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The Impact of Web 3 on Digital Marketing Strategies of Retail Businesses in the United States

Abosede Hinmikaiye Adesola Adewale Bisola Aladenika
School of Business, Westcliff University, Irvine, CA 92614
* E-mail of the corresponding author: b.aladenika.169@westcliff.edu

Abstract
The study has thoroughly examined the impact of the web 3 technology on the digital marketing strategies of retail businesses in the United States. The target population were some of the retail firms in the United States such as Amazon.com, Walmart and Costco. The study employed the purposive sampling technique in which 150 respondents who were both employees and employers of the various organizations were determined as the sample size, however, 145 responded adequately. The study employed the ex-post factor research design based on qualitative and quantitative research approach in the research process. Descriptive statistics based on graphical presentation of findings and inferential statistics using the Binary Logit Model (BLM) were employed as analytical techniques. The findings of the study revealed that the respondents who were specialists in their respective fields and having requisite years of working experience supported the view that the web 3 technology has an impact on the marketing strategies of the retail businesses. Similarly, the result of the Binary Logit Model revealed that the agents of the web 3 technology which include Robinhood crypto, Blockchain Demo and Libra cause approximately 32%, 71% and 125% increase in the variation of the digital marketing strategies of the retail businesses. Also, the Wald test ratio revealed these agents of web 3 were statistically significant to the digital marketing strategies of the businesses at the 10% and 5% level of significance. Overall, the study concludes that web 3 has a great impact on the digital marketing strategies of the retail businesses in the United States. Therefore, it is recommended that for an effective digital marketing strategy, the management of retail businesses across the globe should adopt and maintain the web 3 technology in their marketing strategies.
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1. Introduction

The increasing acceptance of web 3 in people's everyday lives around the world, particularly in terms of digital marketing, has shown to be beneficial to these people and businesses over time (Fuchs et al., 2010; Blecker et al., 2004 and Hawkins, 2001). Businesses, particularly in the retail sector in the United States. According to Statista, retail sales in the United States in 2020 will be around USD 4.06 trillion, up from USD 3.81 trillion in 2019. This corresponds to a 7 percent gain. According to JOHNS and Johns (2015), the growth in sales income to roughly 7% can be linked to the growing use of the web 3 digital marketing approach, which has been a huge benefit to the retail industry in the US. To put it another way, the introduction of web 3 digital marketing has enhanced the chances of numerous firms throughout the world, particularly retail businesses in the United States, succeeding. According to Garca and Aguado (2011), web 3 digital marketing encompasses more than just search engine optimization (SEO), however this is critical for achieving business visibility and profitability, since it goes beyond the standards of web 1 and web 2. (Lal, 2011).

According to many other researchers (Wall, 2012 and Rappa, 2004), enterprises' awareness of cryptocurrencies and blockchain should not be minimal to successfully emerge with an optimal and feasible digital marketing plan using web 3. To put it another way, for businesses to thrive, particularly retail businesses in the United States, they must have a thorough understanding of cryptocurrencies and blockchain to ideally develop a better digital marketing strategy to increase sales, income, and profit (Verizon, 2010). The origins of web 3 can be traced back to John Markoff in 2006, but it just became popular in recent years, particularly around 2015. According to Hawkins (2001), unlike web 1 and web 2, web 3 is less likely to be hacked, making consumers less vulnerable to online theft. Businesses who use the web 3 for their digital marketing are less vulnerable to attacks and online theft, resulting in lower costs, more profit, and sales because of the growing number of web 3 users.

The web 3 in the view of Almeida and Oliveira (2011), has overly reduced the cost of marketing for businesses who depends on the digital marketing platforms. As regards this, businesses can now adequately study the psychology of the audience, knowing where to market their product i.e., the digital marketing strategy to employ to get the largest market share and remain competitive in the market. Sabbagh et al., (2011) explicated the fact that web 3 digital marketing has overly increased the chances of firms to thrive in the market. Retail businesses in the United States such as Walmart, Costco, Amazon.com, among others have successfully raised their profit, improving their welfare with the adoption of the web 3 digital marketing strategy. Customers, on the

other hand, have found the web 3 to be beneficial over time because they can search and make requests at a low cost. Given the foregoing, the purpose of this study is to demonstrate the impact of web 3 on marketing techniques in the US retail industry.

