

## **BLOCKCHAIN IN DIGITAL MARKETING : A STUDY ON MARKETING PERFORMANCE WITH SPECIAL REFERENCE TO CHENNAI CITY**

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### *Abstract*

Blockchain is a unique kind of record that cannot be certainly controlled or hacked. Sometimes called distributed ledger technology. Blockchain is one of the utmost encouraging and commended technologies of the current century that has the prospective to business models in a wide array of industries, like finance, supply chain management, commerce, health care, real estate, marketing etc. Based on the Distributed Ledger Technology (DLT), blockchain applications delivers advanced answers to many business problems, offering security, immutability of record keeping, efficiency, and disintermediation, shifting the balance of power within the value chain This research aims to explore the important role of blockchain and the impact of blockchain on the digital marketing performance. This study carried out quantitative survey of 100 respondents in Chennai city. Data collected for the study is from both primary and secondary data. In this paper, we identify uses of blockchain in digital marketing and summary the benefits, customer awareness and the challenges that will result from the adoption of the technology.

Key Words: Blockchain, Digital Marketing, Advertising

## **1. INTRODUCTION**

### **1.1 BLOCKCHAIN MARKETING**

Some of the important views of blockchain namely transparency, security, and accessibility are possibly set to disrupt every industry, including marketing and advertising. Blockchain marketing predicts an entirely different advertising and marketing situation, in which customers are able to own and sell their data directly to marketers and advertisers. This means evading platforms like Facebook and Instagram completely, so there's better reliance and usability of consumer data. Blockchain is making a straight data exchange between

consumers and brands like never before. Built from the ground up to highlight the connection between brands and consumers. Blockchain marketing exceeds the middle-man. This is vital because platforms like Facebook normally collect data by pursuing user activity, but the resulting information is low quality. There's also adverse consumer reliance with this form of surveillance.

## **1.2 BLOCKCHAIN REVOLUTION IN MARKETING**

Marketers expect blockchain to bring intense modifications to digital marketing in particular. Blockchain aids a different kind of digital advertising platform through which consumers can 'own' their own data, rather than submit it to a publisher like Facebook or Instagram. This means consumers can be directly reimbursed for their marketing data, and marketers can more precisely influence this data to push targeted advertising at an specific level. Marketing is focused by data these days, and blockchain sorts data accurate, reliable, and transparent. More definitely, these are specific ways blockchain impacting marketing.

### **More Democratic Marketing**

Blockchain provides certain power back to consumers that was earlier in the hands of social media platforms and other companies that gather consumer data. Individuals can decide in to outlook ads in interchange for digital currency or token, he explained. That means consumers will be directly rewarded for viewing ads, and apparently for giving up their data as well.

### **More Reliable Marketing**

Blockchain can make transparency surrounding where products were obtained or manufactured. "For example," Martin explained, "if the product was really organic or if the agriculturalist in the supply chain was paid properly." It becomes much more straightforward to audit supply chains, and consumers can be added assured that product labels are accurate.

### **Cheaper Ads**

Without the middle man, the cost of digital advertising would be reduced for marketing groups. "Ad metrics will become more exact without reliant on a third party," Going through one or more third parties can make ad tracking challenging, but with blockchain information would be freely accessible by marketers. That means it will also be easier for marketing groups to measure the ROI of their ads.

### **1.3 BLOCKCHAIN BENEFITS**

#### **Traceability and Transparency**

Traceability is guaranteed in Blockchain as all transactions are always registered, For instance, a company that uses Blockchain technology to develop and guarantee the traceability of its products permits to have a visual access to direct and certified information on the stages of production, distribution and advertising of its products.

#### **Security**

It is with the practice of the cryptographic approach, the Blockchain pledges with great precision the security of the transactions. In addition, information ensures that transactions cannot be hacked. Identity theft when carrying out a transaction is hence theoretically no longer possible.

#### **Timeliness**

Due to Blockchain's networked infrastructure, registration and access to information are almost rapid. As proof, the world of finance is currently using the Blockchain approach to enable intermediation between banks, clearing houses and central banks. They see the chance to increase the effectiveness of operations: speed of performance, reduction of costs.

