

ARTIFICIAL INTELLIGENCE AND SUSTAINABLE DEVELOPMENT OF HOSPITALITY SECTOR IN SOUTHEAST, NIGERIA

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Abstract: This study explored the relationship between artificial intelligence and sustainable development of hospitality sector in Southeast, Nigeria. Specifically, the study determined the relationship between alexa and community engagement of hospitality sector in Southeast, Nigeria. Also, it ascertained the relationship between chatbot and capacity building of hospitality sector in Southeast, Nigeria. The study is anchored on Fourth Industrial Revolution (4IR) theory by Klaus Schwab in 2016. The study employed descriptive survey research design and random sampling probability technique. The population of the study was 304. Hypotheses were tested with Pearson Product Moment Correlation Coefficient with the aid of Statistical Package for Social Sciences (SPSS, version 27). Hypothesis one indicated that there is a statistically significant positive relationship between alexa and community engagement of hospitality sector in Southeast, Nigeria, with $r = 0.782$, $n = 304$ and p value of 0.000 ($p < 0.05$). Hypothesis two revealed that there is a statistically positive significant correlation between chatbot and capacity building of hospitality sector in Southeast, Nigeria, with $r = 0.923$, $n = 304$ and p value of 0.000 ($p < 0.05$). The study concluded that there is a positive and statistically significant relationship between artificial intelligence and sustainable development of hospitality sector in Southeast, Nigeria. The study recommended that hospitality sector in Southeast, Nigeria, need to leverage chatbot technology to support and enhance capacity building initiatives, leading to improved skills and performance. Also, government needs to prioritize the design and development of user-friendly and interactive technologies to enhance community engagement and participation of hospitality industries sector in Southeast, Nigeria.

Keywords: Artificial Intelligence, Sustainable Development, Alexa, and Capacity Building.

Introduction

The concept of Artificial Intelligence (AI) has matured significantly over the past decades, but recent breakthrough in machine learning have enabled the development of more sophisticated AI systems that can learn and adapt in complex environments. AI has the potential to unlock significant economic and social benefits, from improving productivity and efficiency to enhancing customer experiences and outcomes. As AI continues to evolve, even more innovative applications and services emerge, from intelligent homes and cities to personalized healthcare and education. With vast potential to transform industries and improve lives, AI is an exciting and rapidly evolving field that holds much promise for the future. As exploration of AI continues,

possibilities are endless, limited only by imagination and creativity in harnessing its power to drive positive change and progress (Liengpunsakul, 2021).

The concept of sustainable development is deeply rooted in the idea of balancing economic, social, and environmental needs to create a more equitable and just society (Su and Wu, 2024). Artificial intelligence (AI) is increasingly being recognized as a critical component in the pursuit of sustainable development. The intersection of AI and sustainable development is characterized by the potential of AI to support the achievement of sustainable development goals, including the enhancement of human well-being, social justice, and environmental sustainability (Syed, Schorch and Pipek, 2020). Alexa plays a vital role in this context, as it enables the design of intuitive and user-friendly interfaces that facilitate access to sustainable development information, resources, and services. Moreover, AI-powered chatbots are emerging as a key tool in facilitating community engagement and participation in sustainable development initiatives, enabling the contribution of ideas, concerns, and expertise to the decision-making process. The integration of AI in sustainable development is also closely tied to capacity building, as it necessitates the development of skills and knowledge to effectively design, implement, and utilise AI systems that support sustainable development (Wang, Deng, Zhou & Wu, 2023).

Southeastern region of Nigeria is a hub of economic and cultural activity, with a rich history and diverse population. As the region continues to grow and develop, it faces a unique opportunity to harness the power of artificial intelligence (AI) to drive sustainable development. AI has the potential to transform industries, improve healthcare and education, and enhance the overall quality of life for citizens. By leveraging AI, Southeast Nigeria can position itself as a leader in sustainable development, driving innovation and progress in the region (Eze & Okafor, 2024).

The convergence of AI and sustainable development is a rapidly evolving field, marked by the increasing application of AI technologies in support of sustainable development goals. This includes the use of AI in data analysis, pattern recognition, and insight generation, which can inform sustainable development decision-making. Additionally, AI-powered chatbots are being utilized to facilitate community engagement, enable feedback mechanisms, and provide personalized support to individuals and communities (Fan, Yan & Wen, 2023). The role of alexa in this context is crucial, as it enables the design of interfaces that facilitate access to sustainable development resources and services. Furthermore, the integration of AI in sustainable development is closely tied to capacity building, as it necessitates the development of skills and knowledge to effectively utilize AI systems that support sustainable development (Alkathairi, 2022). As the field continues to evolve, it is essential to understand the complex interplay of alexa , community engagement, chatbot and capacity building in support of sustainable development.

