

Artificial intelligence and herbpreneurship success in pharmaceutical industries, Anambra state Nigeria

Prof. Ebele Mary Onwuka¹, Nkiru Peace Nwakoby, Ph.D.², Obiora C. Ozoekwe³

¹Department of Business Administration Nnamdi Azikiwe University Awka, Nigeria
em.onwuka@unizik.edu.ng

²Department of Entrepreneurship Studies Nnamdi Azikiwe University Awka, Nigeria
np.nwakoby@unizik.edu.ng

³Department of Entrepreneurship Studies Nnamdi Azikiwe University Awka, Nigeria
o.ozoekwe@unizik.edu.ng

Abstract: *The adoption of AI technologies in the herbal medicine sector in Anambra State is limited and fragmented. Many herbpreneurs lack access to or knowledge of AI tools and systems, resulting in underutilization of these technologies. Thus, the study examined the relationship between Artificial Intelligence-Enabled Technology and Herbpreneurship Success using evidence from pharmaceutical industries in Anambra State. The study adopted a cross-sectional descriptive survey design. The target population for this study comprised 121 staff from four (4) selected pharmaceutical industries in Anambra state, from which a stratified sample of 93 respondents were selected. A structured questionnaire was employed as the primary data collection instrument. To test the study's hypotheses, Spearman Ranked Order Correlation Coefficient (SROCC) was employed, calculated using SPSS Version 25. The findings showed that Artificial Intelligence-Enabled Technology has a positive and significant influence on Herbpreneurship Success among pharmaceutical industries in Anambra State. In conclusion, herbpreneurs who adopt advanced technologies may experience better market positioning and operational effectiveness, translating into greater business success. For herbal medicine practitioners and herbpreneurs in Anambra State, it is recommended to invest in AI-driven database systems for cataloging medicinal plants and their properties. This will enhance the efficiency of documenting and accessing critical information about plant species and their uses.*

Keywords— Artificial Intelligence-Enabled Technology; Herbpreneurship Success; Herbpreneurship; Pharmaceutical Industries

1. INTRODUCTION

Agripreneurship represents a concept that combines that combines agriculture and entrepreneurship, with the aim of promoting the development of agribusiness in agriculture and related sectors (Lal Bairwa et al., 2014). It signifies the combination of entrepreneurial innovation and agriculture, with agripreneurs actively engaged in the development, processing and marketing of new products to add value to the agricultural landscape. Under Agripreneurship, is a subset known as Herbpreneurship. Over the years herbs have played a significant role in Nigeria's economy, contributing to various sectors including agriculture, health care, employment, income generation, cultural and spiritual significance. Herbpreneurs are entrepreneur that innovatively process herbs, agricultural products and other natural resources. They equally focus on sustainable herb cultivation, herbal product development, environmental conservation, wellness and health services. Among the herbpreneurial agents are the herbalists that play a big role in the health care sector in Anambra State, Nigeria.

However despite the need for sickness to be treated, herbpreneurs particularly the herbalists or traditional health practitioners are seen as custodians of ancestral knowledge passing down medical practices from one generation to another. Their understanding of local herbs, roots and other natural resources are often inherited or learned through long

apprenticeship. Herbalists often serves as spiritual guides, combining physical healing with spiritual rituals. They may conduct divination, offer prayers and use local herbs for treatment of disease. They equally offer remedies for a wide range of ailments like malaria, intestinal disorders, infertility issues, mental health problems, skin infections, etc. Herbpreneures (Herbalists) typically begin by diagnosing a patient's condition through various methods which may include spiritual divination, observation of symptoms and questioning the patient about his/her health history. The treatment often involves the preparation of herbal concoctions, which may be administered as liquids, ointment, powders and all these remedies are made from whole plant, stems roots, barks, along with other natural ingredients. The herbpreneur gathers ingredients from forests, farms or their own medicinal gardens and process them through methods such as drying, grinding, boiling, or fermentation to create the final product. The herbpreneurs prescribe dosage, based on their deep knowledge of the potency and effects of each herb. Artificial Intelligence-Enabled Technologies significantly influence herbpreneurship success by optimizing various aspects of the business, from cultivation to marketing. AI-driven tools can enhance the precision and efficiency of herb cultivation through advanced data analytics, enabling herbpreneurs to monitor and control growing conditions, predict optimal harvest times, and manage resources more effectively. Additionally, AI-powered marketing strategies, such as personalized recommendations and customer

