THE IMPACT OF BLOCKCHAIN IN CONSUMER MARKETING AMONG VARIOUS INDUSTRIES

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Received: June 24, 2023
Received revised: September 10, 2023
Accepted for publishing: September 11, 2023

Abstract

A significant trend in the business-to-consumer trade has been the rise of cutting-edge e-commerce platforms supporting mobile devices. The advent of e-commerce ushered in a period of profound change in the value-generating process, which ushered in brand-new organizational structures for many businesses. This study investigates the key factors influencing the adoption and integration of blockchain technology across different industries. Through a comprehensive literature review, the study highlights the various applications of blockchain technology in different sectors, such as finance, supply chain, energy, and marketing. A survey was conducted to gather data on companies' current use of blockchain, plans, perceived benefits, and challenges faced during implementation. The 150 answers were stripped of stop words, punctuation, and adverbs in order to conduct the text mining study. The findings suggest that factors such as awareness, strategic approach, collaboration, addressing barriers to adoption, and careful evaluation of blockchain solutions play critical roles in successful blockchain adoption. Based on these findings, the study offers several recommendations for companies to integrate blockchain technology into their operations effectively. Furthermore, the study identifies limitations and proposes future research directions to enhance our understanding of blockchain adoption across various industries.

Keywords: Blockchain, Consumer marketing, Blockchain adoption across various industries

1. INTRODUCTION

Several studies in different sectors have demonstrated the value of blockchain technology, creating substantial hype along the way. There are numerous potential applications for blockchain in the finance, healthcare, real estate, and supply chain management industries. Therefore, marketing is not one of them (Ali et al., 2014). Blockchain's foundational characteristics of transparency, immutability, and security make it apt for industries like finance, healthcare, real estate, and supply chain, where data integrity and traceability are paramount. In contrast, marketing predominantly

thrives on creativity, audience engagement, and content, aspects not inherently addressed by blockchain's core functionalities. Hence, blockchain influences marketing, especially in areas like ad verification, but it is not a primary application platform for the broader marketing industry. The 2008 global financial crisis destroyed people's faith in the established banking system. At this time, the first decentralized electronic currency, Bitcoin, entered circulation, demonstrating the practical application of cryptographic methods to processing monetary transactions (Peres et al., 2022). Hash functions, consensus methods, asymmetric encryption, and time stamping play a role in Bitcoin's underlying cryptographic systems. Because each transaction is recorded in its chronological block, the public ledger on a blockchain cannot be altered after creation (Sihi, 2020).

The advent of the internet was a watershed moment in the movement toward decentralization, ushering in revolutionary shifts in how businesses provide their goods and services to customers. When providing services and solutions for contemporary business, these digital intermediates have mostly supplanted their more archaic predecessors (Rejeb et al., 2020). Today's e-commerce intermediates provide various services, such as trust facilitation, online search tools, communication, information brokering, and advertising. Facebook, Instagram, and Twitter, among others, provide more channels for businesses to interact with their target audiences. It seems as though digital intermediaries are successful at bringing a company's marketing message to its intended customers (Antoniadis et al., 2019). When used in the marketing industry, blockchain technology has the potential to streamline the marketing process by eliminating redundant steps (Harvey et al., 2018). Incentives for customers in the form of loyalty programs are another way businesses may increase their chances of forging a lasting connection with their target audience. Meanwhile, blockchain-based decentralization may provide a fresh approach to fostering productive partnerships with end users (Gleim & Stevens, 2021).

One of the main reasons for the paucity of studies in this area is the absence of real-world applications of blockchain technology in the marketing business. Customers need a reliable means of communication to learn about the company's offerings and developments in the company's goods and services. However, with so many scandals and fraudulent operations, the value of an internet company is called into doubt (Rahman, 2021). Sponsored internet searches have been integral to many search engines' revenue strategies, yet click fraud has become a severe problem for the industry. The rise in the prevalence of click fraud may be directly attributed to the rise of automated digital marketing and the improvement of targeting approaches. It is a deliberate effort to affect a competitor's marketing expenditures by one company or individual (Antoniadis et al., 2020). The capacity to combat click fraud highlights the importance of blockchain technology in marketing. The seriousness of click fraud highlights how it poses a significant risk to digital advertising. By 2022, it may add $44 billion to marketing budgets worldwide. By creating a secure online marketing environment for businesses and consumers alike, blockchain may help mitigate the dangers of click fraud. The goal of a marketing system built on the blockchain would be to have all parties involved work together transparently and honestly in their respective responsibilities (Chang et al., 2020). One use case for blockchain technology in combating click fraud would be eliminating informational gaps. The

combined operations would enhance control and oversight by thoroughly examining publishers' reliability, historical information, and credentials (Madhani, 2022b).