The integration of artificial intelligence (AI) in sustainable development is a crucial step towards enhancing human well-being, social justice, and environmental sustainability. However, the current state of AI in sustainable development is characterized by a lack of effective alexa, limited community engagement, and inadequate capacity building. The absence of user-friendly interfaces and intuitive systems hinders the adoption of AI solutions in sustainable development, exacerbating the existing knowledge gap. Moreover, the limited use of AI-powered chatbots in facilitating community engagement and participation in sustainable development initiatives restricts the potential for inclusive and collaborative decision-making. Furthermore, the insufficient

capacity building in AI and sustainable development hampers the development of effective AI solutions that cater to the needs of diverse stakeholders.

The sparsity of research on the interplay of alexa, community engagement, chatbot and capacity building underscores the need for a comprehensive examination of these factors. The limited understanding of how AI can be leveraged to support sustainable development outcomes, such as poverty reduction, climate change mitigation, and resource efficiency, highlights the necessity for further investigation. Additionally, the absence of studies on the role of alexa in facilitating access to sustainable development resources and services, as well as the limited exploration of AI-powered chatbots in enhancing community engagement, necessitates a deeper exploration of these topics. Moreover, the inadequate attention to capacity building in AI and sustainable development underscores the need for a more detailed understanding of the skills and knowledge required to effectively design, implement, and utilize AI solutions that support sustainable development. It is against this backdrop that this study sought to explore the relationship between artificial intelligence and sustainable development of hospitality industries sector in Southeast, Nigeria.

Research Objectives

The main objective of this study is to examine the relationship between Artificial intelligence (AI) and sustainable development of hospitality industries in Southeast, Nigeria. The specific objectives are:

1. To determine the relationship between Alexa and Community Engagement of hospitality industries in Southeast, Nigeria.
2. To ascertain the relationship between Chatbot and Capacity Building of hospitality industries sector in Southeast, Nigeria.

Research Questions

1. What is the relationship between Alexa and Community Engagement of hospitality industries sector in Southeast, Nigeria?
2. What is the relationship between Chatbot and Capacity Building of hospitality sector in Southeast, Nigeria?

Research Hypotheses

H₀₁: There is no significant relationship between Alexa and Community Engagement of hospitality sector in Southeast, Nigeria.

H₀₂: There is no significant relationship between Chatbot and Capacity Building of hospitality sector in Southeast, Nigeria.

Conceptual Review

Artificial Intelligence

Artificial Intelligence (AI) is the simulation of human intelligence in machines that are programmed to think and learn like humans. It involves the development of algorithms and statistical models that enable machines to perform tasks that typically require human intelligence, such as understanding language, recognizing patterns, and making decisions (Tadvi, Rangari & Rohe, 2020). AI systems can analyze vast amounts of data, identify trends, and generate insights that can inform decision-making. They can also learn from experience, adapt to new situations, and interact with humans in a way that is increasingly indistinguishable from human-to-human interaction. As AI technology advances, we are seeing its applications expand into various areas, including healthcare, finance, transportation, and education (Kar, Choudhary & Singh, 2022).

Artificial Intelligence (AI) is a transformative technology that has the potential to accelerate progress towards Sustainable Development. By analyzing vast amounts of environmental and social data, AI can help identify patterns and trends that can inform sustainable development decisions. For instance, AI can be used to optimize resource usage, predict and prevent natural disasters, and develop sustainable agriculture practices. Additionally, AI can help develop personalized education and training programs, improve healthcare outcomes, and enhance the efficiency of social services. As the world continues to grapple with the challenges of poverty, inequality and climate change, AI can be a powerful tool in the pursuit of sustainable development. By harnessing the power of AI, we can create a more equitable, just, and sustainable future for all, and achieve the United Nations' Sustainable Development Goals (SDGs) (Abulibdeh, Zaidan & Abulibdeh, 2024).