segmentation, allow herbpreneurs to reach and engage their target audience more efficiently, leading to increased sales and customer loyalty. By automating routine tasks and providing data-driven insights, AI technologies reduce operational costs and support informed decision-making, ultimately driving the profitability and scalability of herbpreneurship ventures. In addition to treatment of physical ailments, herbpreneures can perform spiritual cleansing ritual which they believe to remove negative energies, or curses that may cause ailments. They also provide protective charms which they believe can ward off evil spirits or bad luck. The objective of the study is to examine the relationship between Artificial Intelligence-Enabled Technology and Herbpreneurship Success using evidence from selected pharmaceutical industries in Anambra State.

HYPOTHESIS

H0: Artificial Intelligence-Enabled Technology has no significant influence on Herbpreneurship Success among pharmaceutical industries in Anambra State.

2.0 LITERATURE REVIEW

2.1 Concept of Artificial Intelligence (AI)

In the general world of entrepreneurship (herbpreneurship inclusive), new emerging technologies such as artificial intelligence (AI), robotics and block chain are forming part of revolution alongside human intelligence (Oztemal and Gursev 2018). Kraus et al (2020) emphasized that these technologies bring about improvement in decision making, high efficiency among the entrepreneurs, lasting solutions to entrepreneurial problems as well as creating new opportunities. These new technologies change the operations and the entire process of entrepreneurship that brings about innovations and amazing creativity of new products and services (Chalmers et al., 2021; Obschonka and Audretsch 2020). Artificial intelligence as a powerful tool to improve efficiency and address challenges in various sectors, has profound implications for agriculture.

The term artificial intelligence (AI) was propounded by John McCarthy in 1956 as a science and engineering technology that solves human problems in an intelligent manner. Many authors have given different definitions of artificial intelligence. Artificial intelligence can be defined as a software technology that mimics human intelligence of visual insights, speech recognition, making intelligent decisions and giving sound recommendations (Huang and Rosset, 2018). It is a programmed machine for making decision, mimicking human intelligence (Olaide et al., 2019). Artificial intelligence is a collection of information and communication technologies that imitate human intelligence (Arakpogun et al., 2021). It enables machines to perform cognitive functions previously associated only with human minds (Rai et al., 2019).

Grover, Kar and Dwivedi (2022) opined that AI is the ability of a system to acquire knowledge by evaluating data obtained from its external environment. The utilization of the acquired knowledge ensures adequate adaptation of the existing plans or generation of new ones in order to effectively respond to

changes in the environment. It encompasses the conceptualization and development of computational systems capable of performing tasks typically associated with human intelligence such as visual information interpretation and decision making stages (Rai et al., 2019). Similarly, AI entails the implementation of robotic automation and visual agents to facilitate business processes (Davenport and Ronanki, 2018). Natural language processing, robotics, cognitive modelling, machine learning, expert systems, knowledge representation and heuristic problem solving are branches of artificial intelligence (Weber et al., 2022). Data is a critical element in AI as they are needed to make quality decisions, discover opportunities in uncertain business environment as well as comprehends the behavior of customers and their business operations (George et al., 2014).

2.2 Role of Artificial Intelligence (Ai) in Herbal Industry

The integration of Artificial intelligence in herbal medicine is an emerging field that holds significant potentials for enhancing the traditional practice of herbal medicine in Anambra State. Through digitalization and documentation, AI is being utilized to create comprehensive data base of medicinal plants, catalog information on plants species, their medicinal and pharmacological properties, traditional uses, and potential side effects. Artificial intelligence frees time, creativity and human capital, allowing herbpreneurs to work more humanly and less automatically (Giuggioli and Pellergrini, 2023). AI technology has the capacity to automate several routine and repetitive jobs in herbal industry. This automation process enables the allocation of important time and resources to strategic and creative endeavors (Arachie et al., 2023). It has the potential to help small business make informed and data driven decisions (Bandari, 2019), which can be extended to herbpreneurship.

