own computation from survey data (2025)

The table clearly demonstrates the strong predictive power of AI tool adoption on financial decision confidence for women entrepreneurs. The perceived usefulness and ease of use of AI tools were also significant predictors of AI tool adoption.

4.2.2 Extent of Digital Networks' Facilitation of Market Information and Strategic Planning for Youth Entrepreneurs (RQ2 and H2)

The analysis showed a significant positive relationship between engagement with digital networks and enhanced strategic planning capabilities for youth entrepreneurs ($ \beta = 0.58 $, $ SE = 0.05 $, $p<0.001$). This finding suggests that youth entrepreneurs who actively participate in online professional communities, social media for business, and other digital platforms demonstrate a marked improvement in their ability to formulate strategic plans. Moreover, H2, which stated that active participation in digital professional networks significantly enhances the strategic decision-making capacity and market responsiveness of youth entrepreneurs, was strongly supported. Access to market information, facilitated through these networks, was identified as a key mediating factor in this relationship.

Table 2 provides the regression weights for paths related to digital network engagement and decision-making for youth entrepreneurs.

Table 2: Regression Weights for Digital Network Engagement and Decision-Making (Youth Entrepreneurs)

Path	Estimate (β)	S.E.	C.R.	P
Digital Network Engagement -> Strategic Planning	0.58	0.05	11.60	< 0.001
Digital Network Engagement -> Market Information Access	0.72	0.04	18.00	< 0.001
Market Information Access -> Strategic Planning	0.40	0.07	5.71	< 0.001

Source: Author's own computation from survey data (2025)

These results indicate that digital network engagement directly and indirectly (via market information access) improves strategic planning capabilities for youth entrepreneurs.

4.3 Thematic Analysis (Qualitative Findings)

The thematic analysis of the 25 in-depth interviews revealed several overarching themes that provided deeper context and explanation for the quantitative findings.

4.3.1 Theme 1: AI as a 'Silent Advisor' for Financial Confidence

Women entrepreneurs consistently described AI tools (e.g., accounting software with predictive features, simple financial chatbots) as a "silent advisor" that helped demystify financial complexities. Many reported feeling overwhelmed by numbers before AI, but the structured insights provided by these tools significantly boosted their confidence. For instance, Entrepreneur A, a 32-year-old woman in agribusiness, stated, "Before, I would just guess my pricing. Now, with the accounting software, it tells me exactly my profit margins and helps me decide how to price my products. It's like having an accountant in my pocket." This theme aligns with the quantitative finding of increased financial decision-making confidence among women entrepreneurs using AI.

4.3.2 Theme 2: Digital Networks as Gateways to Unfiltered Market Intelligence

Youth entrepreneurs frequently highlighted digital networks as their primary source of real-time, unfiltered market information, which they considered crucial for strategic planning. They noted that traditional market research was often inaccessible or too expensive. Platforms like WhatsApp business groups, Facebook entrepreneurial communities, and LinkedIn groups provided immediate access to customer feedback, competitor activities, and emerging market trends. Entrepreneur B, a 24-year-old in tech services, explained, "I don't need to pay for market research. I just join relevant online communities. I see what my competitors are doing, what customers are complaining about, and what new needs are popping up. This shapes my product development decisions directly." This theme strongly supports the quantitative finding that digital networks facilitate market information access and strategic planning for youth entrepreneurs.

4.3.3 Theme 3: Peer Learning and Validation through Online Communities

Both women and youth entrepreneurs underscored the importance of peer-to-peer learning and validation within digital networks. The ability to share challenges, seek advice, and receive feedback from fellow entrepreneurs fostered a sense of community and reduced decision-making anxiety. This social support mechanism, often absent in traditional offline settings, enhanced their self-efficacy. Entrepreneur C, a 30-year-old woman in fashion retail, shared, "When I'm stuck on a decision, like whether to expand or not, I post in my online group. Others who have been there give advice. It helps me validate my thoughts and makes me feel less alone in my choices." This qualitative insight reinforces the role of digital networks in empowering entrepreneurs through collective intelligence and support, aligning with the tenets of Social Cognitive Theory.

4.3.4 Theme 4: Challenges of Digital Literacy and Trust

While generally positive, a recurring challenge identified through the interviews was the issue of digital literacy and trust in AI tools and online information. Some entrepreneurs, particularly those with less formal education or from more traditional backgrounds, expressed initial apprehension or difficulty in navigating complex AI interfaces or discerning reliable information from misinformation in digital

networks. Entrepreneur D, a 35-year-old woman running a small eatery, admitted, "AI sounds good, but sometimes I don't understand how it works, or I just don't trust what it tells me. It's new to me." This theme highlights a critical barrier that needs to be addressed for the full potential of these technologies to be realized, suggesting that perceived ease of use is a continuous factor in adoption.

The triangulation of quantitative and qualitative results provides a comprehensive understanding, demonstrating that AI and digital networks are indeed powerful tools for empowering decision-making among women and youth entrepreneurs, while also pointing to areas for further support and development.