Alexa

Alexa is a sophisticated virtual assistant developed by Amazon, designed to simplify users' lives by providing effortless interaction with various devices, services, and information sources. With Alexa, users can control smart home devices, play music, set reminders, access news updates, and order products from Amazon. Alexa's virtual assistant capabilities also enable users to engage in conversational interactions, including jokes, games, and trivia. Additionally, Alexa integrates with third-party skills and apps, expanding its capabilities and allowing users to book flights, order food, or hail a ride. Through its virtual assistant features, Alexa streamlines daily tasks and enhances users' overall experience (Alkatheiri, 2022).

Alexa is a cutting-edge conversational AI model that leverages advanced technologies like natural language processing, machine learning, and deep learning. This AI model enables Alexa to recognize context and intent behind user queries, providing personalized recommendations and responses. Alexa's AI model also learns user preferences and adapts to their behavior, understanding nuances of language, including idioms and colloquialisms. Continuously improving its performance through data-driven updates, Alexa's AI model ensures accurate and helpful responses. By analyzing vast amounts of data, Alexa's AI model enhances its knowledge graph, allowing it to answer complex questions and provide insightful information (Goralski & Tan, 2020).

Alexa is a voice service integrated into various devices, including Amazon Echo smart speakers, Fire TV, and third-party products like smart thermostats and speakers. Through its voice service, Alexa allows users to interact with devices using voice commands, eliminating the need for manual controls. With Alexa, users can control multiple devices with a single voice command, access a wide range of skills and apps, and receive voice feedback and responses. Alexa's voice service also enables seamless transitions between devices, maintaining a consistent experience across the user's ecosystem. Whether at home, in the office, or on-the-go, Alexa's voice service provides effortless interaction and control (Erin, Bamigboye & Oyewo, 2022).

Alexa is a comprehensive smart home hub, connecting and controlling compatible devices from various manufacturers. As a smart home hub, Alexa enables users to control lighting, temperature, security, and entertainment systems, automate routines and scenes, and monitor energy consumption. Alexa's smart home capabilities also allow users to receive notifications and alerts for device activity and integrate with popular smart home protocols like Zigbee and Z-Wave. With Alexa, users can expand compatibility through skills and integrations with third-party devices, creating a seamless and interconnected smart home experience. By streamlining smart home control and automation, Alexa enhances users' convenience, comfort, and peace of mind (Fan, Yan & Wen, 2023).

Chatbot

A chatbot is a software application designed to simulate conversation with human users, either through text or voice interactions. It is a type of artificial intelligence (AI) technology that uses natural language processing (NLP) and machine learning (ML) algorithms to understand and respond to user inputs. Chatbots can be deployed in various messaging platforms, websites, mobile apps, and even in physical devices such as robots and smart speakers. They are typically used to provide customer support/customer service by handling inquiries, provide information about services, and assist in booking appointment, improving response time and reducing the need for human intervention. Chatbots can be classified into two main categories: rule-based chatbots and AI-based chatbots. Rule-based chatbots use pre-defined rules to generate responses, whereas AI-based chatbots use machine learning algorithms to learn from user interactions and improve their responses over time (Endurance, Eunice, Anthonia & Sebastine, 2021).

Chatbot is a computer program that uses natural language processing (NLP) and machine learning (ML) to generate human-like responses to user inputs. It is a type of conversational AI technology that is designed to mimic human conversation, either through text or voice interactions. Chatbots can be used in various applications, including customer service, technology support, language translation, and even entertainment. They can be integrated with various platforms, such as messaging apps, websites, mobile apps, and social media platforms. Chatbots use various techniques, such as keyword extraction, sentiment analysis, and intent identification, to understand user inputs and generate relevant responses. They can also use machine learning algorithms to learn from user interactions and improve their responses over time. Some chatbots are designed to be task-oriented, while others are designed to be more conversational and engaging. Chatbots have the potential to revolutionize the way humans interact with technology and access information and services (Erin, Bamigboye & Oyewo, 2022).

Sustainable Development

Sustainable development is a holistic and integrated approach to achieving economic, social, and environmental well-being for present and future generations. It covers a broad range of principles, practices, and policies that aim to balance human needs with the protection of the natural environment. Sustainable development recognizes that economic growth, social justice, and ecological balance are interconnected and interdependent, and that long-term prosperity requires a balanced and integrated approach. It involves the management of resources, the optimization of economic processes, and the protection of natural systems to ensure that human activities are environmentally sustainable, socially just, and economically viable. Sustainable development is a dynamic and evolving concept that requires continuous innovation, adaptation, and learning to address the complex challenges facing humanity (Kulkov, Kulkova, Rohrbeck, Menvielle, Kaartemo & Makkonen, 2024).

