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ARTIFICIAL INTELLIGENCE AND CUSTOMER PATRONAGE OF FOOD AND BEVERAGES FIRMS IN PORT HARCOURT

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ABSTRACT

This study investigates artificial intelligent and customer patronage of food and beverage firms in Port Harcourt. The main objectives of the study is to find out the relationship between Artificial Intelligent (AI) and customer patronage of food and beverages firms in Port Harcourt. The population of the study comprised of 12 food and beverages firms in Port Harcourt. The research design used was the Correlation research. The hypotheses were tested with the use of Pearson product moment correlation and supplemented with SPSS version 21.0. The results were that there was a significant relation between artificial intelligent and customer patronage of food and beverages firms in Port Harcourt.

Keywords: Artificial Intelligence, customer retention, and repeat purchases

INTRODUCTION

The introduction of Artificial Intelligence has become really unavoidable, enabled by recent advances in mechanical engineering and artificial intelligence (AI) technologies. The idea of the robot isn't especially old, just being instituted in 1920 by Karel Čapek in his play R.U.R—Rossum's Universal Robots (NPR, 2011) and it took quite a few years before the idea was joined completely into mainstream society. The incorporation of robots came moderately late to the food and beverages firms, likely since a significant number of the tasks are needed to respond to the necessities of the customer (Ivanov et al., 2017). At present, robots are utilized in lodgings for errands such as checking visitors in, vacuuming floors, conveying things to visitors, and attendant services. Many food and beverages firms around the globe have adopted robotic services. For example, Chicken Republic and Pabod Breweries in Port Harcourt are one of the pioneers in the field, where the property is minimally staffed by robots.

The need to add to Business to Robot to consumers (B2R2C) becomes imperative. The paper advanced that the implementation of Robots in marketing can promote efficiency in the system and also enhance the optimal capacity of businesses but the successful integration of robotics in marketing activities poses a substantial challenge for most firms. The identified challenges include: cost, customer unreadiness, and mobility and performance doubts. The paper provides actionable guidance for marketing managers in adopting and integrating robotics into their operations.

Research Questions

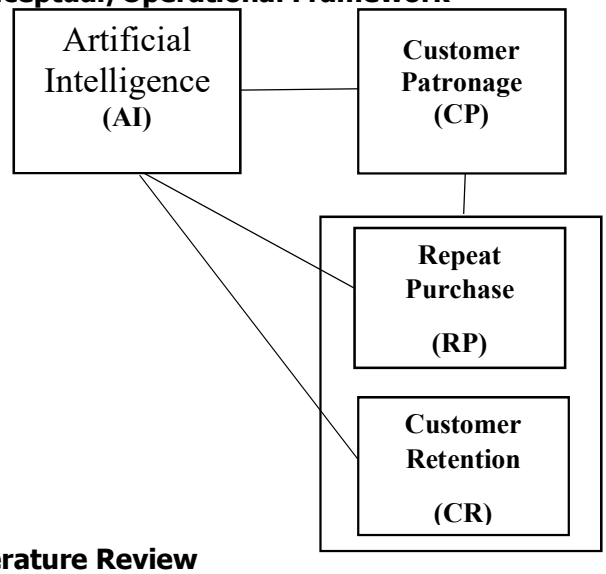
The following research questions are formulated:

i. To what extent does artificial intelligent relate with repeat purchase of food and beverages firms in Port Harcourt?
ii. To what extent does artificial intelligent relate with customer retention of food and beverages firms in Port Harcourt?

Research Hypothesis

1. Ho_1: There is no significant relationship between artificial intelligent and repeat purchase of food and beverages firm in Port Harcourt.
2. Ho_1: There is no Significant Relationship between artificial intelligent and customer retention of food and beverages firms in Port Harcourt.