2. Aim of the study

The broad objective of this study was to examine the impact of web 3 on marketing strategies in the US retail sector. The broad objective was divided into various specific objectives as follows:

Objectives of the study

- To examine the impact of Robinhood Crypto on the marketing strategies of US retail firms.
- To investigate the impact of Blockchain Demo on the marketing strategies of US retail firms.
- To examine the impact of Libra on the marketing strategies of US retail firms.

Research Hypothesis

Ho1: Robinhood Crypto does not have a significant impact on the marketing strategies of US retail firms.
Ho2: Blockchain Demo does not have a significant impact on the marketing strategies of US retail firms.
Ho3: Libra does not have a significant impact on the marketing strategies of US retail firms.

3. Literature Review

Various authors have conceptualized and characterized web 3 and how it affects corporate marketing tactics (Sabbagh et al., 2011.; Knapp, 2012). According to Kobie (2011), web 3 is the upcoming third generation of the internet, which will enable applications to process information in a smart human-like manner. It is the result of increased technological changes and innovations of concepts on the World Wide Web over time. It is important to note that web technologies have evolved from the first version (web 1) to the second version (web 2), and finally to the third version (web 3), which is the focus of this study. In contrast to traditional web technologies, which were essentially static and did not allow users to participate, the web 3 technology incorporates data generated by users, allowing for greater user participation. In terms of business marketing, Osterwalder and Pigneur (2010) highlighted that the web enables and facilitates individuals, marketers, and businesses to use information in such a way that content exchange is facilitated, regardless of devices or networks. Interoperability is becoming more important in corporate plans because of the development of new web technology (web 3) that is linked to the semantic web (Verizon, 2010). It allows organizations to turn their attention to their consumers to learn more about their interests and preferences and better serve them, rather than focusing solely on product development like early web technologies did.

There has been no consensus on the definition of web 3 over time, but scholars are working on it (Santos, 2006; Kotler, 2009). In connection to company marketing strategies, Garca and Aguado (2011) agreed on some characteristics of the third generation of web technology (web 3) as defined by Garca and Aguado (2011). According to Laudon and Traver (2009), web 3 technology is omnipresent, allowing users to communicate at any time and from their preferred location, regardless of their devices, framework, operating system, or application used to access the internet. This, he claims, is due to the performance of their devices, advancements in telecommunications technology, portability of powerful devices that allow them to be carried around, the development of intelligent programs that enable the automation of large and diverse web operations, and user acceptance. Multiple connection options such as mobile networks, Wi-Fi networks, cable networks, or fiber networks using various devices such as laptops, desktops, tablets, and so on enable the technology's ubiquity (Hawkins 2001). Additionally, the web is individualized since it allows content to be separated and contextualized by individual interests, as well as the ability to intelligently deal with unstructured data and provide meaning to published data (Almeida and Oliveira, 2011). He also mentioned that web 3 technology allows humans and computational devices to filter information based on context, meaning, and relevance. This feature makes it efficient, and its capacity to filter information based on individual interests adds to the web's value.

Because of the properties of web 3 technology, businesses use it to get closer to their potential clientele, as content and collaborative websites become more iterative and facilitators of business models (Krishnan et al., 2007). Businesses also make advantage of technology in the form of adverts, as websites are no longer just hubs for information, but also provide advertising that is tailored to the interests of users and may alter on the go. When a user opens each email message, for example, free webmail services like Google mail display advertisements in context with the email content. As a result, web 3 is classified as a system of human cooperation and tends to be a socio-technical system where human interactions are mediated by technologies, based on Karl Marx's social theories about community development and collaborative forms of cooperation (Rappa, 2004).