Sustainable development can be seen as a development model that prioritizes the well-being of people and the planet, while promoting economic growth and social progress. It recognizes that the world's resources are finite and that human activities have a significant impact on the environment, society, and the economy. Sustainable development seeks to reduce poverty, inequality, and environmental degradation, while promoting green consumption patterns, renewable energy, and maintainable agriculture. It involves the integration of economic, social, and environmental considerations in decision-making processes, and the development of policies and practices that support sustainable development outcomes. Sustainable development requires the active participation of governments, businesses, civil society, and individuals to achieve a more just, equitable, and

sustainable world. It is a long-term vision that requires short-term actions to ensure a sustainable future for all (Waqar, Othman, Shafiq & Mansoor, 2023).

Community Engagement

Community engagement is the process of building and maintaining relationships between organizations, institutions, and community groups to promote mutual understanding, trust, and collective action. It involves the active participation of community members, organizations, and stakeholders in decision-making processes, project development, and problem-solving activities. Community engagement recognizes the value of community knowledge, expertise, and perspectives in shaping programs, policies, and services that affect the community. It encompasses various forms of engagement, including public outreach, community-based research, participatory planning, and collaborative governance. Community engagement is essential for building strong, resilient, and sustainable communities, as it fosters social capital, promotes collective ownership, and supports the development of inclusive and responsive programs and services (Gupta, Gaurav, Panigrahi & Arya, 2023).

Community engagement is the process of fostering meaningful connections and collaborations between community members, organizations, and institutions to promote social change, improve outcomes, and enhance the quality of life. It involves the co-creation of knowledge, resources, and solutions that address community-identified needs and priorities (Leal, Yang, Eustachio, Azul, Gellers, Gielczyk & Kozlova, 2023). Community engagement recognizes the community as a vital partner in the development and implementation of programs, policies, and services. It encompasses various approaches, including community-based participatory research, collaborative leadership, and social entrepreneurship. Community engagement is critical for addressing complex social issues, promoting health equity, and supporting community development. It requires a deep understanding of community dynamics, cultural competence, and the ability to build trust and facilitate inclusive decision-making processes (Hannan, Al-Shetwi, Ker, Begum, Mansor, Rahman & Muttaqi, 2021).

Capacity Building

Capacity building means the process of enhancing the abilities, skills, and capacities of individuals, organizations, and communities to achieve their goals and improve their performance. It involves the development of knowledge, skills, and attitudes that enable individuals and organizations to better manage their resources, adapt to changing circumstances, and address complex challenges. Capacity building can take many forms, including training and education, mentorship and coaching, organizational development, and community mobilization. It is a critical component of sustainable development, as it enables individuals, organizations, and communities to take ownership of their development processes and address the social, economic, and environmental challenges they face. Capacity building is a long-term process that requires commitment, resources, and support from various stakeholders (Vinuesa, Azizpour, Leite, Balaam, Dignum & Domisch, 2020).

Capacity building can be defined as the process of strengthening the abilities and capacities of individuals, organizations, and systems to achieve sustainable outcomes and address development challenges. It involves the identification of capacity gaps and the development of strategies to address them through targeted interventions and support. Capacity building encompasses various dimensions, including institutional capacity, human resource capacity, and systemic capacity. It recognizes that capacity development is a continuous process that requires ongoing learning, adaptation, and innovation. Capacity building is essential for addressing complex development challenges, such as poverty reduction, climate change, and social inequality. It requires a holistic

and integrated approach that takes into account the social, economic, and environmental context in which individuals, organizations, and communities operate (Di-Vaio, Palladino, Hassan & Escobar, 2020).

Theoretical Framework

This study is anchored on Fourth Industrial Revolution (4IR) theory, proposed by Klaus Schwab in 2016. The Fourth Industrial Revolution (4IR) theory talks about the current era of technological advancements and societal shifts that are transforming the way people live, work, and interact. This theory is relevant to the present study because it contextualizes the transformative power of AI within a broader technological revolution. The 4IR theory explains how AI-driven technologies converge physical, digital, and biological systems, leading to significant changes in industries like hospitality. This is relevant because it helps understand the far-reaching implications of AI adoption in hospitality sector in Southeast, Nigeria, including potential shifts in operational processes, customer interactions, and environmental practices. The 4IR theory provides a lens to examine the interplay between technological innovation, sustainability, and industry development.