Conceptual/Operational Framework



Literature Review

Artificial Intelligence

Although manufacturing was where robots initially gained traction, customer service is where it has the most promise. According to Chui, Manyika, and Miremadi (2016), the service industry in the U.S. economy is the one that is most amenable to customer patronage, with robots now doing over half of all jobs connected to the food and beverages. Human skills are enhanced through the usage of robots. This makes the human element to focus on providing exceptional customer service. For example, the lowebot at lowe's home improvement stores can scan a product held up by a customer (or listen to the customer speak the name of the desire product), and confirm the availability of the item then roll along with the customer to the exact shelf in the store, where he or she can find the product (Hullinger, 2016). Understanding and examining both numerical and non-numerical data are requirements of this work. The Lowebot augment capabilities of Lowes human sales associates and allows them to focus on more complex customer service requests. Other retailers have similar applications, Knigntscope security robot roams offices and malls at night. These robots have better sensing capabilities than humans because they incorporate thermal cameras and other high-technology sensing tools. Again the objective is to supplement human security guard capabilities (Robinson, 2017). Borowkas (2020) discussed ways in which small business use marketing robots; Contents creators and copyright: The Los Angeles Times uses robots to report on earthquakes. This organization relies on an algorithm that pull data on magnitude, place and time from the U.S Geological Survey site.

By raising a question about machines' ability to think, Alan Turing began comparing analogies between machines and humans in the 1950s (Turing, 1950). Then, AI can be defined as a set of technologies that can mimic human intelligence in a problem-solving decision-making process (Lai & Hung, 2018). It is emphasized that AI combines advanced software and hardware resources so that, with the help of the information they have, they can act rationally to achieve the best outcome or, in case of uncertainty, the best-expected outcome (Shukla & Vijay., 2013; Paschen et al., 2020). Definitions of AI in marketing, following the tradition of other literature, generally describe AI in terms of human intelligence. However, basing the definition of AI on human capabilities is limiting (Bock et al., 2020). One description that helped delineate the domain of AI and allowed for proper measurement of the construct was that offered by Kaplan and Haenlein (2019), who define AI as the "ability of a system to interpret external data correctly, to learn from that data, and to use those learnings to achieve specific goals and tasks through flexible adaptation." With the aim of a better understanding to occur about the implications of what AI can bring in socioeconomic terms,

Neuhofer et al. (2020) suggest a three-dimensional categorization. The first dimension is Weak AI, designed to solve specific problems, recognize faces, drive cars, or provide assistance through chatbots (Russell & Norvig, 2016; Van Doorn et al., 2017). Enhancing the accessible data limit, the second dimension is composed of artificial general intelligence (AGI). At this level of consciousness, AI can generalize knowledge and reflect, making it capable of surpassing human cognition. Finally, in the third dimension would lie artificial superintelligence, which would constitute a scenario in which machines would be unaware of limits and exceed human capabilities at any level (Russell & Norvig, 2016). Nevertheless, AGI and artificial superintelligence are still far from being achieved. These forms of AI differ in their development stage and market application, and AGI is still considered a technology for the future (Neuhofer et al., 2020). Plus, other levels of AI are present in everyday life, and many individuals are not yet fully aware of it. Some examples of bots that offer personalized services are Siri and Alexa, which act as voice assistants on devices (Tussyadiah & Miller, 2019). Ivanov et al. (2018) claim that the success of service delivery depends not only on the value it creates for the user but also on the value it creates or destroys for the network in which the user is embedded. With increasingly demanding customers, applying and enhancing bots and AI is increasingly necessary, as improving customer service experiences will increasingly involve technology infusion, which these authors define as the incorporation by organizations belonging to the service sector of technological elements into the frontline customer experience. Then, as AI-based functions become more common in markets and everyday life, they are likely to change how they create value and experiment. Some of the benefits of using bots and AI are: Faster customer service; providing a real-time response, regardless of time; demonstrating empathy (those using deep learning); proactive approach; improving logistics; strengthening the brand in post-sales; learning customer needs and preferences, among others (Kaartemo & Helkkula, 2018). Therefore, AI is increasingly present and influencing the population's daily lives and is also an important technological component of the market, especially in the service sector.