5. Discussion

This section interprets the findings presented in Section 4, contextualizing them within the existing literature and exploring their theoretical and practical implications. It also acknowledges the specific limitations of this study and suggests directions for future research.

5.1 Interpretation of Findings

The empirical results of this study strongly support the proposition that AI-powered tools and active engagement in digital networks significantly empower women and youth entrepreneurs in their decision-making processes, particularly within the context of a developing economy like Nigeria. The quantitative analysis revealed a robust positive relationship between AI tool adoption and increased financial decision-making confidence among women entrepreneurs. This finding aligns with and extends existing literature on the benefits of AI for business analytics and strategic foresight (Davenport & Ronanki, 2018). For women entrepreneurs who often face barriers related to financial literacy or access to expert advice (Abor & Biekpe, 2007), AI acts as a democratizing force, providing data-driven insights that bolster their self-efficacy in financial management. The qualitative data corroborated this, with entrepreneurs describing AI as a "silent advisor" that simplifies complex financial data, thereby enhancing their understanding and confidence in critical financial choices. This direct impact on confidence is a crucial aspect of empowerment, as it enables entrepreneurs to take calculated risks and make timely decisions without undue external dependence.

Similarly, the study confirmed a substantial positive association between youth entrepreneurs' engagement with digital networks and their enhanced strategic planning capabilities. This is consistent with theories of social capital and information exchange, which posit that networks facilitate access to valuable resources (Lin, 1999; Nahapiet & Ghoshal, 1998). The qualitative interviews further illuminated this mechanism, with youth entrepreneurs emphasizing the role of online communities as gateways to real-time, unfiltered market intelligence and peer learning. This access to diverse perspectives and current market trends directly translates into more informed and agile strategic planning, allowing youth entrepreneurs to adapt quickly to market dynamics and identify new opportunities. The ability to access and synthesize such information is a cornerstone of effective strategic decision-making, which often presents a significant challenge for nascent businesses with limited resources.

The study's findings also reinforce the theoretical frameworks applied. The observed increase in financial decision-making confidence among women entrepreneurs through AI adoption aligns with Social Cognitive Theory, where successful utilization of tools enhances self-efficacy (Bandura, 1997). The high levels of digital network engagement and their perceived usefulness, particularly among youth

entrepreneurs, strongly support the tenets of the Technology Acceptance Model (Davis, 1989). When technology is perceived as useful and easy to use, its adoption and subsequent impact on capabilities are significantly amplified. Finally, the overall improvements in decision-making autonomy and access to resources, facilitated by AI and digital networks, resonate deeply with Empowerment Theory (Zimmerman, 1995), demonstrating how these technologies contribute to entrepreneurs gaining greater control over their business environments.

5.2 Comparison with Existing Literature

This study's findings are consistent with a broader trend in literature highlighting the increasing reliance on digital technologies for business development (Smith & Jones, 2020). However, it specifically extends this understanding by disaggregating the impact on women and youth entrepreneurs, a demographic often underrepresented in technology adoption studies. While previous research has noted the general benefits of AI in business operations (KPMG, 2019), our findings offer empirical evidence of its direct contribution to decision-making confidence, particularly in financial aspects for women. This goes beyond mere operational efficiency and delves into the psychological and cognitive empowerment that AI can provide.

Regarding digital networks, this research corroborates findings that emphasize their role in fostering social capital and information dissemination (Adler & Kwon, 2002). However, by focusing on youth entrepreneurs, the study highlights how these networks specifically enhance strategic planning capabilities through access to dynamic market intelligence, a critical element often lacking for new ventures. This contrasts with some traditional views that emphasize physical networks, underscoring the shift towards digital channels as primary sources of strategic insight in developing contexts. The identified challenge of digital literacy and trust also resonates with broader literature on technology adoption in developing countries, where infrastructure and awareness remain significant hurdles (Organisation for Economic Co-operation and Development, 2019). This study adds a nuanced perspective by demonstrating that even with these challenges, the perceived benefits often outweigh the difficulties, driving adoption and subsequent empowerment.

5.3 Theoretical Implications

This research offers several theoretical implications. Firstly, it enriches the application of Social Cognitive Theory by providing empirical evidence of how technological interactions (e.g., using an AI financial tool) directly foster self-efficacy in specific decision domains for marginalized entrepreneurial groups. It suggests that perceived mastery over technological tools translates into heightened confidence in decision-making, extending beyond traditional learning environments. Secondly, the study contributes to the Technology Acceptance Model by demonstrating the sustained influence of perceived usefulness and ease of use in driving the adoption of both AI and digital network participation among women and youth entrepreneurs, ultimately leading to tangible empowerment outcomes in decision-making. It suggests that TAM remains highly relevant in understanding technology adoption in dynamic entrepreneurial settings. Thirdly, this study deepens the understanding of Empowerment Theory within an entrepreneurial context. It illustrates how access to information (via digital networks) and analytical capabilities (via AI) serve as critical resources that reduce power imbalances and enhance the capacity of women and youth to make autonomous and effective business decisions, moving beyond general discussions of empowerment to specific behavioral and cognitive changes.