4.Impact of Web 3 on Marketing Strategies of Businesses

Web 3 is founded on three pillars for businesses, according to Geoffrion and Krishnan (2003): the cloud database

and provision of services, migration to a protocol that would ease device connectivity, and social media and user-generated content, which most firms use as marketing methods. Like traditional marketing, digital and direct marketing also impact on consumers' psychology (Bamidele-Sadiq & Popoola, 2022).

Web 3 technology will include capabilities that will allow consumers to benefit from personal experience, context-aware, exact response, and a lot more personalized web experience, in addition to the easy location and collaboration among users introduced by web 2. (Wall, 2012) (Wall, 2012) (Wall, 2012). It will also allow businesses to re-strategize and improve their company operations while increasing operational efficiency and lowering costs (Amit and Zott, 2001). Furthermore, the technology assures trust and privacy, which gives any organization that adopts it an advantage because customers respect these characteristics.

5.Empirical Literature

Several studies have been conducted on the impact of web 3 on marketing tactics as well as its impact on overall business performance in the US retail industry, as well as other firms around the world. Chung et al., (2004), Fuchs et al., (2010), and Brinker, (2011) conducted studies on the impact of web 3 on marketing strategies. They used a case study research design and selected three retail enterprises in the United States for their investigation (Amazon, Walmart and Costco). Questionnaires were distributed to meet the study's aims, and the replies revealed that a substantial percentage of the population believes that web 3 has a significant impact on the marketing tactics of retail enterprises in the United States. The work used a student t-test to assess the study's premise, and the results demonstrated that web 3 had a considerable impact on retail marketing techniques in the United States. Given that the probability value was less than the customary level of significance of 5%, this was the case. As a result, the research suggests that web 3 has a statistically significant impact on retail marketing techniques in the United States.

Kotler, (2009) and Gaya et al., (2008) employed the purposive sampling strategy to collect data for their study's analysis. The study used samples from some of the country's most prestigious businesses. Their research was based on primary data, and it looked at the impact of web 3 digital marketing methods on business success in the United Kingdom. Both qualitative and quantitative data analysis were used in the study, which was aided by graphs and Levene's test. The study indicated that web 3 digital marketing has a favorable and significant impact on the performance of top organizations in the United States, based on the data. The probability values of the Levene's test were below than the 5% level of significance, demonstrating this. This is a supplement to Naik and Shivalingaiah's (2008) study on the impact of web 3 digital marketing on business survival.

On his study on the impact of web 3 on business marketing strategies in Canada, Cena, (2009) and Chung et al., (2004) used secondary analysis. They employed an ex-post facto research design in their study to examine any existing relationships between the variables of interest. According to the conclusions of the study's analysis, web 3, unlike web 1 and web 2, has a strong and favorable association with the marketing strategies of firms. This research correlates with a similar study conducted by several other studies (Brinker, 2011; Amit et al., 2001; Naik and Shivalingaiah, 2008) on the expected influence of web 3 on a company's digital marketing strategy and how it affects the company's overall success. Various analyses were carried out to reach a conclusion for the study, including qualitative and quantitative analyses, which were supported by graphical presentations and Chi-square. The study identified top retail enterprises in Canada and employed a case study research design. According to the results of a study's analysis of the questionnaires that were sent, most respondents believe that web 3 has a big impact on digital marketing as well as the overall success of Canada's top retail enterprises.

Gaya et al., (2008) and Verizon (2010) conducted a study in which they examined 11 publications on web 3 and digital marketing. The research investigated the history and progress of web 3 as well as its impact on business marketing tactics. According to the conclusions of the study, web 3 has proven to be essential as a prerequisite for a successful corporate marketing strategy. This is in light of Blecker et al., (2004) research.