## **2. NEED FOR THE STUDY**

The approach of blockchain in digital marketing as been acknowledged in various sectors in the current trend. It provides a clear considerate of what is required to improve the usage of blockchain which ultimately results in the current marketing performance. This paper studies about the market performance related to digital marketing and its awareness towards customer.

## **3. SCOPE OF THE STUDY**

This study enables to have clear insight about blockchain on digital marketing . This study is relevant to the present day approach and the needs of blockchain as it occupies an important position in many sectors. An attempt is made to find out the market performance of blockchain technology in digital marketing. This study will also help to understand the factors that influence the level of customer awareness in blockchain marketing.

#### 4. LIMITATIONS OF THE STUDY

The study is purely based on the questionnaire, which may be insufficient to measure the proper opinion of the respondents.

The study is determined to Customers only in Chennai city.

#### 5. REVIEW OF RELATED LITERATURE

**Arijit Chakrabarti (2017)**<sup>1</sup> Blockchain technology finds its usage across both financial and non-financial areas. Decreases transaction cost and increases consolidated solutions. It also communicates peer-to-peer in a trustless situation. Indisputable public ledger permits tracking ownership of real-world digital assets. Every transactions provide the transparent indication of any sources. The blockchain technology is still developing with a lot of possibility for different domains and industries and is set to transform the world. But it is not free from challenges; some of them have been emphasised too. Retail industry will start gaining the benefits of blockchain through enhanced transparency of products, more efficient supply chain controlling, better loyalty organization system, improved customer profiling.

**Pierro (2017)**<sup>2</sup> Blockchain innovation isn't controlled to cash however; since each exchange in the record is only a sequence esteem, exchanges can basically be followed. Many companies has been utilizing blockchain innovation to track titles as they modify proprietorship. Basically, the blockchain is a linked chain of information. Blockchain technology is not only at the basis of all cryptocurrencies, but it has created a extensive application in the other traditional financial aspect. It also released the door to innovative applications such as smart contracts.

**Risius (2017)**<sup>3</sup> says that the blockchain technology is commonly considered potentially disruptive in some regards, there is a lack of understanding where and how blockchain technology is efficiently applicable and where it has mentionable practical effects. This issue

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<sup>1</sup> Arjit Chakrabarti (2017), International Research Journal of Engineering and Technology (IRJET) , Volume: 04 Issue: 07.

<sup>2</sup> Pierro, M. D. (2017). What is the blockchain? Computing in Science & Engineering, 19 (5), 92-95

<sup>3</sup> Risius, M., (2017) A blockchain research framework. Business & Information Systems Engineering, 59(6), 385-409

has given rise to critical voices that critic the technology as advertised. The outcome that blockchain applications will have in business and industries can also be observed distinctly for three core group of related activities, namely design and features, measurement and value, management and organization, at four stages of study that comprise the involved stakeholders users and society, intermediaries, firms and industry and the platforms.

**Forbes (2018)**<sup>4</sup> Apart from the disintermediation benefits, blockchain will also be able to convey better targeting for digital marketing campaigns, and consistent performance measurement of marketing and advertising campaigns, providing enormous benefits for digital marketing and email marketing, where tracking will help the prevention of fraud and saving the industry significant amount of money.

**Cong (2019)**<sup>5</sup> Although Blockchain technology has shown unique possibility and individuality in the capital market, its undeveloped technology status is still a challenge to regulators. Smart contract of Blockchain is unlike from a paper contract. Smart contracts practice a computer language with circumstances. As long as these circumstances are met, it will spontaneously trigger the execution. Blockchain technology delivers decentralized consent and potentially increases the narrowing space through smart contracts. Meanwhile, making decentralized agreement includes distributing information that certainly modifies the informational environment.