Chain is a marketing blockchain platform that uses smart contracts to prevent and detect click fraud. To stop PPC companies from profiting from bot traffic and clicks, the AdChain protocol uses blockchain immutability. Blockchain technology provides a decentralized solution to counteract the influence of digital intermediaries in a company's advertising and strategic planning (Tan & Salo, 2021). However, it is worth noting that consumer trust in brands has been declining at unprecedented rates. Understanding that consumers' trust in a company's marketing is proportionate to the strength of its technical foundation is crucial for crafting an effective blockchain-based marketing strategy. Blockchain technology may bolster confidence in digital advertising by giving businesses and customers a secure, open place to work together (Madhani, 2022a). Because of the trust protocol that supports blockchain, consumers can rest assured that brand and marketing experts will act honestly. This is the technology's most eye-catching feature (Garg et al., 2022). Any reputable blockchain marketing firm wants to make its processes as clear and understandable as possible for its customers, primarily when they must provide sensitive information. In addition, blockchain can protect original producers' intellectual property (IP) rights by combating malicious marketing for counterfeit items. End-to-end product traceability, enhanced visibility, and capacity to verify compliance responsibilities may contribute to more openness in a company's operations (Mukherjee et al., 2021).

While numerous studies have explored blockchain technology's applications and potential benefits in various fields, such as marketing, human resources, and supply chain management, there seems to be a gap in the literature regarding the role of blockchain technology in different industries. Prior studies have primarily focused on the implications of blockchain technology on specific aspects of marketing and consumer behaviour (Stallone et al., 2021; Rejeb et al., 2020; Ertemel, 2018; Jain et al., 2021; Boukis, 2020), with only a few studies examining its applications in niche areas such as the chemical industry (Sikorski et al., 2017) or the electricity market (Cheng et al., 2017; Diestelmeier, 2019; Xue et al., 2017). However, there needs to be a more comprehensive understanding of how blockchain technology can be applied across various industries to improve business processes, streamline supply chains, enhance customer relationships, and provide new opportunities for growth and innovation. The problem, therefore, lies in the limited scope of the existing literature, which still needs to adequately investigate the role of blockchain technology in different industries and its potential to revolutionize various aspects of their operations. Finally, the study develops the research objectives:

1. To provide the existing literature on the applications of blockchain technology in various industries, emphasizing its implications for marketing, supply chain management, and consumer marketing.
2. To identify the key factors that influence the adoption and integration of blockchain technology across different industries and the challenges and barriers that may hinder its successful implementation.
3. To examine blockchain technology's potential benefits and drawbacks for businesses in different industries, including the impact on operational efficiency, transparency, security, and overall competitiveness.

2. LITERATURE REVIEW

2.1 Use Of Block-Chain Technology In Market

There are many computers connected to the block-chain, so the block-chain may be viewed as a distributed ledger. Block-chain technology is used to record and verify transactions for most cryptocurrencies (Du et al., 2019). The use of blockchain technology has garnered significant attention across various industries due to its decentralized, transparent, and secure nature. This literature review aims to provide an overview of the applications and implications of blockchain technology in different industries. In marketing, blockchain technology has been explored for its potential to revolutionize how companies interact with their customers and manage their brands (Stallone et al., 2021; Rejeb et al., 2020; Ertemel, 2018; Jain et al., 2021; Boukis, 2020). For instance, Boukis (2020) suggests that blockchain can enable more transparent and secure data sharing between companies and customers, thus fostering stronger brand-consumer relationships. Rejeb et al. (2020) also identified six research areas where blockchain could benefit marketing, including customer data management, loyalty programs, and supply chain traceability.

In the supply chain and logistics sector, blockchain has been proposed to enhance transparency, security, and efficiency (Coita et al., 2019). Blockchain can provide real-time information sharing between various supply chain stakeholders, helping reduce inefficiencies, minimize fraud, and improve overall performance. For instance, Cheng et al. (2017) explored the application of blockchain technology in distributed electricity markets, highlighting the potential for more efficient energy trading and improved grid management. Blockchain technology has also been investigated for its applications in the financial sector, with various studies examining the adoption of cryptocurrencies and decentralized financial systems (Albayati et al., 2020). These studies indicate that blockchain can enable more secure and efficient financial transactions, offering benefits such as reduced transaction fees, faster processing times, and enhanced security against fraud.