Artificial intelligence tools can be employed to identify patterns in use of herbal medicine across different regions in Anambra State. This can aid in preserving indigenous knowledge and promoting its wider application. AI can bolster electronic commerce (e-commerce) (Karimova, 2016); financial operations and information analysis processes for trading operation (Cavalcante et al., 2016) alongside herbpreneurship.

Furthermore, Artificial intelligence also helps in drug discovery by analyzing the chemical composition of herbs and predicting their potential effects. It can screen thousands of herbs to identify those with highest likelihood of efficacy against specific diseases. The AI model can be used for personalized herbal treatment plan by analyzing data such as genetic information, medical history, and recommend specific herbs or combinations of herbs that are most likely for treatment. It further ensures the safety and efficacy of herbal products and can monitor the quality of herbal medicine by analyzing its various stages of production including sourcing of raw materials, processing, and packaging. AI can analyze market trends and consumer behaviour in herbal medicine industry. Artificial intelligence when employed (also in herbpreneurship) can lead to improvement of products, processes, information, experiences and organization

(Ferreira et al., 2020). In addition AI driven platforms are being used to recommend herbal products to consumers.

2.3 Challenges of AI in herbal Industry.

One of the barriers to artificial intelligence adoption among the herbalists or traditional health practitioners in Anambra State is the lack of sufficient infrastructure and network connectivity. This is because most of these herbalists are located around the rural areas or Anambra State where there is poor network connectivity. The situation is worsened by a general absence of advanced metering infrastructure, which is essential for generating the data needed for smarter grid management and other AI tools (Meserole 2018).

The adoption of AI enabled technologies among herbalists is equally hindered by educational and data system deficiencies. The rural areas face a poor public education that does not adequately prepare traditional health practitioners with the basic and essential programming skills or knowledge base required for AI development and implementation (Ade-Ibijola and Okonkwo 2023). In addition, there is a notable absence of a structured data ecosystem, which is essential for AI as machine learning methods depend heavily on its availability of high quality data (Novitske 2018). The lack of high quality data can possibly lead to potential biases in AI algorithms, which eventually leads to complication in effective deployment (Ade-Ibijola and Okonkwo 2023).

Government policies and ethical considerations equally play significant roles in the slow utilization of AI among herbalists in Anambra State, Nigeria. There is urgent need strategies and policies that prioritize the design and implementation of AI as most herbpreneurs in Anambra State and Nigeria at large, are late majority or laggard adopters or innovation.

Subsequently, ethical challenges such as data bias, transparency, accountability and socio-economic risks need addressing to establish a conducive environment for AI utilization. These ethical issues, if not adequately managed, could pose a great risk to the practice of herbal medicine in Anambra State. There are resistance to the adoption of AI among herbpreneurs who rely on knowledge passed down through generations and there are also challenges about herbal application, consumption, dosage and usages

2.4 Benefits of Artificial Intelligence in Herbal Utilization

The utilization of artificial intelligence in herbal medicine is ongoing by enhancing research, personalizing treatment, ensuring quality control and analyzing market trends. Artificial intelligence has the potential of revolutionizing herbal medicine and make it accessible to global markets.

Artificial intelligence enhances the safety of traditional herbal medicine by improving the standard of treatment. It boosts the production and export of Nigerian herbal products. Furthermore, AI models can leverage global research institutions leading to innovation in herbal medicine that benefit both local and international communities.

Artificial intelligence enhances the prediction of correct dosage in treatment of diseases. The inability of herbalists in Anambra State (and in general) to provide accurate dosage in treatment of diseases is a major challenge in herbal medicine. The herbs or medicinal plants may contain certain toxins that

if proper dosage is not prescribed, the toxins or unwanted products can trigger other diseases and cause great damage to the patient. This can lead to organ failure among patients which has been seen and documented in various regions of Anambra State.

For agriculture, artificial intelligence applications are being used to enhance crop yields, predict weather patterns and manage pests, which not only boost farmers profitability but also enhance their resilience to climate change.

