The Advent of Blockchain Technology in Digital Marketing

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Abstract

Purpose of the Study: Blockchain technology in digital marketing is still in its infancy. The study focuses on how blockchain technology operates, how it is used in digital marketing, and how it can have an impact on big data.

Methodology/Approach: This is a conceptual paper. To comprehend the idea of blockchain technology in the context of digital marketing, a thorough analysis of the literature is done.

Main Results: The current study has found many barriers to effective digital marketing and has also shown how blockchain technology eliminates these barriers.

Theoretical/Methodological contribution: On the one hand, blockchain technology lowers the cost of advertising while simultaneously increasing its effectiveness. It enables marketers to collect data in a transparent manner, improving customer relationships.

Relevance/Originality: This study is the first of its kind to show how blockchain technology has an impact on digital marketing. This work provides a number of directions for future investigations. Marketers may apply the findings of this study in their future decision-making procedures.

Keywords- Blockchain Technology, Big Data, Digital Marketing

Introduction

Innovation has grown exponentially since the internet's inception. This breakthrough has impacted several fields, particularly marketing (Mohammad Saleem et.al, 2018). The internet has made it possible for marketers and advertisers to gather data about internet users. The information gathered from internet users provides marketers with important insights for attracting and retaining customers (Sas, n.d). Cookies are the most crucial instrument for online data collection (Toubiana et.al, 2010). Digital marketers utilise cookies because they can store user behaviour data, such as "what customers read, what videos they watch, what they seek for on the internet, etc" (Borgesisus, 2013).

People believe their privacy has been invaded as marketers gather data on internet users (Anton et.al, 2009). Smit et al. (2014) report that survey respondents were concerned about their privacy, particularly the misuse of their personal data. As a result, customers are less likely to engage in online buying (Alreck and Settle, 2007). However, several researchers claimed that privacy issues do not exist on a widespread basis (Alkayid, 2014). Only when asked about privacy do consumers feel concerned about it (Marreiros et.al, 2017). With incidents like the Cambridge Analytica and Facebook debacle, this discussion over privacy issues came to an end. This increased public awareness of the issue and increased demand for personal data protection (Kirk, 2018).In response to these demands, the European Union passed the General Data Protection Regulation, a data protection law (Kirk, et.al, 2018). This law states that users of the internet must consent in order for their personal data to be utilised.

The relationship between marketers and customers is improved by a number of new, developing technologies like artificial intelligence, virtual reality, blockchain, etc., but this frequently has a negative impact on the way that customers view digital marketing (Scholz and Duffy, 2018). One technology that enables the use of decentralised data sets and peer-to-peer networks to keep a library of exchanges that are cryptographically linked together is blockchain (Kokina, et.al, 2017). As well explained by Brauer and Eriksson (2020), the added data is stored in "Blocks" and these blocks are in chronological order, known as "Chains" (Pappalardo, 2018). Blockchain is the term given as a result.

Although Blockchain has primarily been employed in relation to cryptocurrency and money, there is no doubting that this technology might also be applied to marketing. However, there aren't a lot of books about marketing in the extant literature (Hughes, et.al, 2019; Morkunas, et.al, 2019; Montecchi, et.al, 2019; Boukis, 2019). In domains including communication, retail/wholesale, and customer services, blockchain technology in marketing is expected to be used most frequently, according to Moorman (2019). Blockchain will improve marketing openness and consumer trust in advertising, claims Ertemel (2018).

However, the projected threat posed by blockchain technology to data portability is present (Wang, et.al, 2019).

It is evident from the explanation above that blockchain has impacted marketing. For instance, it is clear that blockchain technology is important for supply chain management (Saberi, et.al, 2019). Utilizing blockchain for brand communication (Risius and Spohrer, 2017). Digital marketing is one of the marketing areas where its impact has yet to be felt. Consequently, an essential query is raised:

Research Question: What are the potential impacts of blockchain technology in digital marketing?

This conceptual paper aims to clarify the aforementioned research question. In order to do this, the researcher first discusses how blockchain technology fits into digital marketing. The researcher also made an effort to clarify how blockchain technology is used in digital marketing. The third section of the study explains how blockchain affects big data. The work of the current research study is represented by the graph below:

Figure 1: Objectives of the study
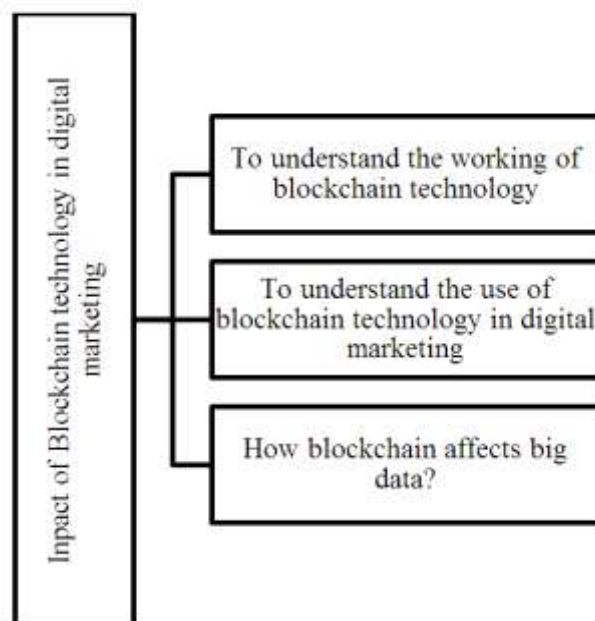
Literature Review

The literature for the current study was gathered from a variety of databases, including Ebsco, Sciencedirect, Emerald, etc. To find relevant material, the researcher conducted keyword searches using terms like "blockchain and digital marketing," "blockchain and marketing," and "blockchain and privacy problems." There were 83 items that could be found in all. It was discovered that the majority of the research was focused on Bitcoin and financial management after title and abstract screening of the retrieved articles. There were 24 articles about digital marketing among those, though. Therefore, the study only included these articles.

**Figure 2: Process of literature review**
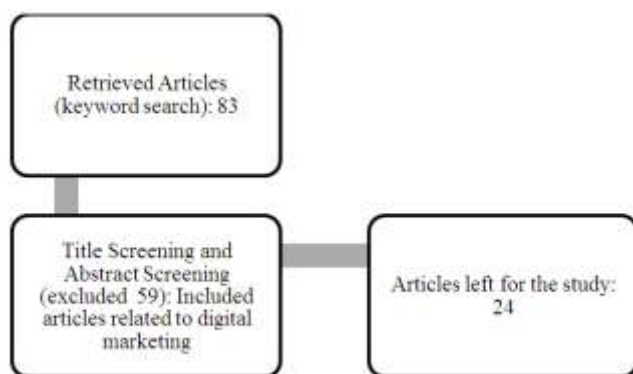
The working of blockchain technology

Nakamoto (2008) provided a definition of blockchain technology as a system based on a chained together collection of cryptocurrency data blocks. It consists of a growing list of records that are connected and cryptographically secured "blocks," a type of data structure. When a new client joins a specific blockchain network and initiates a transaction, typically a financial transaction, the transaction is sent to the broadcasting network, and in each network, the user receives a copy of all the data that has recently been stored on the blockchain (Boukis, 2019).This transaction is given a distinct identity and appended to another block at the end of the chain after it is verified from the peer network. A heap of transactions is created for each block and distributed to other network clients. Once these blocks are all successfully performed

together, a chain, namely a "blockchain," is created (Crosby, et.al, 2016; Boukis, 2019). Every block in turn contains every transaction that is protected by public-key cryptography (Tapscott and Tapscott, 2016). Since no record may be changed after a transaction is posted to the blockchain, the transaction has now been completed (Boukis, 2019; Kshetri and Voas, 2019). Figure 3 below explains how blockchain technology operates:

Figure 3: Steps in Blockchain Network (retrieved from Boukis, 2019)
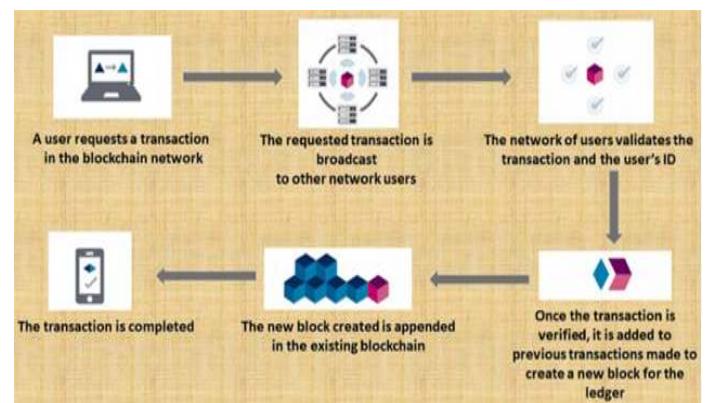
Use of Blockchain technology in digital marketing