In the energy sector, blockchain has been proposed to manage decentralized energy resources and enable peer-to-peer electricity trading (Diestelmeier, 2019; Xue et al., 2017). Diestelmeier (2019) suggests that blockchain can shift the role of electricity consumers by empowering them to participate in the energy market actively. Xue et al. (2017) demonstrate the feasibility of using blockchain for electricity trading in electricity microgrids. Furthermore, blockchain has been examined in niche industries such as the chemical industry, where Sikorski et al. (2017) proposed its use for machine-to-machine electricity markets, enabling more efficient energy trading between various chemical processes.

2.2 Blockchain Technologies in Retailing, Manufacturing And Supplying Businesses

Since blockchain combines smart contracts, distributed ledgers, and cryptocurrencies, it can solve the distributed trust problem. Fintech was the first industry to adopt blockchain. Still, recent attempts have seen the technology deployed

in other sectors, most notably the pharmaceutical industry, where the G-coin blockchain is used to add confidence and value to the pharmaceutical supply chain (Tseng et al., 2018). Blockchain, the technology at the centre of Bitcoin and similar cryptocurrencies that serves as a verifiable record of transactions, is not limited to the financial sector and warrants additional study. In order to keep up with the demands of the IIoT, retailers, manufacturers, and suppliers must all re-engineer their trust links to improve efficiency and the shopping experience for customers. Fuzzy decision-making inside a blockchain platform was offered as a methodology for merging product design and supply chain to handle tactical choices effectively. Research and development are necessary before blockchain can be a reliable choice in Internet advertising. Furthermore, DEPLEST was implemented within a blockchain-based architecture, thereby solving the privacy problem with superior performance compared to standard approaches of proof of work (PoW) and proof of stake (PoS). Artificial intelligence (AI) research indicates that smart contracts in Industry 4.0 must be modernized to meet the security and privacy problems identified (S. Gupta et al., 2020). The introduction of reputation management systems has revolutionized the relationship of trust between businesses and consumers (Tseng et al., 2018).

Liu et al. (2019) emphasized the importance of managing one's reputation by soliciting and responding to customer input in an anonymous reputation system to instil trustworthiness and openness. The system is built on blockchain technology, and Parity Ethereum has developed a proof-of-concept prototype. The use of blockchain technology was also investigated for the food sector to streamline supply chain traceability and empower consumers to make educated purchasing decisions with little effort (Liu et al., 2019). Understanding the potential applications of blockchain in healthcare was provided by Dimitrov (2019) to facilitate the management of large databases and the provision of simple, accurate data processing at a rapid rate, all of which are necessary for the efficient interaction between healthcare service providers and patients. The results of these investigations in various fields are summarized. This demonstrates how studies across industries have identified blockchain's imminent prominence (Dimitrov, 2019).

2.3 Black-Chain Technology and Consumers Marketing

Blockchain technology would drastically alter how consumers engage with brands online if blockchain technology were used in marketing. Blockchain is beneficial because it incorporates several different technologies and, most importantly, maintains a decentralized record of all transactions that have taken place inside the blockchain network. While blockchain technology has many potential economic applications, its primary goal is verifying assets (Pattanayak, 2009). In such a circumstance, being acquainted with how blockchain is now influencing marketing and how it will continue to do so in the future would be beneficial. This piece provides a high-level overview of how blockchain technology may affect the promotional efforts of a business or brand. Communication and information technologies have been essential in the recent revolution of online business marketing (Ismagilova et al., 2019). When initially implemented, the blockchain provided Bitcoin with decentralized ledger transactions. However, blockchain's popularity has grown in the

financial technology sector in recent years due to its central role in the industry (Grewal et al., 2018).

Payment systems, which need a technically robust, secure, and efficient transaction infrastructure, have been the primary application area for blockchain in the financial technology sector. To ensure confidential transactions, digital currencies like Bitcoin employ encryption methods, cryptography, and separate sets of keys. Because of this, people are more likely to put their faith in decentralized protocols instead of the more conventional client-server model. Blockchain technology helps build more reliable and transparent consumer marketing strategies. It ensures higher data security, privacy, and control, which are crucial for digital consumers. By recording transactions on a decentralized and immutable ledger, blockchain technology provides an unmatched level of transparency, thereby reducing fraud and increasing consumer trust (Ertemel, 2018).