**Kumar.N (2018)**<sup>6</sup> says that there are three levels for Blockchain: network, databases and its applications. The Global ledger level comprises blocks connected. Every block includes the transactions and smart contracts and then linked to its associated one. At the application level, different services can query, analyze and infer the meaning. The uses of privacy protection technology based on blockchain are planned and analyzed, which are mainly divided into technology applications based on many protocols. In view of the lacks of the existing blockchain privacy protection technology, explore future challenges that need to be studied in

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<sup>4</sup>Forbes (2018), 10 Ways Blockchain Could Change The Marketing Industry This Year., Available at: <https://www.forbes.com/sites/forbesagencycouncil/2018/02/27/10-ways-blockchain-could-change-the-marketingindustry-this-year>.

<sup>5</sup>Cong 2019, The Review of Financial Studies, Volume 32, Issue 5, May 2019, Pages 1754–1797.

<sup>6</sup>Kumar, N., 2018. Review: A survey on privacy protection in Blockchain system. J. Netw. Comput. Appl. 126, 45–58.

order to realm privacy in blockchain system, and looks forward to the future progress direction in blockchhain.

**Yusuf Perwej (2018)**<sup>7</sup> This study highlights the state-of-the-art of current blockchain representations, structure of Block chain and term using in blockchain as well as characteristics of a Blockchain . The blockchain technique is one of the most famous spectacle in recent years, it has already transformed people's lifestyle in several area due to its great effect on many businesses or industry, and what it can do will still remain cause influence in many places. The Blockchain technology, at its core, features an persistent distributed ledger, a decentralized network that is secured. The most authoritative features of the technology are the barriers to defeating or separate information which has been added to the chain. In theory, the Blockchain should be more cost-efficient, very inflexible and quicker than other technique in use at present. The future applications, services of Blockchain technology are abbreviate.

**Kaushik Das (2019)**<sup>8</sup> explains that blockchain technology is in level of disrupt into many sectors.It is therefore on a rather modest premise that the Blockchain's principle is still based few aspects. To ensure exchanges, transactions between two individuals and two entities, by getting rid of all mediators, trusted third parties. Blockchain applications have multiplied afar the financial system, from the economy, from sharing to management, from the supply chain to smart contracts. This technology will renovate the organization of transport,the supply chain, advertising, the energy production and distribution sector, the real estate market and insurance. Blockchain entitles a technology capable of storing and transmitting information in a completely transparent, secure method and without the involvement of any control structure. Blockchain's ability to support different business application makes blockchain one of the innovative technologies which would bring change in society, economics, commercial and technology.

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<sup>7</sup> Yusuf Perwej,2018 A Pervasive Review of Blockchain Technology and Its Potential Applications,Open Science Journal of Electrical and Electronic Engineering. Vol. 5, No. 4, 2018, pp. 30-43.

<sup>8</sup> Kaushik Das (2019)International Journal of Science Technology & Engineering | Volume 6 | Issue 1.

**Pinmo (2019)**<sup>9</sup>A blockchain-based platform marks the transition from the probabilistic dimension of clicks and impressions to a deterministic data model. It integrates blockchain structure into its general media advertising strategy meant at better ad campaign tracking and more specific analytics. These examples are demonstrative of the blockchain's potential to avoid click fraud and to promote improved trust and transparency in the marketing and advertising industry.

**Sara Saberi (2019)**<sup>10</sup> says the evolution of blockchain-based supply chain management is presented which enables the creation of shared, secure, decentralised ledgers, autonomous digital contracts (smart contracts), trustworthy and secure networks. It supports transaction between partners (peer-to-peer) by reducing the role of middlemen/intermediaries in the network. The obstacles of blockchain adoption in supply chain are studied as multi-faceted issues which affect not only the relationship between supply chain partners but also partners' employees and their shareholders. In addition, the technological barriers relating to blockchain adoption are included and many branch from blockchain technology immaturity. System-related problems of blockchain technology, which can limit its adoption, requires more focus and effective technical solutions to report the scalability issues need to be more improved.

**Boukis, A. (2020)**<sup>11</sup> This paper ignites an tentative conversation around how blockchain applications and platforms can distress consumer-brand relationships, drawing on a amount of real-life examples of blockchain adoption. It explains on how blockchain features can impact on several areas of awareness for strategic brand management, such as the implementation of digital currencies, brand storytelling, usage of blockchain-enabled loyalty programmes, need of intermediaries in online advertising, counterfeit consumption, brand transparency and trust for brands in online marketplace.