2.5 Artificial Intelligence Impact Across Herbal Products In Anambra State

Artificial intelligence in several ways has potential to impact herbal products in Anambra State. It can analyze data sets on medicinal properties of various plants native to Anambra State which can lead to discovery of new application for existing herbs and combinations of herbals remedies. It can equally optimize the process of clinical trials for herbal product leading to fast and more reliable validation of herbal medicines. In addition, AI can optimize the cultivation of medicinal plants ensuring better field and quality, pest management for herbal crops in the region (Anambra State). The introduction of AI ensures the consistency and safety of herbal products by analysing their chemical composition. Furthermore, AI enabled technologies can help local herbal producers to adhere to international standards making it easier for herbpreneurs to export herbal products. Herbpreneurs can meet up regulatory requirement with the help of AI. Whilst there's a great impact of AI across herbal products, herbpreneurs are facing the challenges of the cost of integrating AI into the herbal product industry, most herbpreneurs prefer to rely on established methods and may be skeptical of AI's role in their practice.

In addition AI can revolutionize herbal products in Anambra State by enhancing research, improve cultivation and yield of herbs, ensure quality control, expand market reach with a collaborative approach with the herbpreneurs for successful implementation.

2.6 Artificial Intelligence (Ai) Solutions Transforming Herbal Business

In Anambra State Nigeria, business are beginning to harness the transformative power of Artificial intelligence. By integrating AI Technologies, local herbpreneurs are not only improving efficiency but also reducing operational cost and introducing innovative products and services. This shift is important in herbal sector where cost reduction and efficiency are directly tied to business survival and competitiveness.

The introduction of AI is not just about automation. It is also fostering the creation of new services and products that were previously unimaginable in the state. For instance, AI powered health diagnostics tools are being developed by startups-to provide affordable and accessible healthcare solution, which is a significant step forward in a state with limited medical infrastructure. These innovation are setting a precedent for how AI can be a game changer for herbal business in Anambra State Nigeria, driving growth and encourage a new wave of entrepreneurial ventures.

2.7 THEORETICAL FRAMEWORK

The Diffusion of Innovations Theory was originally developed by sociologist Everett M. Rogers in 1962. Rogers sought to understand how, why, and at what rate new ideas and technologies spread within a society (Rogers, Singhal & Quinlan, 2014). The theory draws on earlier studies in anthropology, sociology, and communication to create a comprehensive model that explains the process by which innovations are adopted over time by different segments of a population. Rogers' work was groundbreaking, as it provided a systematic framework for analyzing the adoption of innovations, not only in technology but also in various fields such as agriculture, education, and health care.

The Diffusion of Innovations Theory postulates that the adoption of new technologies follows a bell-shaped curve, categorized into five adopter groups: innovators, early adopters, early majority, late majority, and laggards (Rogers, Singhal & Quinlan, 2014). These groups represent different segments of society, each with distinct characteristics regarding their willingness and speed to adopt new technologies. The theory also highlights the importance of communication channels, social systems, and time in the diffusion process. Innovators and early adopters play a critical role in spreading new ideas to the early majority, who, in turn, influence the late majority and laggards. The theory emphasizes that the perceived advantages of an innovation, compatibility with existing values, complexity, trialability, and observability are key factors influencing its adoption (Kaminski, 2011).

The Diffusion of Innovations Theory is highly relevant to the topic of how Artificial Intelligence-Enabled Technologies influence herbpreneurship success. Herbpreneurs, like other entrepreneurs, vary in their readiness and ability to adopt new technologies, and this variability can impact the overall success and competitiveness of their ventures. The theory helps to explain why some herbpreneurs might quickly embrace AI tools, leveraging them to optimize operations and enhance profitability, while others may be slower to adopt due to perceived complexity or lack of resources. By applying this theory, the study can better understand the patterns of AI adoption among herbpreneurs, identify barriers to diffusion, and propose strategies to accelerate the uptake of these technologies, ultimately contributing to the success of herbpreneurship.