In order to create value, blockchain has been implemented in a wide variety of industries, including finance and the Internet. Nonetheless, there needs to be more work to uncover the extensive use of blockchain in marketing, with most research focusing on its application in operations, supply chain management, and the retail market. A dearth of writings explores blockchain's function and potential uses in advertising (Risius & Spohrer, 2017). To the best of the researchers' knowledge, more literature specifically examining blockchain's position in marketing is needed. The team searched the Scopus database but found several publications mentioning blockchain or marketing. Because there needs to be more written on blockchain marketing, the researchers felt compelled to fill that void. As such, the current study addressed the knowledge gap and discovered the important literature for future researchers in the burgeoning field of blockchain in marketing, which has a strong place on the research agenda. As such, the current study seeks to bring attention to the integration of blockchain technology and marketing and make a substantial contribution to the literature to aid future researchers by highlighting Future study directions and questions that the published literature will determine. The framework questions introduce a comprehensive literature review that identifies key findings and research gaps, describes the research methodology in detail, identifies future research agendas by bibliometric, network, and discussion analyses, and concludes with a conclusion (Reshmi, 2021).

2.4 Key Factors That Influence the Adoption and Integration of Blockchain Technology Across Different Industries

2.4.1 Transparency, Security and Trust

One of the primary factors driving the adoption of blockchain technology is its ability to enhance transparency, security, and trust (Ertemel, 2018; Jain et al., 2021; Boukis, 2020). Blockchain's decentralized and immutable nature allows for secure data sharing and tracking, making it attractive for supply chain management and marketing (Coita et al., 2019; Rejeb et al., 2020). For example, Boukis (2020) emphasizes the potential of blockchain to foster stronger brand-consumer relationships through transparent and secure data sharing.

2.4.2 Improve Efficacy and Reduce Costs

Another factor influencing the adoption of blockchain technology is its potential to improve efficiency and reduce costs (Lindman et al., 2017; Diestelmeier, 2019). For instance, in the energy sector, Diestelmeier (2019) suggests blockchain can empower consumers to actively participate in the energy market, leading to more efficient energy management. Similarly, in the financial sector, Albayati et al. (2020) highlight the benefits of blockchain technology in terms of reduced transaction fees and faster processing times.

2.4.3 Ability to enable novel business models

Moreover, the growing interest in blockchain technology is partly driven by its ability to enable novel business models and applications, such as decentralized finance and peer-to-peer energy trading (Xue et al., 2017; Marthews & Tucker, 2023). These innovative use cases present opportunities for industries to explore new revenue streams and business models, further encouraging the adoption of blockchain technology.

2.5 Challenges and Limitations of Blockchain in Consumer Marketing

Despite the numerous advantages of blockchain technology, some challenges hinder its widespread adoption. One of the primary concerns is the need for standardized regulations and legal frameworks governing the use of blockchain technology (Lindman et al., 2017; Harvey et al., 2018). Clear regulations create uncertainty for businesses and may discourage them from adopting blockchain technology. Another challenge is blockchain technology's energy consumption and environmental impact, particularly for proof-of-work-based systems like Bitcoin (Sikorski et al., 2017). This concern has led to increased interest in alternative consensus mechanisms, such as proof-of-stake, that are more energy-efficient. Lastly, scalability and interoperability issues pose significant challenges to the widespread adoption of blockchain technology (Lindman et al., 2017). Ensuring that blockchain networks can handle a large volume of transactions and integrate seamlessly with existing systems remains crucial for further research and development. Challenges and limitations persist despite the growing interest in blockchain technology across various industries. These include the lack of standardized regulations, concerns regarding energy consumption, and the need for further technological advancements to ensure scalability and interoperability (Lindman et al., 2017; Marthews & Tucker, 2023).

3. RESEARCH METHODOLOGY

3.1 Research Method

The study used a quantitative research design by following a random sampling approach. First, the study did a systematic literature review and then administered a survey questionnaire among the respondents of variable industries. The objectives of the literature review are to provide the existing literature on the applications of blockchain technology in various industries, emphasizing its implications for marketing, supply chain management, and consumer marketing:

1. To identify the key factors that influence the adoption and integration of blockchain technology across different industries and the challenges and barriers that may hinder its successful implementation.
2. To examine blockchain technology's potential benefits and drawbacks for businesses in different industries, including the impact on operational efficiency, transparency, security, and overall competitiveness.

In quantitative research, a simple random sample is used to collect information from employees who work in marketing firms and agencies in order to comprehend the motivating factors regarding the impact of blockchain in consumer marketing among various industries.