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<sup>9</sup>Pinmo (2019). How Pinmo Will Utilize Blockchain to Revolutionize the Advertising Industry. Pinmo. Available online at: <http://blog.pinmo.ca/advertising-industry/> (accessed September 22, 2019).

<sup>10</sup> Sara Saberi (2019) Blockchain technology and its relationships to sustainable supply chain management, International Journal of Production Research, Vol. 57, No. 7.

<sup>11</sup>Boukis, A. (2020), "Exploring the implications of blockchain technology for brand-consumer relationships: a future research agenda", Journal of Product & Brand Management, Vol. 292.

## **6. RESEARCH GAP**

The Review of related literature suggests that many studies have been shown in the many fields or areas related to digital marketing, but it has been recognized that no research has been conducted on the Market Performance of Blockchain.

## **7. OBJECTIVES OF THE STUDY**

- 1.To study about the customer awareness towards blockchain.
- 2.To assess the marketing performance in blockchain.
- 3.To analyse the relationship between customer's perception and blockchain.
- 4.To test the difference between demographic variables and factors of blockchain.

## **8. STATEMENT OF HYPOTHESIS**

H0 1: To test whether there is significant relationship between customer awareness and blockchain.

H0 2: To test whether there is significant relationship between customer perception and blockchain.

H0 3: To test whether there is significant relationship between marketing performance and blockchain.

H0 4: To test whether there is significant relationship between educational qualification and reliability.

H0 5: To test whether there is significant relationship gender and transparency.

## **9. METHODOLOGY**

### **9.1 Sampling**

Convenience Sampling methods were used for collecting the data from the respondents for the study. The sample size for the study is 80.

### **9.2 Data Collection**

The information collected from both the primary and secondary data. The questionnaires were distributed to the respondent for the data collection.

### 9.3 Data Analysis

1. Percentage analysis
2. Inferential Analysis
  - Correlation
  - Chi- Square
  - Annova
  - t - test

### RELIABILITY ANALYSIS

The general purpose behind usage of factor analytical technique is to find a way to condense and summarize the information contained in a number of original variables into a reduced set of new composite factors with least loss of information. This technique has been used to identify a set of latent dimensions that are not easily observed.

Reliability refers to the fact the empirical data must be reliable and worth, and that the study measures the components or elements. The reliability of items is assessed by computing the co-efficient of Cronbach's Alpha measures the internal consistency of the items.

#### RELIABILTY ANALYSIS

Cronbach's Alpha <sup>a</sup>	N of Items
0.880	25

The above table shows that Cronbach's coefficient of reliability analysis is classified under the criteria with a high consistency. This guarantees a very high inner consistency to the adopted instrument proposed in this study.

**DATA ANALYSIS AND INTERPRETATION**

## Demographic Profile of Respondents

Demographic Profile	Options	No. of respondents	Percent
Gender	Male	44	55.0
	Female	36	45.0
	Total	80	100.0
Age Group	Below 20	15	18.8
	21 To 35	35	43.8
	36-50	29	36.3
	Above 50	1	1.3
	Total	80	100.0
Educational Qualification	Illiterate	20	25.0
	Graduate	29	36.3
	Professional	12	15.0
	Student	19	23.8
	Total	80	100.0
Profession	Government Employee	26	32.5
	Private Employee	28	35.0
	Business	12	15.0
	House Wife	14	17.5
	Total	80	100.0
Income	Below 15000	16	20.0
	15001 To 30000	39	48.8
	30001-45000	11	13.8
	Above 45001	14	17.5
	Total	80	100.0

(Source: Computed)

It is inferred from the above table that the most of the respondents are from male, 43.8% of respondents are unmarried, more number of users are private employees, and 48.8% of respondents are from the age group of 21-35, 36.3% of respondents are degree holder, 53.8% of respondents are from the income level of 15001 To 30000.