6. Methodology

Research Design

Ex-post facto research design was adopted for this study. As explained by Rani (2014), ex-post facto research design is a semi trial study looking at how an explanatory variable, present before the concentrate in the members, influences a reliant variable. the study employed the ex-post facto research design because it is the bast research design suitable for the study of the existing relationship between variables with graphs and inferential statistics (Trochim and Arora, 2015).

Research Approach

In order to study the impact of web 3 on the marketing strategies in retail business sector, the study employed a mixed research approach. The use of graphs to represent the responses gotten from the respondents aided the qualitative approach, while the Binomial logit model aided the quantitative approach.

Target Population

The target population, according to Sam and Sam (2011), is the entire number of observations that the researcher is still interested in. Retailers in the United States, such as Amazon.com, Walmart, and Costco, are the study's target population. The target population includes both the employees and the employers of these businesses. This is done to avoid any bias or prejudice on the part of either employees or employers. Overall, this is being done in order to properly investigate the impact of web 3 on retail marketing techniques in the United States.

Sampling Technique

Purposive sampling technique was employed in this study in the selection of an aggregate of 150 sample size. This was possible through the use of a well thoroughly drafted questionnaire titled; "A questionnaire on the impact of web 3 on the marketing strategies of retail businesses in the United States." The questionnaire was developed in ways such that ethical issues and issues of anonymity were adequately observed. In totality, among the 150 questionnaires that were issues out, only 145 were adequately filled and returned, which shows a return rate of about 97 percent.

Method of Data Analysis

The approach for extracting data from respondents was determined by the writing's realism. The assessment used engaging insights from charts as well as inferential metrics from the Binary Logit Model (BLM). The Binary Logit model is used because it is appropriate for assessing models with discrete data.

Model Specification

To explain the impact of web 3 on marketing strategy of retail businesses in the United States, Binary Logit of estimation was used such that if web 3 marketing has an important role to play of the marketing strategy of retail businesses in the United States it equals 1 and if not, it equals 0. Agents of web 3 technology such as Robinhood Crypto, Blockchain Demo and Libra were used as proxy for the independent variable (Web 3). This is based on the works of Morris, (2011) and Silva (2008). The model is analyzed such that if respondents supported the view that web 3 has an impact on the marketing strategy of retail businesses in the US, the probability of the respondent's choice being correct is given as Pi and the probability that respondents choice is incorrect if given as 1-Pi. Given the above, the model is specified as;

$Y = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + U_t$ ……..(1)

Where; Y = The dichotomous endogenous variable which was proxied as; Y = 1, if respondents support the idea that web 3 has an impact on marketing strategy of retail businesses in the United States, Y = 0, if respondents do not support the idea that web 3 has an impact on marketing strategy of retail businesses in the United States

α_0 = intercept

$\alpha_1 - \alpha_4$ = Partial regression coefficients reflecting the probability of each explanatory variable impacting Y.

U_t = Error term

Given the above the implicit representation of the model is given as;

$Y = f(X_1, X_2, X_3, U_t)$

Y = Marketing strategies of top retail organizations in US (Amazon, Costco and Walmart)

X_1 to X_3 = The control variables. They are given below as;

X_1 = Robinhood Crypto (RC) (Low = 1, Moderate = 2, High = 3)

X_2 = Blockchain Demo (BD) (Low = 1, Moderate = 2, High = 3)

X_3 = Libra (LB) (Low = 1, Moderate = 2, High = 3)

Table 1: Result of the Binary Logit Regression Model

Regressors	Coefficients	Wald Ratio	Probability Value	Odds Ratio
Intercept	-1.345	11.701	0.042	0.091
RC	0.320	4.015*	0.065	2.542
BD	0.712	2.870*	0.259	3.832
LB	1.249	20.327**	0.000	1.350

Source: Researcher's Computation Using SPSS (2021).