3.1.1 Systematic literature review

This systematic literature review aimed to aggregate, evaluate, and synthesize the vast body of knowledge regarding the applications and challenges of integrating blockchain technology across various industries. The rationale behind this methodology was to maintain a structured, replicable, and transparent approach, ensuring the collection of relevant and comprehensive information.

3.1.2 Data Extraction and Research Strategy

The approach incorporated a multi-stage strategy, ensuring a comprehensive extraction process. We initiated with identifying research questions, then selected databases, determined the search terms, and subsequently executed the search. After locating the articles, we assessed them for relevance and quality then extracted and synthesized data from the qualifying articles.

3.1.3 Database Selection and Search Strategy

A thorough search was executed across prominent databases, including Google Scholar, PubMed, IEEE Xplore, Scopus, and Web of Science. These databases were chosen based on their comprehensive coverage of multidisciplinary scholarly literature, ensuring the inclusion of a broad spectrum of perspectives and findings related to blockchain technology. The search strategy used primary and secondary

keywords. Primary keywords such as "blockchain," "adoption," and "integration" were paired with secondary keywords like "industry application," "barriers," "benefits," and "challenges." Boolean operators (AND, OR) refined the search, targeting articles that explicitly discussed the integration and challenges of blockchain across various sectors.

3.1.4 Inclusion Criteria

Articles were included if they:

- Were published in English, ensuring a uniform understanding and evaluation of content.
- Directly addressed blockchain technology's application, challenges, or advantages across industries.
- The findings were published in the last decade, ensuring the relevance and applicability in the current technological landscape.
- Presented original research, reviews, case studies, or theoretical discussions pertinent to the research questions.

3.1.5 Exclusion Criteria

Articles were systematically excluded if they:

- Were not accessible in full text, limiting the depth of analysis.
- Veered off the central focus of the research, diluting the relevance.
- Were replicated across the chosen databases, or were derivative works of previously included articles?

3.2 Data Collection Procedure and Data Analysis

First the study targeted the published records on the impact of blockchain in consumer marketing. For this purpose, the study found 249 records on the basis of title of the study. After removing the irrelevant records, the study used 38 records for systemtic literature review.

In quantitative phase, this study gathered data from the various social media platforms, online forums, and email invitations which is utilized by a population of employees in marketing firms and agencies. The employee's interaction data, which includes approval voting, views, and information sharing, enhance the credibility of the association between the questions and their corresponding answers. The participants of this study include 150 employees (both male and female) from various marketing firms and agencies.

The data analysis for this study was carried out using SPSS (Statistical Package for the Social Sciences) software, which was utilized to compute descriptive statistics. Mean, often known as the average, is a measure of central tendency, which provides a summary statistic representing the typical data point in the sample. This was

computed by summing up all the individual responses and dividing by the total number of responses. Standard deviation, on the other hand, is a measure of variability or dispersion in the data. It represents how much the responses deviate from the mean. A lower standard deviation signifies that the responses were close to the mean, indicating a consensus among the respondents. On the contrary, a high standard deviation implies a wider range of opinions or experiences among the participants.

4. RESULTS

4.1 Means And Standard Deviations

The findings from this study highlight the growing interest and investment in blockchain technology across various industries in consumer marketing. Analyzing the mean scores and standard deviation ns of the 20 items provides insights into the current state of blockchain adoption and the anticipated benefits and challenges associated with this technology. Table 2 shows that the majority of respondents (Mean = 4.33, Std. deviation = 0.85) indicate that they are either using or intending to use blockchain technology in their organizations, signifying a strong inclination towards the adoption of this technology. Respondents reported a relatively high degree of blockchain usage within their companies (Mean = 4.37, Std. deviation = 0.76), reflecting the growing integration of blockchain into various aspects of their businesses.

A significant number of organizations have formed specialized teams to support blockchain initiatives (Mean = 4.46, Std. deviation = 0.66), demonstrating a proactive approach to the implementation and management of blockchain projects. Most respondents have planned or allocated budgets for blockchain initiatives, with varied funding sources and budgets (Mean scores between 4.32 and 4.44), indicating organizations' financial commitment towards blockchain technology. Respondents anticipate substantial advantages for their businesses or sectors from utilizing blockchain technology (Mean = 4.41, Std. deviation = 0.68), highlighting the potential benefits and value-add this technology can bring to various industries. Most respondents believe that blockchain technology will significantly disrupt their market or sector (Mean = 4.45, Std. deviation = 0.65), implying that organizations recognize the transformative potential of blockchain technology. Industries are involved in creative blockchain projects, with diverse leaders managing these initiatives (Mean scores around 4.54). This suggests that organizations are actively exploring and experimenting with innovative blockchain use cases and applications.