Customer Patronage

Organizations are today facing challenges on how to out-perform one another. As the business topography becomes more and more undulating, firms such as fast-food companies continue to search for the right strategic bearing to navigate. On the other hand, the customer cumbered with his own needs, desires and preferences remains the sole target of these firms. As the customer's taste is ever changing, accessing him through the right strategy becomes every firm's priority. Consequently, in an attempt to gaining sustainable differential advantage over competing firms, Porter (1985) firms evolve strategic options based on available resources, capabilities, and other distinctive competences to meet changing customer requirements. Successful and profitable operations by firms demand that such strategic blue-prints must be appealing enough to elicit customer patronage (Kuti & Harrison, 2012 as cited in John, Adiele & Nkoro, 2013). Again, in comparison with other industries, fast-food firms are sometimes faced with peculiar difficulties in positioning and promoting their products. Globally, studies on fast-food is said to have received considerable research (Mattila, 2001) and in Nigeria, this subject matter has been examined from different angles (Adewuje, Ayinla & Bakare, 2014; Konwea, 2012; Oni & Matiza, 2014; Salami & Ajobo, 2012). In Nigeria, firms in this industry are facing keen competition on how to out-rival one another. With a high rate of customer expectations and increased environmental influence (Akinyele, 2010; Dipeolu et. al., 2014) myriad of factors have been used to explore patronage of consumers in this industry but just few have tackled them from an empirical angle. Moreover, meeting these high customer expectations and increased environmental influence (Akinyele, 2010) appear to have created a gap in literature. Thus, employing more empirical probing to determining the best strategic option to adopt in the industry appears quite inevitable. The questions therefore arise: will patronage respond to all these strategies that have been proffered by extant literature? Can one strategy be said to be more potent than the other? What strategic combinations will yield higher patronage? In answering these questions and to fill the gap in literature, this particular study attempts to

empirically investigate how a combination of certain positional strategies such as customer expectation, location, service quality, and assortment can be used to effect customer patronage in the fast-food industry especially in Port Harcourt metropolis in Nigeria.

Repeat Purchase

For most service organizations, economic success depends on an ability to maintain long-term relationships with customers who purchase their offerings repeatedly (Reinartz et al. 2005; Rust et al. 2004). Understanding the reasons customers repeatedly purchase from a service firm therefore represents an issue of essential importance. Service research has identified a multitude of potential repeat purchase drivers; a literature review of nine leading marketing journals between 1983 and 2005 reveals 65 studies that report no fewer than 90 different repeat purchase drivers for consumer services.

However, despite the proliferation of research on repeat purchase drivers for consumer services, extant knowledge on this topic is highly fragmented, a concern for many marketing researchers. Gupta and Zeithaml (2006), observe conceptual overlap in the definition and measurement of key variables influencing repeat purchase and warn "the pattern of relationships among the variables is not clear." Palmatier et al. (2006), find that "many constructs [exist] with similar definitions that operate under different aliases and constructs with similar names but different operationalizations." Verhoef et al. (2007) state, "it is difficult to deduce generalizable findings [on antecedents of customer retention], since the research is quite fragmented and results are mixed," and Zeithaml (2000), deplores that "no studies have incorporated all or even most potential explanatory variables to examine their relative importance in keeping customers." We attempt to overcome this fragmented state of knowledge by making major advances toward a theory of repeat purchase drivers for consumer services and thus contribute to marketing research in two important ways. First, we develop an integrative and comprehensive framework of repeat purchase drivers, using means–end theory and 188 laddering interviews. The framework is the first that identifies an exhaustive and coherent set of repeat purchase drivers which includes new drivers; provides means–end theoretical explanations for how and why drivers relate to one another and to repeat purchase behavior; hierarchically organizes these drivers; and systematically integrates extant research on repeat purchase drivers. Second, we use the framework to assess empirically the relative importance of repeat purchase drivers and their interrelationships, a task hitherto prevented by the fragmentation of extant research (MacKenzie 2003; Zeithaml 2000). We accomplish this assessment through a large, quantitative study based on a nationwide probability sample. The inclusion of different service types enables us to test the boundary conditions of our framework. Scholars can use our framework to position themselves in this research field, make informed choices about drivers for their own studies, and compare their findings with other research. They further can use our findings about the importance of drivers to focus on key concepts when designing their research. Marketing managers require both a comprehensive and integrative framework of repeat purchase drivers and information about each driver's relative importance. With a coherent classification of all repeat purchase drivers at their disposal, they can judge the drivers' effectiveness, interactions, and restrictions. Our framework thus provides managers with a natural starting point for developing relationship marketing strategies and integrating their marketing efforts. The complete understanding of the scope of drivers also enables them to determine how to implement different strategies through a differential blending of drivers. Finally, information about driver importance enables managers to exert an appropriate emphasis and budget across all drivers.