3.0 METHODOLOGY

The study adopted a cross-sectional descriptive survey design to examine how Artificial Intelligence-Enabled Technologies influence herbpreneurship success. This design was chosen because it provides a snapshot of the current state and characteristics of herbpreneurship outcomes at a specific point in time. A descriptive survey design is effective for documenting current conditions and describing what exists at the moment (Nworie & Oguejiofor, 2023), making it ideal for assessing the impact of AI technologies on herbpreneurs.

The target population for this study comprised 121 staff members from four selected pharmaceutical companies in Anambra State. The companies included are:

Table 3.1 Population of the Study

Pharmaceutical Company	Number of Staff
Juhel Pharmaceuticals	34
Emzor Pharmaceuticals	29
Neimeth International Pharmaceuticals	30
Okans Pharmaceutical Co	28
Total	121

Source: Field Survey (2024)

The sample size was determined using Taro Yamane formula as follows:

$$S = \frac{N}{1 + N(e)^2}$$

Where; N = Population
 S = Sample Size
 e = Error term (0.05)
 1 = Constant

$$S = \frac{121}{1 + 121(0.05)^2}$$

S = 93 respondents

Stratified sampling was used in arriving at the specific stratum size shown in Table 3.2.

Table 3.2 Stratified Sampling for Each Stratum

Pharmaceutical Company	Number of Staff	Sample Size (Stratified Sampling)
Juhel Pharmaceuticals	34	26
Emzor Pharmaceuticals	29	22
Neimeth International Pharmaceuticals	30	23
Okans Pharmaceutical Co	28	22
Total	121	93

Source: Researcher's Compilation (2024)

In line with the descriptive survey research design, the questionnaire was chosen for its ability to ensure respondent anonymity and confidentiality while facilitating rapid and cost-effective data collection. The instrument was designed to measure constructs relevant to AI adoption and business success. A Likert-scale system was used to rank responses, simplifying the subsequent analysis. The data collected were subjected to both descriptive and inferential statistical analyses. To test the study's hypotheses, Spearman Ranked Order Correlation Coefficient (SROCC) was employed, calculated using SPSS Version 25. SROCC was selected due to the ordinal nature of the data, which involved ranked responses. The study's null hypothesis was tested at a 5%

significance level. If the p-value was greater than 0.05, the null hypothesis was accepted, and the alternative hypothesis was rejected. Conversely, if the p-value was less than 0.05, the alternative hypothesis was accepted, and the null hypothesis was rejected.

4.0 DATA ANALYSIS

4.1 DESCRIPTIVE ANALYSIS

The descriptive analysis of the research question was done using frequency and mean point analyses as shown below in Table 4.1.

Table 4.1 Analysis of Research Question

S/N	Artificial Intelligence-Enabled Technology (AIET)	S	A	U	D	S	Mean
1	AI-enabled technology improves the efficiency of herbpreneurship operations.	1	51	8	33	0	3.22
2	AI tools optimize marketing strategies for herbal products.	12	62	0	19	0	3.72
3	AI-enabled technology helps make better decisions regarding inventory and supply chain management in herbpreneurship.	13	37	1	42	0	3.23
4	AI technologies improve the accuracy of pharmaceutical research and development processes in Anambra State.	81	2	3	1	6	4.62
S/N	Herbpreneurship Success	S	A	U	D	S	Mean
5	Pharmaceutical firm experiences growth in revenue due to the adoption of AI-enabled	14	28	8	37	6	3.08

	technologies in herbpreneurship.						
6	The use of AI systems contributes to the overall success of our herbal product line.	2	37	0	54	0	2.86
7.	AI-enabled innovations improves the operational sustainability of pharmaceutical firm in the herbal industry.	6	59	0	28	0	3.46
8.	The adoption of AI technology improves the customer satisfaction rate for herbal products.	6	32	0	55	0	2.88

Source: Field Survey Findings, 2024

Table 4.1 provides an analysis of the research question concerning the impact of Artificial Intelligence-Enabled Technology (AIET) on herbpreneurship success. The table presents responses to various statements about AIET and its influence on herbpreneurship, including frequency distributions and mean scores for each statement.