Respondents identified sectors and areas where they anticipate blockchain technology to have the most significant influence (Mean scores between 4.38 and 4.41), emphasizing the widespread applicability of this technology across industries. Participants believe that specific blockchain applications have a higher likelihood of success (Mean = 4.37, Std. deviation = 0.66), reflecting the need for organizations to carefully select and prioritize the most promising use cases for implementation. In addition, respondents acknowledge barriers to blockchain adoption that their firms face (Mean = 4.34, Std. deviation = 0.73), suggesting that organizations must address

and overcome these challenges to harness the potential of blockchain technology fully. Most respondents either use solutions from for-profit vendors or employ open-source blockchain technology. Many are willing to hire outside consulting firms specializing in public blockchain (Mean scores around 4.55 and 4.60). This indicates that organizations are exploring different avenues to access the expertise and resources needed to implement blockchain projects. Respondents consider creating industry standards and procedures essential in enabling blockchain platforms, applications, and for-sale goods (Mean = 4.46, Std. deviation = 0.61), highlighting the need for regulatory clarity and standardization to foster blockchain adoption. Furthermore, participants are generally optimistic about blockchain technology, believing its advantages will live up to the hype (Mean scores between 4.48 and 4.50). This sentiment indicates a strong conviction in the potential of blockchain technology to transform various industries. Finally, some businesses offer products, services, or licenses for using blockchain technology and applications (Mean = 4.26, Std. deviation = 0.72), suggesting a growing market for blockchain-related products and services.

Table 1. Means and standard deviations

No.	Item	Mean	Std. deviation
1	Do you now use or intend to use blockchain technology in your organization?	4.33	0.85
2	How much blockchain technology is currently being used by your company?	4.37	0.76
3	Has your company formed a special team to aid with a blockchain initiative?	4.46	0.66
4	When do you anticipate creating a budget for your company's blockchain initiatives?	4.40	0.72
5	What is/will be the source of funding for the blockchain efforts currently underway or planned by your company?	4.32	0.77
6	What is/will be the Block chain budget?	4.44	0.70
7	What particular advantages for your business or sector do you anticipate to get from utilizing block chains?	4.41	0.68
8	Do you believe that the use of block chain technology will significantly disrupt the market or sector that your business or organisation serves?	4.45	0.65
9	What block chain project is the most creative one in your organisation? Which particular task does this project focus on? Please give a brief description of this project.	4.54	3.17
10	Who is leading or will lead your company's block chain initiative(s)?	4.54	0.68

11	Why did you choose the team you mentioned to manage your Block chain project?	4.38	0.69
12	What sectors and areas do you anticipate block chain technology having the biggest influence in?	4.41	0.63
13	What block chain applications do you think have the most chance of success?	4.37	0.66
14	What barriers to block chain adoption do you think your firm faces the most?	4.34	0.73
15	Do you now use a solution from a for-profit vendor of block chain solutions, or does your company employ open-source Block chain technology?	4.55	2.59
16	Will your company hire outside consulting firms that specialize in public block chain?	4.60	0.72
17	How significant do you see the creation of industry standards and procedures to be in enabling Block chain platforms, applications, and for-sale goods?	4.46	0.61
18	Do you have any more opinions about block chain, either generally or in relation to the projects your company is working on?	4.48	0.61
19	Do you believe that Block chain's advantages will ultimately live up to the hype?	4.50	0.60
20	Does your business offer products, services, or licence for using Block chain technology and applications?	4.26	0.72

Source: Autor

The findings indicate a strong interest in and commitment to blockchain technology across various industries, with organizations actively investing in and exploring its potential applications. The anticipated benefits of blockchain technology, such as increased efficiency, transparency, and security, drive its adoption and integration into diverse sectors. Respondents recognize the disruptive potential of this technology, which is expected to bring significant changes to traditional business models and practices. However, the findings highlight organisations' challenges and barriers to adopting blockchain technology. These include the need for industry standards and regulatory clarity, the selection of appropriate use cases, and access to the necessary expertise and resources. To overcome these challenges, organizations should collaborate with industry partners, regulatory bodies, and technology providers to establish best practices and guidelines for implementing and managing blockchain projects.