X^2 = 3018.239 P-value = 0.0000; R^2 = 0.841; * shows that p-value significant at 1%; ** shows that p-value is significant at 5%; * shows that p-value is significant at 10%.**

Discussion

Given the Binary Logit Model (BLM) based on the core principles of web 3 agents, the regressors employed for this study were the Robinhood Crypto (RC), Blockchain Demo (BD) and Libera (LB). The dependent variable was marketing strategies of retail businesses in US and the objective of the study was to evaluate the impact of

web 3 on the digital marketing strategies of retail businesses in the United States. Generally, given that there are many possible factors which impact the marketing strategies of businesses, the study seeks to evaluate the aspect of the web 3 technology. The result of the Binary Logit Model (BLM) revealed that all the independent variables that represents the web 3 technology (Robinhood Crypto, Blockchain Demo and Libera) have a positive relationship with the digital marketing strategies of businesses. This implies that the implementation and utilization of these agents of web 3 will make the digital marketing strategies of the retail businesses in the United States more effective.

Essentially, looking at the partial regression coefficients of the regressors, the coefficients in table 1 show the variation in the digital marketing strategies of the businesses that would occur for any change in the regressors. From the results it was revealed that Robinhood Crypto causes approximately 32% increase in the variation of digital marketing strategies of the businesses. Also, Blockchain Demo causes approximately 71% increase in the variation of digital marketing strategies of the businesses. Finally, the result showed that Libra causes approximately 125% increase in the variation of digital marketing strategies of the businesses.

Accordingly, looking at the individual significance of the explanatory variables to the dependent variables the Wald ratio test revealed that Robinhood Crypto was statistically significant to the digital marketing strategies of the businesses at the 10% level of significance. Also, Blockchain Demo was found to be statistically significant to the digital marketing strategies of the businesses at the 10% level of significance. Finally, the Wald ratio test revealed that Libra was found to be statistically significant to the digital marketing strategies of the businesses at the 1% level of significance.

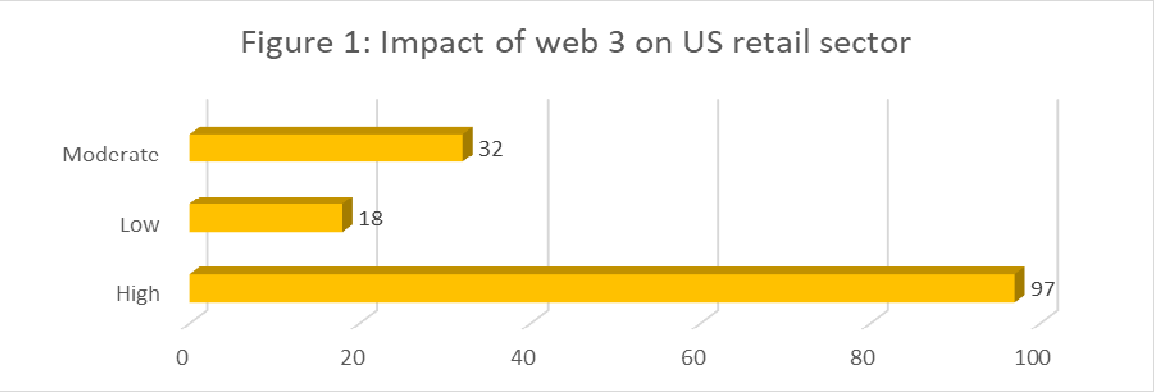
In testing the joint significance of the explanatory variables (Robinhood Crypto, Blockchain Demo and Libra) which is also regarded as the overall significance of the model the Chi-square (X^2) test was employed. The result revealed that the model is robust and statistically significance given a Chi-square (X^2) statistic of 3018.239 and a corresponding probability value of 0.0000 which is less than the 1%, 5% and 10% critical values. This shows that there is joint significance of the explanatory variables employed in the study. Given the above result, the study rejects the null hypothesis which states that the web 3 technology does not impact on the digital marketing strategies of retail businesses in the United States and accepts the alternative form which states that web 3 technology impacts on the digital marketing strategies of retail businesses in the United States

In the same vein, to test the extent to which the explanatory variables cause variations in the dependent variable, the coefficient of multiple determination was employed for that purpose. The coefficient of multiple determination (R^2) was found to be 0.841 and indicates that approximately 84% of the total variation in the digital marketing strategies of the businesses is explained by the agents of web 3 technology (Robinhood Crypto, Blockchain Demo and Libra). The remaining 0.159 is attributed to the stochastic disturbance term in the model. Therefore, the result implies that the model is accurately fitted and has a strong explanatory power.