Consumers will benefit from a better environment as blockchain technology becomes more prevalent in digital marketing. The three main actors in digital marketing are the advertiser, publisher, and user, according to Parssinem et al. (2018). Users are the consumers, publishers are the middlemen, and advertisers are the marketers. Facebook and other social media platforms are now the main platforms for distributing online advertisements (Okazaki and Taylor, 2013). These websites serve as middlemen. The advertiser (actor 1 in digital marketing) takes too long to check the locations where their advertising are shown (Metzger, 2007). In addition, using intermediaries raises the price of the advertisements (Gielens and Steenkamp, 2019).Technology assisted in cost reduction by removing intermediaries like auditors (Tribis et al., 2019). The use of intermediaries has decreased when blockchain technology was implemented. And as a result, a more genuine and direct interaction between consumers and brands is created (Boukis, 2019). Additionally, marketers frequently worry

about the delivery of advertisements to the intended consumer (Kshetri and Voas, 2019). By creating a closer bond between customers and marketers, the adoption of blockchain technologies increases the effectiveness of advertising. Advertisers will be able to monitor the locations of their advertisements (Tapscott and Tapscott, 2017). Once more, this lessens the reliance of marketers on middlemen like Facebook (Mougayar, 2016).

Marketers frequently employ covert methods of data collection to obtain consumer information (Ham and Nelson, 2016). Consumers are discouraged from adjusting to digital marketing because of this hidden information gathering. And they frequently want transparency (Boerman et.al, 2017). Customers may control their personal data with the use of blockchain because the

transactions saved in the blocks cannot be altered (Tribis et.al, 2019). Blockchain improves transparency by giving users better control over this data. Access to information about goods and services for consumers will be improved and expanded (Kshetri, 2018; Francisco and Swanson, 2018). Consumers develop brand loyalty as a result of this (Lee and Pilkington, 2017).Additionally, with increased visibility of marketers' supply chain operations, production processes, and service delivery (Boukis, 2019); interactions with brands were more open, which increased consumer trust (Bengtsson et.al, 2010; Saberi et.al, 2019).

To briefly outline the idea of blockchain technology in digital marketing, the following table illustrates how blockchain aids in closing the gaps currently present in the field:

Table 1: Importance of Blockchain technology in digital marketing

Hindrances in the proper implementation of digital marketing	Blockchain technology (BT) removes hindrances	Benefits of Blockchain technology
The increased cost of advertisements due to intermediaries	BT eliminate intermediaries; hence, the costs of advertisements are reduced	This improves the customer-brand relationship
Problems related to the placement of ads	BT improves the ad efficiency	A direct relationship between customer and marketers
The covert information collection technique	BT brings transparency to the table	Makes customer loyal
Customer don't know marketers' entire activities,		Built trust among consumers

Blockchain technology influences big data

"Big data analytics is a way of discovering insights from a big amount of diverse data collected, processed, and evaluated on a massive scale," claim Jiang and Zhang (2015). As was already mentioned, data collecting is the sole foundation of digital marketing job. The five main characteristics of Big data are velocity, volume, variety (Jiang and Zhan, 2015), value, and veracity (Joshi and Marthandan, 2019).

The pace at which data is gathered, evaluated, and processed is referred to as velocity. Blockchain technology facilitates quicker data collection and processing (Brauer and Eriksson, 2020). Veracity refers to how reliable the information is. Blockchain facilitates the creation of trustworthy and reliable services (Kumar et.al, 2018). The

data's qualities are described by value. The value of data rises as a result of the blockchain's assistance in enabling users to fully own their personal data (Kumar and Mallick, 2018). Blockchain networks, according to Lee and Pilkington (2017), permit the storing of significant and varied amounts of consumer data while protecting individual privacy and enabling the use of data by third parties to generate value for customers. This demonstrates the additional big data traits of volume and variety.

This demonstrates how blockchain technology can benefit big data. As a result, applying blockchain to big data can enhance the effectiveness of decisions made in digital marketing.

Conclusion and future work

Without a question, blockchain is a recent and emerging

topic in the online world of today. The majority of blockchain-related writing focuses on finance and cryptocurrencies. This research serves as a first step in predicting the arrival of blockchain in digital marketing. The use of blockchain in digital marketing will put an end to dishonest activities. Additionally, the cost-effectiveness of digital marketing will increase with the removal of middlemen. Efficiency and effectiveness of advertising will also rise. Customers will have complete control over their data, lowering the likelihood that it will be misused.

As a result, the paper does a good job of explaining the scope of blockchain integration with digital marketing. Blockchain technology spurs small-scale innovation that ushers in the marketing of the future. The current business procedures will be rebuilt with the aid of this technology.

Numerous services could use this technology. Finding such a variety of services should be the main goal of future scholars. It is proposed that future academics look into the difficulties in implementing blockchain technology in digital marketing. The current study focuses on the benefits of blockchain technology; subsequent research must seek to understand its drawbacks for digital marketing.

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