Furthermore, businesses should prioritize the development of internal capabilities and explore partnerships with external blockchain experts to ensure the successful execution of blockchain initiatives. The growing market for blockchain-

related products and services also presents opportunities for organizations to leverage and offer innovative solutions that cater to the evolving needs of their customers and stakeholders. Overall, the findings from this study underscore the significant potential of blockchain technology to reshape various industries, with organizations increasingly embracing its adoption and integration. As the technology matures and evolves, businesses must stay ahead of the curve by actively exploring and experimenting with innovative blockchain applications and use cases. By addressing the challenges and barriers to adoption, organizations can harness the transformative power of blockchain technology to create value and drive competitive advantage in the rapidly changing business landscape.

5. DISCUSSION

5.1 Block-Chain Security

Block-chain related technology replaces traditional marketing into digital marketing. In today's digital age, preventing data manipulation is a major concern. For large data sets to gain user trust and loyalty, privacy and security measures that it is necessary to implement artificial intelligence, data privacy, privacy-preserving contracts, and smart contracts. According to recent research conducted in the retail business, block chain-based reputation systems provide more anonymity than conventional systems (Taylor et al., 2020). Several studies have been conducted to investigate the vulnerabilities in data safety caused by ransomware assaults Reshmi (2021). By providing a safe, secure platform, block chain is helping businesses face these difficulties front on. Increased safety is achieved when blockchain technology is combined with AI. This connection between blockchain and privacy and security is vital and should be investigated (Reshmi, 2021).

The study delves into the widespread applicability of blockchain technology across various industries, including its profound implications for marketing, supply chain management, and consumer marketing. The results show a marked inclination of organizations towards blockchain adoption, with mean scores predominantly above 4.0, indicating active usage or intent to utilize this technology. Key factors propelling its adoption include anticipated benefits such as improved efficiency, transparency, and security. However, organizations need help in implementing blockchain, with industry standards, regulatory clarity, and appropriate use-case selection standing out as significant barriers. Despite these challenges, the majority of respondents believe in blockchain's transformative potential, emphasizing its capability to revamp traditional business models, enhance operational efficiency, and bolster overall competitiveness in various industries. The optimism surrounding blockchain's promises suggests that its perceived advantages might well live up to the industry's expectations.

5.2 Fostering Disintermediation

Disintermediation is now possible thanks to the development of the Internet, which has also fundamentally altered how businesses market their goods and services. Traditional trading mechanisms have been replaced by new technologies, which have also decreased the need for traditional middlemen and brought up new kinds of electronic intermediaries. New online middlemen have also emerged as a result of the Internet, offering a wider variety of goods and services. Businesses show a strong reliance and dependency on middlemen to understand the needs and wishes of their potential clients (Rejeb et al., 2020). Conversely, businesses strive to catch the attention of customers, but frequently rely on communication channels supported by numerous information intermediaries since they offer a plethora of data on the demand for goods and services (Stallone et al., 2021).

The findings of this study reveal a growing interest and intention among organizations to adopt and integrate blockchain technology. This increasing interest is fueled by the recognition of blockchain's potential benefits, such as improved efficiency, transparency, and security, which can lead to a competitive edge in various industries. The results demonstrate that organizations are becoming more proactive in their approach to blockchain, with the formation of specialized teams and dedicated budgets for blockchain initiatives. While the results indicate a positive outlook for blockchain adoption, they also emphasize the challenges organizations must overcome to realize its potential fully. These challenges include the development of industry standards, regulatory frameworks and identifying suitable use cases. Organizations should collaborate with stakeholders from different industries, regulators, and technology providers to address these challenges. This approach can help establish best practices and guidelines for successfully implementing blockchain projects.

Additionally, organizations should focus on building internal capabilities to manage blockchain projects effectively. This can be achieved by investing in employee training and development and collaborating with external experts and consultants. By doing so, businesses can ensure they are well-equipped to leverage the benefits of blockchain technology. Finally, the study highlights the growing momentum behind blockchain adoption across various industries, driven by the technology's potential to offer significant advantages. Organizations need to address the challenges and barriers to adoption by focusing on collaboration, capacity building, and the development of best practices. By overcoming these obstacles, businesses can successfully leverage the transformative power of blockchain technology to gain a competitive advantage and drive innovation in their respective industries.