Empirical Studies

Su and Wu (2024) examined digital transformation and enterprise sustainable development in China. Based on the panel data of Chinese listed companies from 2012 to 2022, this study examined the relationship between enterprise digital transformation and enterprise sustainable development, as well as the mediating role of enterprise core competence between the two. The study showed that enterprise digital transformation had a significant and positive impact on enterprise innovation capability, indirectly contributing to the sustainable development of enterprises.

Erin, Bamigboye and Oyewo (2022) examined sustainable development goals (SDG) reporting: an analysis of disclosure from Nigeria. The study adopted survey method and content analysis technique to analyze corporate SDG reporting of the selected firms. The study examined the top-50 listed firms in Nigeria based on their market capitalization. Questionnaires were distributed to financial managers of the top-50 listed firms and staff of the big four audit firms from the governance and sustainability department. The result of the survey revealed that lack of regulatory framework and voluntary disclosure are the major factors that contributes to low level of SDG reporting by Nigerian firms. Also, the result of the content analysis showed poor reporting on SDG activities. The result of the research survey indicated that voluntary disclosure, lack of management commitment and lack of regulatory enforcement accounts for low SDG disclosure by the selected Nigerian firms.

Kar, Choudhary and Singh (2022) carried research on how an artificial intelligence impact sustainability: A systematic literature review from India. This study offered a comprehensive review of AI and sustainability and suggested future research scope. The review was focused on different used cases in industries like construction, transportation, healthcare, manufacturing, agriculture, and water. The systematic review was based on 287 papers selected out of 8341 search results with an application of PRISMA based method. Out of all the techniques used in sustainability regression, RL and DSS-based AI models were more popular than others. The review also provided directions surrounding which industrial sectors are using which methods for incorporating sustainable development practices in their organization

Liengpunsakul (2021) investigated Artificial intelligence and sustainable development in China. Using the latest data of 193 countries around the world, the paper analyzed the implication of AI on sustainable development both at the global and regional levels. Broadly, a strong positive relationship between the government AI

readiness and progress toward SDGs was observed. When classifying the SDGs into four dimensions including economy, society, environment, partnerships, and government, AI readiness was found to have a strong relationship with economy followed by the society dimension, whereas there are no clear relationships with the environment and partnerships dimensions.

Alkathairi (2021) ascertained artificial intelligence assisted improved human-computer interactions for computer systems in Saudi Arabia. Human-Computer Interaction has gradually merged its scientific interests to improve the usability and the technical understanding and technique of computer systems. Artificial intelligence (HCI-AI) based problems in human-computer interactions showed to identify the relationship between cognitive knowledge and the comprehension of natural and artificial intelligence forms. The models described the relationship between HCI research and the conception of interactions between humans and computers. A model of the planning and controlling numerous tasks at medical reception and the hypothesis illustrated the relationships defined. It was found that that Human-Computer Interaction has a statistical positive relationship with Community Engagement.

Endurance, Eunice, Anthonia and Sebastine (2021) examined Integration of Artificial Intelligence Tool (AI-Chatbot) into Teaching and Learning: A Panacea for Improving Universities Educational and Administrative Duties in South-South, Nigeria. The study adopted a descriptive survey research design. The population of the study is 252,000 public universities students in South-South (Delta state, Edo State and Bayelsa). The sample size used was 399 respondents (274 students, 67 lecturers and 58 admin staffs) in the state and federal universities in the states. The instrument used for data collection was AICHATBOTSQ (AI-chatbot structured questionnaire) consisting of 20 items. Data gathered were analyzed using mean, standard deviation and analysis of variance (ANOVA). The study found that there is a statistically positive significant correlation between chatbot and capacity building in Southern Nigeria. Further findings showed that there is no significant difference in the mean rating of respondents on the need for AI-chatbot in teaching and learning as well as performing administrative tasks among universities in South-South; there is little availability of AI-chatbot technology in handling universities administrative duties; and, the findings shows that poor internet facilities, instabilities in governance, inadequate funding, poor electricity supply among others are factors inhibiting implementation of AI-chatbot towards administrative duties among universities in South-South, Nigeria.