Customer Retention

Customer retention can be defined as how companies or organizations are able to maintain the existing customers' base on establishing good relations with all who buy the company's product, (Kotler, 2008). Customer retention marketing is a tactically driven approach based on customer behavior. Jonathan Lee (1999) outlined some philosophies of retention-oriented; Retention

marketing requires allocating market resources: the company has to realize some marketing activities for customers in order to generate higher profits in the company. The company can keep their budget flat or shrink it while increasing sales and profits. Active customers are retained: customers are likely to feel they are in control and smart about choices they make and they like to feel good about their behavior. Marketers take advantage of this by offering promotions of various kinds to get consumers to engage in a behavior and feel good about doing it. Retain customers' means keeping them active with the company. If the company does not keep them active they will slip away and eventually no longer be customers. Marketing is a conversation between customers and the marketer. Marketing with customer data is a highly evolved and valuable conversation but it has to be backed and forth between the customer and the marketer because the marketer must listen to what the customer is saying to better their products or services offered.

Relationship marketing becomes an essential strategic tool for companies in today's dynamic market in which customer needs and preferences are changing rapidly. These rapid changes that take place in almost all business types, increase the importance of relationships, and highlight the need to enter into networks of relationships. Thus, companies have been increasingly focusing on developing long term profitable relationships in business, internal and consumer markets in order to enhance the value that they deliver to their customers.

Theoretical Review

The Technology Acceptance Model (TAM) with the growing development of new technology, a decision regarding either technology acceptance or rejection is an important factor for the successful implementation and utilization of technology. In addition, during the last few decades, researchers have developed several models to explore why people decide to either accept or reject a technology and to determine what the antecedent variables are of such technology acceptance. This current study discusses the technology acceptance model suggested by Davis. TAM is one of the most widely recognized and established models to explain technology acceptance. TAM adapted Ajzen and Fishbein's theory of reasoned action, representing the view that beliefs affect attitudes, which in turn result in intentions and behaviors. TAM originated based on that relationship of 'belief-attitude-intention-behavior' to explain user acceptance of technology. Davis's theory identified the two primary factors that motivate user technology adoption, namely, perceived usefulness (PU) and perceived ease of use (PEOU). PU and PEOU influence the attitudes and intention to use a technology, which in turn influences actual usage, the dependent variable of TAM. Davis defined PU as a person's subjective belief that an individual's job performance can be enhanced by using a particular technology. PEOU is defined as an individual's belief that operating a particular system is easy and needless effort. Davis insisted that user belief that a new technology is difficult to use means that this user will tend to reject its use even when the technology offers increased usefulness. Initially, TAM was developed for employee technology acceptance in work-related activities, which was applicable to organizational settings. As TAM took a leading role in explaining users' acceptance of new technology, it was extended and modified into a variety of non-organizational sections. A new extended and modified model that accounts for new external variables has been presented to explain the acceptance of new technology. In this extended TAM, external factors, such as personal features (e.g., self-efficacy, risk, trust, and innovativeness), system features (e.g., screen design), and organizational features (e.g. Training) have been investigated, and their influences on attitude and behavior through the application of PU and PEOU have been determined. The set crucial TAM constructs, PU and PEOU, have been studied in hospitality contexts to examine the acceptance of many technologies, such as hotel front office systems, Facebook commerce, user-generated content-adoption, radio frequency identification of cashless payment systems, self-service hotel technologies, mobile tourism applications, hotel tablet applications, disruptive mobile wallets, and biometric technologies at music festivals.