6. CONCLUSION

The primary objective of the current study was to determine to analyze the employees' behaviors towards adopting blockchain technology in consumer marketing, are more pertinent when discussing blockchain based and its significance

for marketing. The ongoing need to gather and analyze data, create and negotiate contracts, and uphold agreements in order to manage and sustain connections demonstrates how well blockchain technology may be applied to address issues with collaboration and trust in distribution chain networks (Treiblmaier, 2021). The ability of a company to differentiate itself from rivals and obtain a competitive advantage will, in turn, be influenced by the combination of communication channels between the marketing manager and the consumer. Our results can therefore draw the conclusion that putting block chain into practise would surely lead to greater performance and better financial outcomes in the marketing sector (Treiblmaier, 2021). Block chain technology will soon be the standard because of its ability to improve efficiency, minimize costs, mitigate risks, and, most significantly, increase confidence in transactions. The current investigation is driveby by a curiosity about blockchain's potential marketing applications. The authors claim that this study is the first to examine blockchain technology in combination with marketing (Treiblmaier, 2021). The goal was to gain a better understanding of blockchain and marketing by conducting this study. Make the findings to employees in organizations that use blockchain technology in consumer marketing. An inquisitive interest in potential blockchain applications in the marketing realm drives the present investigation. As suggested by Treiblmaier (2021), this study is a pioneer in examining the conjunction of blockchain technology with marketing. The study findings are relevant to employees using blockchain technology in consumer marketing. The analysis provided more profound insights into the intersection of blockchain and marketing. The study identified key areas within blockchain in marketing research with the most significant impact. For professionals in the marketing sector using blockchain, these areas might be focal points for future strategies or improvements in their current practices. Through this study, employees utilizing blockchain in consumer marketing now have a comprehensive understanding of the academic landscape, which aid them in staying abreast of crucial developments, understanding prevailing trends, and formulating effective strategies in their field.

6.1 Recommendations

Based on the findings of this study, several recommendations can be made to facilitate the adoption and integration of blockchain technology across different industries: Industries should invest in raising awareness about the benefits and potential applications of blockchain technology. This can be achieved through training programs, workshops, and collaborations with industry experts, helping employees and decision-makers better understand the technology and its potential impact. In addition, companies should develop a clear strategy for blockchain adoption that aligns with their overall business objectives. This should involve identifying the most suitable use cases, setting realistic goals, and establishing a dedicated team to manage and oversee blockchain initiatives.

Furthermore, blockchain technology can benefit from collaborative efforts among industry players, including competitors. Organizations should be open to forming strategic partnerships and joining industry consortiums to collectively develop standards and best practices, share knowledge, and drive innovation. In

addition, companies need to proactively identify and address the barriers that hinder blockchain adoption, such as regulatory uncertainty, technological complexity, and security concerns. This may involve engaging with regulators, investing in research and development, and adopting robust security measures. Finally, industries should carefully assess the various blockchain solutions available in the market, considering scalability, security, and interoperability factors. They should also be open to exploring proprietary and open-source solutions to find the best fit for their specific needs and objectives.

6.2 Limitations

The present study has several limitations that should be acknowledged. First, the sample size may need to be sufficiently large to generalize the findings across different industries and regions. A more extensive and diverse sample would provide a more comprehensive understanding of blockchain adoption across various sectors and geographical locations. Second, the study relies on self-reported data, which might be subject to social desirability bias or inaccuracies in respondents' recollections. The study used only a descriptive analysis which is a limitation of the present study. Future study can use regression analysis to check the effects even hire some demographic variables as control variables. Future studies could use objective measures, such as actual blockchain adoption rates and budget allocations, to validate and supplement the self-reported data. Third, the study's cross-sectional design does not allow for an assessment of causal relationships or changes in blockchain adoption over time. Longitudinal research could provide valuable insights into the evolving dynamics of blockchain adoption and the factors that influence it. Lastly, the study does not explore the challenges and barriers different industries face in adopting blockchain technology. Future research could delve deeper into each industry's unique characteristics to identify the specific factors that influence blockchain adoption and integration, providing a more nuanced understanding of the technology's potential impact.

6.3 Future directions

This study's future directions can focus on several key aspects to further enhance our understanding of blockchain technology adoption and integration across different industries.

1. Expanding the sample size and diversity: Future research could employ larger and more diverse samples that cover a broader range of industries and geographical locations. This would enable researchers to investigate how blockchain technology adoption varies across contexts and better generalize the findings.
2. Longitudinal research: To capture the evolving dynamics of blockchain adoption, future studies could adopt a longitudinal approach, following companies over time to assess changes in their blockchain initiatives, budgets,

and perceived benefits or challenges. This would provide a richer understanding of the factors influencing blockchain adoption and its impact on various industries.

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