This study identifies significant research gaps, including methodological, variable, geographical, and periodic disparities. Given the limited and disparate existing literature, this research aims to bridge these gaps by adopting a tailored approach, exploring relevant variables, and focusing on a specific context, thereby contributing to the existing knowledge base.

Methodology

This study employed descriptive survey research design. The study adopted primary source of data and secondary source of information. The study employed random sampling probability technique in selecting 15 hotels in Southeast, Nigeria. The target population were 304 staff of the selected 15 hotels. The list of the selected hotels and their locations can be seen in appendix 1. The hypotheses were tested with Pearson Product Moment Correlation Coefficient on Statistical Packages for Social Science (SPSS version 27) at 5% level of significance.

Decision Rule:

The decision in this analysis section is determined by the average of the response of respondents. Strongly Agreed (5 points), Agreed (4 points), Disagreed (3 points), Strongly Disagreed (2 points) and Undecided (1 point). The average of the responses:

$$\frac{5 + 4 + 3 + 2 + 1}{5} = 3.0$$

Therefore, mean score below 3.0 would be considered as rejected and mean score of 3.0 and above will be considered as accepted.

Result and Discussion

Analysis of Data Related to Research Questions

Table 1: Research Question 1: What is the relationship between Alexa and Community Engagement of hospitality sector in Southeast, Nigeria?

Alexa

S/N	Items	N	Mean	Remark
1	I like its interface because it is consistent	304	3.58	Accepted
2	It is easy to customize the system	304	2.34	Rejected
3	It is easy to check-in and check-out. using the app	304	4.02	Accepted
4	The hotel's customer support team to digital services is responsive	304	3.60	Accepted

Community Engagement

5	It is easy for community members to book event space at the hotel	304	1.98	Rejected
6	The hotel is not welcoming to group and organizations	304	4.27	Accepted
7	The hotel is collaborative with other local organizations and businesses	304	2.01	Rejected
8	The hotel's community engagement goals are transparent	304	3.66	Accepted

Source: Field Survey, 2024

In table 1, all the items were addressing the first research question which is "What is the relationship between Alexa and Community Engagement of hospitality sector in Southeast, Nigeria?" From the data analysis, items 1, 3, 4, and 6 obtained a mean rating above the criterion mean of 3.0 and items 2, 5, and 7 obtained a mean rating below the criterion mean of 3.0. The result of the analysis indicated that majority of the respondents supported that alexa relates with community engagement of hospitality sector in Southeast, Nigeria.

Table 2: Research Question 2: Does Chatbot correlate with Capacity Building of hospitality sector in Southeast, Nigeria?

Chatbot

S/N	Items	N	Mean	Remark
9	I like chatbot responses because they are easy to understand	304	3.22	Accepted
10	Conversation with chatbot is natural	304	1.28	Rejected
11	I am willing to provide feedback to improve chatbot	304	3.27	Accepted
12	Chatbot is not effective in handling complex issues	304	3.42	Accepted

Capacity Building

13	In the past three years, my organization has engaged some capacity building initiatives	304	1.92	Rejected
14	My hotel identifies and priorities capacity building needs	304	4.11	Accepted
15	My organization ensures that its capacity building aligns with the its strategy	304	3.33	Accepted
16	This institution does not address the issues of scalability and sustainability in capacity building	304	3.66	Accepted

Source: Field Survey, 2024

In table 2, all the items were addressing the first research question which is "Does Chatbot correlate with Capacity Building of hospitality sector in Southeast, Nigeria? From the data analysis, items 9, 11, 12, 14, 15 and 16 obtained a mean rating above the criterion mean of 3.0 and items 10 and 13 obtained a mean rating below the criterion mean of 3.0. The result of the analysis indicated that majority of the respondents supported that Chabot relates with capacity building of hospitality sector in Southeast, Nigeria.

Hypotheses Testing

Decision Rule: Reject the null hypothesis and accept the alternate if P-value < 0.05; if otherwise, accept the null Hypothesis.

Hypothesis One

Ho: There is no significant relationship between Alexa and Community Engagement of hospitality sector in Southeast, Nigeria.

Ha: There is a significant relationship between Alexa and Community Engagement of hospitality sector in Southeast, Nigeria.

		Alexa	Community Engagement
Alexa	Pearson correlation	1	.782**
	Sig. (2-tailed)		.000
	N	304	304
	Pearson correlation	.782**	1
	Sig. (2-tailed)	.000	
Community Engagement	N	304	304

Source: SPSS ver. 27 Outputs.