**CORRELATION****ASSOCIATION BETWEEN CUSTOMER PERCEPTION AND BLOCKCHAIN**

		Customer Perception	Blockchain
Customer Perception	Pearson Correlation	1	.715**
Blockchain	Pearson Correlation	.715**	1

(Source: Computed)

From the above table it is found that the P value is lesser than the level of significance which is 0.05 level ( $P \text{ value} = 0.000 < 0.05$ ) thereby indicating a significant relationship between the Customer Perception and Blockchain. Therefore the null hypothesis is rejected.

**CHI SQUARE****ASSOCIATION BETWEEN CUSTOMER AWARENESS AND BLOCKCHAIN**

## Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.263 <sup>a</sup>	17	.053
Likelihood Ratio	31.451	17	.017
Linear-by-Linear Association	2.542	1	.103
N of Valid Cases	200		

(Source: Computed)

a. 16 cells (64.0%) have expected count less than 5. The minimum expected count is 1.50.

From the above table it is interpreted that the calculated chi square value is 26.263. The table value is 26.30, which is lesser than the calculated value 26.263. So the null hypothesis is rejected at 5% level of significance and alternative hypothesis is accepted. Therefore there is a significant relationship between educational background and Customer Awareness.

**ANOVA**

## RELATIONSHIP BETWEEN EDUCATIONAL BACKGROUND AND RELIABILITY

		Sum of squares	Df	Mean square	F	Sig.
Cost Reduction	Between groups	7.425	3	2.475	3.003	<b>.032</b>
	Within groups	161.530	196	.824		
	Total	168.955	199			
Fraud Deduction	Between groups	10.584	3	3.528	2.801	<b>.041</b>
	Within groups	246.916	196	1.260		
	Total	257.500	199			
Increased Data Security	Between groups	6.611	3	2.204	1.606	.189
	Within groups	268.969	196	1.372		
	Total	275.580	199			

(Source: Computed)

From the above table showing analysis of variance it is found that the factor solving complaints has the highest value (F value=3.003, P value=.032) and is highly associated at 5% level of significance. It reveals that educational qualification of the customer has a significant relationship with the factor of cost reduction.

**t- Test****Independent sample t-test between Gender and Transperancy**

Factors	Gender				t-value	p-value
	Male		Female			
	Mean	S.D	Mean	S.D		
Transperancy	3.63	1.21	3.84	1.10	0.90	<b>.084</b>

*(Source: Computed)*

Note: Significant at 5% level.

Since P-value is more than 0.05, null hypothesis is accepted at 5% level. Therefore, there is no significance difference between gender with respect to transperancy.

**10. RESULTS AND DISCUSSION****10.1 FINDINGS****Findings from Demographic Factors of the respondents:**

The study shows that 55% of the respondents are female.

45% of the respondents are male.

18 % of the respondents belong to the age category below 20.

36 % of the respondents are graduates.

32.5 % of the respondents are Governmenr employed.

48.8 % of the respondents belong the category >Rs30, 000.

**Findings from Correlation:**

It is revealed from Karl Pearson's correlation that there is a significant relationship between Customer Awareness and Blockchain.

**Findings from Chi Square Analysis:**

The study shows that there is a significant relationship between educational background and Customer Perception.

**Findings from Anova:**

The study shows that there is a significant relationship between educational background and reliability.

**Findings from t-test:**

The study shows that there is a significant relationship between gender and transperancy.

## 10.2 SUGGESTIONS

Blockchain has its influence on several other industries other than marketing , thus the study can be conducted in different other fields with many aspects and other variables can also be involved in the study in different location.

## 10.3 CONCLUSION

Blockchain has the effect and potential to disrupt numerous features of digital marketing. Many corporations presently play a immense part in dictating the terms of digital marketing, which allowed privacy issues to emerge. Furthermore, the accuracy of recent digital advertising and directing has area for improvement. Both these issues can be feasibly described by involving blockchain technology in digital marketing. Blockchain technology will continue to spread as a main issue in business and marketing, as larger firms begin to recognize the abilities it has in giving solutions into current and emerging business problems and situations. The adoption of blockchain technology guarantees the traceability awareness of consumers as the key source for decision-making.

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