Empirical Review

Gaby Odekerken-Schroder and Dominik (2021). Studied service robots, customers and frontline employees. The main purpose of their study was to investigate the role of service robots in this service triad, with the aim to understand the augmentation or substitution role of service robots in driving utilitarian and hedonic value and ultimately customer patronage. The field data were collected from customers (n = 108) who interacted with a service robot and FLE in a fast casual dining restaurant. Their findings provides three contributions. The first, the authors provides empirical evidence for the interplay between different actors in the "customer FLE technology" service triad resulting in customer re-patronage. Second, the empirical findings advance the service management literature by unraveling the relationship between anthropomorphism and social presence and their effect on perceived value in the service triad. They concluded that the application of robot in marketing enhance patronage.

Kyung Hwa Seo and Jee Hye Lee (2021). Their study explore how well antecedent can predict consumer revisit intention to robot service restaurants and proposes a new extended TAM model by integrating three critical variables (Trust, Perceived risk, and satisfaction) with the original technology acceptance constructs to enrich the understanding of the unique character of robot service in business hotel restaurants. Their findings find a positive indirect effect of PEOU on revisit intention through PU. That is, consumers perceived that the easier the robot is to use, the more useful it is, which is in turn leads to a positive intention to revisit that robot restaurant. Finally, the increased trust in robot service increases satisfaction towards robot service restaurants, and the increased perceived risk decreases satisfaction towards robot service restaurants, which is in the line with the previous extended TAM studies. There study found that there is a negative impact of perceived risk toward robot service on consumer satisfaction and intention to revisit robot service at business hotel restaurant. As described in their table two, respondents' perceived risk toward robots (M = 3.718,SD = 0.731) is slightly higher than trust (M = 3.330, SD = 0.699); therefore, reducing consumer perceived risk toward the chef and serving robot should precede any effort to improve trust at service restaurants.

METHODOLOGY

Population of the Study

The population of the study consisted of 30 managers and supervisors of 12 food and beverages firms in Port Harcourt. The total target population consisted of 360.

Sample and Sampling Techniques

The sample size for this study will be the entire target population which is 30 managers/supervisors in 12 selected food and beverages firms in Port Harcourt. This is because the population is of manageable size. Since total population sampling involves all members within the population of interest, it is possible to get deep insights into the phenomenon you are interested in. With such wide coverage of the population of interest, there is also a reduced risk of missing potential insights from members that are not included (Ashley, 2018).

The Purposive or judgmental sampling method will be used in this study. This is because the participants are selected based on their positions as heads of department or managers. Purposive or judgment sampling technique is used where the sample population for the research has a strategic feature and the researcher wishes to take into consideration some typical cases which will appropriately aid this research work.

Research Instrument

The research instrument to be used for this study is questionnaire for the generation of primary data. Primary data will be considered in the study. Primary data will be collected using the study's questionnaire with both closed and few open ended questions. Closed ended questions will be presented on a Likert four scale type. The four-point scale of strongly agree to strongly disagree

was implored for the questionnaire in which the interval between each point on the scale is assumed to be equal. Points were attached to four point scale as strongly agree (4), agree (3), disagree (2), strongly disagree. This was used to register the extent of agreement or disagreement with a particular statement on information sharing, competence acquisition, work discretion, product innovativeness, process innovativeness, service innovativeness and organizational climate.