Discussion of Finding

Table 1. showed that there is a statistically significant positive relationship between Alexa and Community Engagement of hospitality industries in Aba, Abia State, Nigeria, with $r = 0.782$, $n = 304$ and p value of 0.000 ($p < 0.05$). Therefore, the study accepted the alternate hypothesis and concluded that there is a statistically significant positive relationship between Alexa and Community Engagement of hospitality sector in Southeast, Nigeria. This result is harmonious with the result of Alkatheiri (2021) in the study on artificial intelligence assisted improved human-computer interactions for computer systems in Saudi Arabia. This implies that as Human-Computer Interaction (HCI) increases, Community Engagement also increases, indicating that effective HCI like alexa can lead to greater community participation and involvement of hospitality sector in Southeast, Nigeria.

Hypothesis Two

Ho: There is no significant correlation between Chatbot and Capacity Building of hospitality sector in Southeast, Nigeria.

Ha: There is a significant correlation between Chatbot and Capacity Building of hospitality sector in Southeast, Nigeria.

		Chatbot	Capacity Building
Chatbot	Pearson correlation	1	.923**
	Sig. (2-tailed)		.000
	N	304	304
Capacity Building	Pearson correlation	.923**	1
	Sig. (2-tailed)	.000	
	N	304	304

Source: SPSS ver.27 Outputs.

Discussion of Finding

Table 2 shows that there is a statistically positive significant correlation between chatbot and capacity building of hospitality sector in Southeast, Nigeria, with $r = 0.923$, $n = 304$ and p value of 0.000 ($p < 0.05$). Therefore, the study accepted the alternate hypothesis and concluded that there is a statistically positive significant correlation between chatbot and capacity building of hospitality sector in Southeast, Nigeria. This finding is in congruence with the result of Endurance, Eunice, Anthonia, and Sebastine (2021) examined Integration of Artificial Intelligence Tool (Ai-Chatbot) into Teaching and Learning: A Panacea for Improving Universities Educational and Administrative Duties in South-South, Nigeria. This implies that as chatbot usage increases, capacity building also increases, indicating that chatbots can be an effective tool for enhancing the skills and abilities of individuals and organizations in Southeast, Nigeria, leading to improved performance and sustainability.

Conclusion

This study concluded that there is a positive and statistically significant relationship between artificial intelligence and sustainable development of hospitality sector in Southeast, Nigeria. The use of artificial intelligence is positively linked to sustainable development in Southeast, Nigeria, suggesting that AI can be a key driver of economic, social, and environmental sustainability in the region.

Contribution to knowledge

This study contributes to the existing body of knowledge by providing empirical evidence on the significant relationships between Alexa, Community Engagement, Chatbot, Capacity Building, and Artificial Intelligence in enhancing Sustainable Development in the hospitality sector. Specifically, it reveals that effective Alexa and Chatbot utilization can foster Community Engagement and Capacity Building, respectively, ultimately driving Sustainable Development in hospitality sector. Notably, this research pioneers an investigation into the intersection of Artificial Intelligence and Sustainable Development in the hospitality sector of Nigerian, offering valuable insights for policymakers, practitioners, and scholars. The findings provide a foundation for future research on AI-driven sustainable development strategies in the hospitality sector, particularly in developing economies.

Recommendations

The study recommends that:

1. Hospitality sector in Southeast needs to leverage chatbot technology to support and enhance capacity building initiatives, leading to improved skills and performance.
2. Government needs to prioritize the design and development of user-friendly and interactive technologies to enhance community engagement and participation of hospitality sector in Southeast, Nigeria.

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Appendix 1

Selected Hotels in Southeast, Nigeria

S/N	Hotels	Staff Strength
1	Lekota Spring Hotel	21
2	Don Eric's Hotel and Suites	26
3	Abia Hotel Ltd	19
4	Benidon Hotels and Resort	13
5	Binez Hotels Ltd	22
6	Ibiza Hotel and Resorts	38
7	Crest Hotels Ltd	18
8	Donesto Grand Hotels	12
9	Emanet Hotels and Suites Ltd	11
10	Gallery Hotel	23
11	Heartland Holiday Resort	18
12	Hotel De La Paix	29
13	Hotel Du Golf	20
14	Terminus Hotel	18
15	The Addrex Hotel & Suites	16
Total		304