Overall, the odds ratio measures the probability that the respondents support the idea that digital marketing strategies of the businesses is better influenced by the web 3 technology. Therefore, the probability that web 3 technology impacts on digital marketing strategies of the businesses than other explanatory variables is given by approximately 3.83 as depicted by blockchain demo to 1 in the retail businesses as depicted by blockchain demo. This indicates that of every 100 organizations, blockchain demo will have greatest role in influencing digital marketing strategies in 2 of those 100 organizations.

Descriptive analysis of impact of web 3 on the marketing strategies of retail businesses in the United States

To tackle the major objective of this study which is to examine if web 3 has an impact on retail businesses in the United States, the study employed the Likert scale statistical technique in which the respondents were asked to indicate the extent to which they support the idea that web 3 has an impact on retail businesses in the United States. This Likert scale technique was structured such that there were one to three options to which respondents were to indicate their choice which include, Low, Moderate, and high. This structure implies that respondents whose idea is that web 3 has an impact on retail businesses in the United States selected the high option. Also, respondents whose idea is that web 3 does not have an impact on retail businesses in the United States selected the low option. On the other hand, respondents who feel that web 3 has a moderate impact on retail businesses in the United States selected the moderate option. The responses of all respondents are illustrated in the chart below;



Source: Researcher's Computation

From the figure 1 above, out of the 150 questionnaires 145 were adequately filled and returned. Based on this, 32 out of 145 respondents or about 22 percent of the total respondents chose the moderate option. In this regard, 22 percent of the total population are of the view that web 3 has a moderate influence on the marketing strategy of retail businesses in the United States. Also, 18 persons or approximately 12 percent of the total respondent chose the low influence option. They believed that web 3 does not have a significant impact on the marketing strategy of the retail businesses in the United States. Lastly, 97 persons or about 67 percent of the total respondents chose the high influence option. This shows that 67 percent of the total respondents believed web 3 has a significant and positive impact on the marketing strategy of retail business in the United States. Overall, given that a bulk of the respondents chose the high influence option, we conclude that web 3 has a high impact on the marketing strategy of retail businesses in the United States.

Conclusion

This paper investigated the impact of web 3 on retail marketing techniques in the United States using an ex-post facto research design. Based on the material studied in this paper, Web 3 has been identified as an important factor influencing corporate marketing tactics, particularly in the retail sector in the United States. The model utilized in Morris, (2011) and Silva (2008)'s work on the impact of web 3 on digital marketing strategies of Moroccan enterprises was employed in this study. The study used a mixed research approach and relied on the purposive sampling technique, with a total sample size of 150 people. Only 145 of the 150 questionnaires sent out were properly completed and returned. The paper used the Binary Logit model as well as graphs to help achieve the study's stated goal. The descriptive analysis, which was supported by graphical display, revealed that the high influence option was chosen by a bigger portion of the respondents. In this regard, they believe that Web 3 has a significant impact on retail marketing methods in the United States. In addition, the Binary Logit model revealed that Robinhood Crypto explains around 32% of the diversity in marketing methods used by US retailers. Similarly, the Binary Logit model research revealed that Blockchain Demo Libra explains around 71 and 125 percent of the variance, respectively. The Wald test ratio revealed that Robinhood Crypto and Blockchain Demo were both 10% significant, but Libre was only 5% significant. Overall, the study discovered that web 3 is critical for a company's marketing plan to be successful. The study concludes that managers and other decision makers in a business should incorporate web 3 into the company's marketing strategy.

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