Table 1.2: ***Questionnaire Scaling of the Study***

Options	Scale (Point)
Strongly Agree	4
Agree	3
Disagree	2
Strongly Disagree	1

Research dada (2023)

Data Analysis

This subsection describes how data from the field was arranged and analyzed for decision-making. The pie chart was used to analyze the research questions while Spearman Rank Correlation Coefficient (r) was used for the test of hypotheses. Decision Rule**:** Using a level of significance 0.05 (confidence interval of 95%), when a calculated significant value is less than 0.05 the null hypothesis was rejected, if otherwise, the null hypothesis was accepted.

RESULTS AND FINDINGS

The data was analyzed using SPSS version 25, AMOS version 24, and PROCESS Macro for SPSS version 3.2. The data was assessed for any issues affecting the quality of the research findings before starting the analysis process. Namely, the data was tested for common method bias, normality, and multicollinearity. To test for common method bias, Harman's Single Factor test was performed using Principal Axis Factoring as all the observed variables were loaded, attributed for less than 40 % of the variance, confirming the absence of common method bias (Al-Said, 2022).

Latent and observed variables	Loading	Skew	Kurt	α	CR	AVE
Artificial Intelligent (IA)				.931	0.931	0.819
AI 1: Artificial Intelligent are useful in Chicken Republic restaurants	.891	-.264	-.436			
AI 2: Artificial Intelligent were able to perform same functions as employees	.919	-.429	-.130			
AI 3: Artificial Intelligent enhanced my service experience	.904	-.496	-.095			
AI 4: Artificial Intelligent had all functionalities needed to do its job	dropped					
Repeat Purchase (RP)				.940	0.938	0.792
RP 1: Using the robot marketing enhances repeat purchase from customers	.870	-.505	-.335			
RP 2: I Repeat purchase occurs frequently due to the aid of service robot	.930	-.585	-.186			

RP 3: My interaction with the service robot was understandable	.896	-.690	.024			
	.					
Customer Retention (CR)				.897	0.892	0.674
CR 1: Using the robot gave me lots of pleasure	.796	-.312	-.755			
CR 2: With the aid of the robot customers always have in touch with our products all the time	.841	-.349	-.799			
CR 3: The technological newness of the food and beverages firms made me happier	.821	-.371	-.618			
CR 4: The introduction of robots in the restaurants makes business and sales more easy	.826	-.410	-.526		QQ	

all the observed variables were loaded, attributed for less than 40 % of the variance, confirming the absence of common method bias (Harman, 1967). To check for data normality, the values for both kurtosis and skewness were calculated and found to be less than 1. The deviation confirmed the normal distribution of the data collected (Hair et al., 2010). To check for multicollinearity between the independent variables, Variable Inflation Factor (VIF) values were calculated. At less than 3, the values confirmed the non-existence of multicollinearity (Subero-Narro 2022).

CONCLUSION

The dynamic business environment has pushed marketers (businesses) to grapple with the changing needs of customers. To compete effectively, business should possess the ability to get the organization to innovate quickly and produce an acceptable product and service to capture upcoming business opportunities. The integration of Robotics into marketing activities has enormous influence on marketing strategies in specific area such as; business models, sales processes, repeat purchase options as well as customer intention. These transformation is driven by artificial intelligence. Research has shown that it is wise to invest in Research and Development and innovations in times of contraction (Srinivasan et al. 2011, Steenkamp and Fang, 2013) not only in terms of product but also new (potentially complementary) services and processes. Consumers are more open to trying out new goods and services in times of contraction than in times of expansion. Interactive marketing is now possible because to robotics applications, which was formerly done by humans. Unlike the use of blogs, emails, and social media for advertising. Interactive marketing is tailored to enable two way engagement with the customers as they connect with the business directly. This guarantees that business marketers are aware of customers' preferences and can assist them in making purchases.

RECOMMENDATION

Based on the findings of the study, the following recommendations are made:

1. We recommend that food and beverages firms should apply more of the robot system in times of inadequate man power.
2. We suggest the adoption of our proposed model on robotic marketing and customer patronage in the food and beverages firms.
3. Ensure the building of a cordial relationship between the food and beverages firms and the customers
4. Enhance customers relationship are well taken care of while they are dissatisfied to enhance brand loyalty.

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