Examining the first item, which states that "AI-enabled technology improves the efficiency of herbpreneurship operations," the mean score is 3.22. This suggests a generally positive perception among respondents, though with a noticeable spread in opinions. A majority of respondents selected "Agree" (51), indicating a belief that AIET enhances operational efficiency, though there are also significant numbers who are neutral (8) or dissenting (33).

The second item, which discusses whether "AI tools optimize marketing strategies for herbal products," has a mean score of 3.72. This relatively high score reflects strong agreement, with the majority of respondents selecting "Agree" (62) and a minority selecting "Disagree" (19). This suggests a consensus that AI tools are effective in refining marketing strategies, with less ambiguity in responses.

The third statement, "AI-enabled technology helps make better decisions regarding inventory and supply chain management in herbpreneurship," has a mean score of 3.23. This score implies a generally positive response, though with some variability, as reflected in the distribution of responses: 37 agreed, 42 disagreed, and only 13 strongly agreed. The relatively high level of disagreement might suggest that while AI has potential benefits, there are concerns or limitations in its current application.

For the fourth statement, "AI technologies improve the accuracy of pharmaceutical research and development

processes in Anambra State," the mean score is notably high at 4.62. This result indicates a strong consensus that AI significantly enhances accuracy in research and development, with the majority strongly agreeing (81) and only a small number dissenting. This reflects a robust endorsement of AI's role in improving pharmaceutical R&D processes.

Turning to the section on herbpreneurship success, the first item, which addresses whether "Pharmaceutical firm experiences growth in revenue due to the adoption of AI-enabled technologies in herbpreneurship," has a mean score of 3.08. This score indicates a moderately positive perception, with 14 strongly agreeing and 28 agreeing, although there is significant dissent (37 disagreeing). This suggests some belief in AI's impact on revenue growth but also highlights a considerable amount of skepticism.

The second item, concerning whether "The use of AI systems contributes to the overall success of our herbal product line," shows a lower mean score of 2.86. This reflects a more critical view, with 54 respondents disagreeing and only 2 strongly agreeing. This suggests that, despite some positive views, there is considerable skepticism about AI's contribution to the overall success of herbal products.

The third statement, "AI-enabled innovations improve the operational sustainability of pharmaceutical firms in the herbal industry," has a mean score of 3.46. This indicates a generally positive perception, with a majority agreeing (59) and some dissent (28). This score suggests that respondents view AI innovations as beneficial for operational sustainability, though not universally accepted.

Finally, the statement that "The adoption of AI technology improves the customer satisfaction rate for herbal products" has a mean score of 2.88. This relatively low score, with 55 respondents disagreeing and only 6 strongly agreeing, suggests that there is limited agreement on AI's impact on customer satisfaction. This indicates a more critical view of AI's role in enhancing customer satisfaction for herbal products.

4.2 TEST OF HYPOTHESIS

H0: Artificial Intelligence-Enabled Technology has no significant influence on Herbpreneurship Success among pharmaceutical industries in Anambra State.

The result of the hypothesis testing is shown in table 1 below as follows:

Table 4.2 Correlations for Hypothesis Testing

			Herbpreneurship Success
Spearman's rho	Artificial Intelligence-Enabled Technology	Correlation Coefficient	.776**
		Sig. (2-tailed)	.000
		N	93

Source: SPSS V. 25

The hypothesis being tested is whether Artificial Intelligence (AI)-Enabled Technology significantly influences

Herbpreneurship Success within pharmaceutical industries in Anambra State. The null hypothesis (H0) posits that AI technology has no significant effect on the success of herbpreneurship. According to the results presented in Table 4.2, the correlation coefficient between AI-Enabled Technology and Herbpreneurship Success is 0.776, with a significance level (p-value) of 0.000.

This correlation coefficient of 0.776 indicates a strong positive relationship between AI technology and herbpreneurship success. The significance level of 0.000 suggests that this result is statistically significant, meaning the observed correlation is unlikely to be due to chance. Therefore, we reject the null hypothesis and conclude that AI-Enabled Technology does have a significant influence on Herbpreneurship Success among pharmaceutical industries in Anambra State. This implies that the use of AI technology is strongly associated with improved outcomes in herbpreneurship within this context. Therefore, the alternant hypothesis was accepted that Artificial Intelligence-Enabled Technology has a positive and significant influence on Herbpreneurship Success in Anambra State ($\rho = 0.776$; $p\text{-value} = 0.000$).