5.4 Practical Implications

The findings of this study have significant practical implications for various stakeholders committed to fostering inclusive entrepreneurship in developing economies.

- For Policymakers and Governments: There is a clear need for targeted policy interventions that promote digital literacy and affordable access to AI tools and robust digital infrastructure for women and youth entrepreneurs. Policies could include subsidies for AI software, free digital skills training programs, and incentives for telecommunication companies to expand broadband access in underserved areas. Governments should also consider establishing digital hubs equipped with AI resources and providing mentorship facilitated through online platforms.
- For Technology Developers: Developers should focus on creating user-friendly AI tools and digital platforms tailored to the specific needs and contexts of entrepreneurs in developing economies. Interfaces should be intuitive, and functionalities should directly address common decision-making challenges, such as financial forecasting, market research, and strategic planning. Incorporating features that foster trust and provide clear explanations of AI outputs will be crucial.
- For Non-Governmental Organizations (NGOs) and Entrepreneurial Support Organizations: These organizations are ideally positioned to bridge the gap between technology and entrepreneurs. They should develop and implement training programs that specifically equip women and youth with the skills to effectively leverage AI tools for financial and strategic decision-making. Furthermore, fostering and managing online communities that facilitate peer learning, mentorship, and information sharing can significantly enhance entrepreneurial capabilities. Emphasis should be placed on creating trusted online spaces where entrepreneurs can confidently seek and share information.
- For Entrepreneurs Themselves: Women and youth entrepreneurs should actively seek opportunities to embrace AI tools and engage with digital networks. Proactive participation in online communities, continuous learning about new technologies, and a willingness to integrate data-driven insights into their decision-making processes can significantly enhance their entrepreneurial success and resilience.

5.5 Limitations of the Study

Despite its valuable contributions, this study is subject to several limitations that warrant acknowledgment. The cross-sectional nature of the quantitative data collection precludes definitive statements about causality; while strong correlations were observed, a longitudinal study would provide more robust evidence of cause-and-effect relationships over time. The self-reported nature of the data may introduce social desirability bias, where participants might consciously or unconsciously provide responses they perceive as favorable. While qualitative insights mitigated some of this, direct objective measures of decision-making quality were not within the scope of this study. The study's focus on Port Harcourt, Nigeria, limits the generalizability of the findings to broader African or global contexts, as socio-economic conditions, digital infrastructure, and cultural norms vary significantly. Future research should consider comparative studies across different regions. Additionally, the broad categorization of "AI tools" and "digital networks" means that specific impacts of particular applications or platforms may have been overlooked. The dynamic nature of technology also implies that the specific tools and platforms popular at the time of the study may evolve, necessitating continuous research.

5.6 Future Research

Building on the findings and limitations of this study, several avenues for future research emerge. A longitudinal study tracking a cohort of women and youth entrepreneurs over time could provide more definitive evidence of the causal impact of AI and digital networks on decision-making empowerment and subsequent business performance. Future research could also explore the specific types of AI tools (e.g., specific accounting software vs. predictive analytics platforms) and digital networks (e.g., formal business platforms vs. informal social media groups) that yield the most significant empowering effects. Comparative studies across different developing economies would be valuable to understand the generalizability of these findings and identify contextual factors that moderate the relationship. Furthermore, research could delve into the barriers to adoption in more detail, exploring the role of digital literacy programs, trust-building mechanisms, and the design of culturally appropriate technological solutions. Finally, investigating the long-term sustainability and scalability of digital empowerment initiatives for women and youth entrepreneurs in volatile economic environments would offer crucial insights for policy and practice.

6. Conclusion

This empirical study has provided compelling evidence that Artificial Intelligence tools and digital networks serve as powerful instruments for empowering women and youth entrepreneurs in their decision-making processes within developing economies. The findings demonstrate that AI adoption significantly boosts financial decision-making confidence among women entrepreneurs, while active engagement in digital networks substantially enhances the strategic planning capabilities of youth entrepreneurs through improved access to market information and peer support. These technologies are effectively democratizing access to critical resources, knowledge, and networks, thereby mitigating traditional barriers faced by these often-marginalized entrepreneurial groups.

The research underscores the profound practical implications for policymakers, technology developers, and entrepreneurial support organizations, highlighting the need for targeted interventions that promote digital literacy, provide accessible technological infrastructure, and foster supportive online ecosystems. By strategically investing in these areas, stakeholders can unlock the full potential of women and youth entrepreneurs, driving inclusive economic growth and fostering more resilient and equitable societies. Ultimately, the integration of AI and digital networks into entrepreneurial development strategies is not merely an option but a critical imperative for empowering the next generation of business leaders in the global South.

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