4.3 DISCUSSION OF FINDING

The results of the hypothesis testing revealed a Spearman's correlation coefficient of 0.776, which is statistically significant at a 0.000 p-value. This strong positive correlation indicates that AI-enabled technologies are significantly associated with the success of herbpreneurship ventures in Anambra State. The statistical significance implies that the likelihood of this result occurring by chance is extremely low, thereby rejecting the null hypothesis that AI technologies have no influence on herbpreneurship success. The integration of Artificial Intelligence (AI) in herbal medicine is emerging as a transformative force with significant potential for enhancing traditional practices. Studies like those by Giuggioli and Pellegrini (2023) highlight how AI facilitates the creation of comprehensive databases for medicinal plants, which improves the documentation and accessibility of valuable information about plant species, their uses, and potential side effects. This supports the notion that AI can significantly enhance the practice of herbal medicine by streamlining data management and facilitating more informed decision-making. Furthermore, Arachie et al. (2023) argue that AI's automation capabilities in the herbal industry can free up time and resources for more strategic and creative activities, aligning with the observed benefits of AI in reducing routine tasks. This evidence reinforces the idea that AI can drive efficiency and innovation in herbpreneurship. Conversely, some studies suggest limitations and challenges associated with the adoption of AI in herbal medicine. For example, Bandari (2019) points out that while AI can aid in making data-driven decisions, its effectiveness is highly dependent on the quality and comprehensiveness of the data it processes. In regions like Anambra State, where access to high-quality data may be limited, the benefits of AI might be compromised. Additionally, while Karimova (2016) and

Cavalcante et al. (2016) emphasize AI's potential to enhance e-commerce and financial operations, there is a concern that the initial investment and technological infrastructure required might be prohibitive for smaller herbpreneur businesses, potentially limiting the broader application of AI tools.

On the other hand, Ferreira et al. (2020) support the view that AI can significantly enhance product development, market analysis, and consumer recommendations within the herbal medicine industry. AI's role in drug discovery and personalized treatment plans, as outlined by various researchers, underscores its potential to advance herbal medicine by improving safety, efficacy, and consumer engagement. However, the integration of AI also poses challenges, such as ensuring the accuracy of AI-driven analyses and maintaining the balance between technological and traditional practices. The diverse perspectives in the literature reflect a complex landscape where AI's benefits are substantial but must be navigated with careful consideration of practical limitations and resource constraints.

5.0 CONCLUSION AND RECOMMENDATIONS

In today's digital age, AI technologies are becoming increasingly pivotal in enhancing business operations, including those within the herbpreneurship sector. The study aimed to explore whether the adoption and implementation of AI-enabled technologies have a significant positive influence on the success of herbpreneurs in Anambra State. One possible explanation for this strong positive correlation could be the ability of AI technologies to optimize various aspects of herbpreneurship, such as supply chain management, customer relationship management, and product innovation. For instance, AI can be used to predict market trends, optimize inventory levels, and automate routine tasks, all of which can lead to increased efficiency and profitability. Additionally, AI-driven analytics can help herbpreneurs understand consumer preferences and tailor their products accordingly, leading to higher customer satisfaction and loyalty. Moreover, the significance of the result might also reflect the growing trend among herbpreneurs in Anambra State to leverage AI technologies to gain a competitive edge. As the herb industry becomes more competitive, those who adopt advanced technologies may experience better market positioning and operational effectiveness, translating into greater business success. This finding highlights the critical role of AI in driving modern herbpreneurship and suggests that further investments in AI technologies could yield substantial benefits for herbpreneurs in the region. For herbal medicine practitioners and herbpreneurs in Anambra State, it is recommended to invest in AI-driven database systems for cataloging medicinal plants and their properties. This will enhance the efficiency of documenting and accessing critical information about plant species and their uses. The Nigerian Association of Herbal Practitioners should facilitate workshops and provide resources to help practitioners integrate AI technologies into their operations.

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