ROLE OF BLOCKCHAIN IN REVOLUTIONIZING DIGITAL MARKETING

Mr. P. Jayasheelan, Assistant Professor**,** Department of Data Science, Sri Krishna Adithya College of Arts and Science, Coimbatore.
Ms. S. Swetha, Department of Data Science, Sri Krishna Adithya College of Arts and Science, Coimbatore.
Ms. D. Rineetha Grace, Department of Data Science, Sri Krishna Adithya College of Arts and Science, Coimbatore.

I. ABSTRACT:
Block chain technology, initially introduced as a base technology for cryptocurrencies, is now highly recognized as it is being able to create a drastic transformation in the field of digital marketing. This digital marketing is nothing but marketing products via digital medium. This digital medium could be social media, website and many more. This paper widely speaks about the lining of block chain technology with digital marketing, which emphasizes its ability to strengthens visibility, security and effectiveness in advertising. By integrating block chain into digital marketing we can improve the trust of consumers by decentralization as it reduces data breaches and unauthorized access. As the digital marketing platform is continuously transforming, this block chain technology serves as an amazing tool for preserving customer data and provide a more secured customer experiences.

KEYWORDS:
 Block chain, decentralization, smart contracts, transparency, visibility, security, ads, frauds.

II. INTRODUCTION:
In the recent years, block chain technology has rapidly grown into various industries, which involves the digital marketing. This technology has the capability to transform digital marketing by noticing many of the present industry's difficulties, ad fraud, lack of visibility in tracking and targeting consumers.

The digital marketing is a business which heavily focuses on the consumer data to provide a more relevant marketing strategy. Collecting this data via traditional method may often lead to security us issues and may erode the faith of consumers on companies. To solve this, Blockchain provides a solution by allowing the consumers to grant permission (i.e) to take control over their data by giving permissions to access their data.

The visibility offered by block chain helps build trust between the advertisers and consumers with these as the primary features the block chain is slowly influencing the part of digital marketing and transforming its phase. Block chain's ability to highlight the challenges, ad fraud, data security and visibility makes it a phenomenal action than can revolutionize the digital marketing platforms.

III. WHAT IS A BLOCK CHAIN?
Block chain technology is a decentralized, distributed ledger system that is meant to ensure the safety of information by providing tight security. Here each information is grouped into a block and these blocks are connected together in a chronological order forming a chain.

To make it more clear, A property can be both fixed (house, cash) and non-fixed (patents branding). So any property that holds a value can be tracked and reported on a block chain network and kept safe.

IV. KEY ELEMENTS OF A BLOCKCHAIN:
i) Distributed ledger technology:
Here all the network visitors name the permission to access the information distributed on the ledger. Here the information is records only once, hence cancelling the repetition.
ii) Immutable records:

The meaning of the word immutable is "unchangeable". Here, one the information is being recorded on the ledger, no visitor can make a change into it in case, of any error, the process needs to be redone.

iii) Smart contracts:

They are the rules that are stored in the block chain and are automated which is responsible for speeding up the process.

After a brief explanation of block chain technology let us delve into the intrusion of block chain technology into digital marketing in a healthy way.

V. HOW BLOCK CHAIN TRANSFORMS DIGITAL MARKETING?

Block chain technology in digital marketing provides a more precise and clearer approach, making the data more efficient and secure.

The information here is the data which is used to market the products via digital medium. To make this data secure we imply block chain technology. By infusing block chain technology and digital marketing we can mitegate digital fraudulent by providing authorized access (i.e.) by granting permissions. This technology also helps the consumers to take control over their personal data, sharing them specifically with marketers. This technology also helps in mitigating the costs by eradicating other ad networks.

So this block chain technology brings out a drastic change in the field of digital marketing by transforming its way of generic approach. This technology makes digital medium marketing more advanced in caging the information into a secured format and yet accessible easily thus builds a firm trust among the consumers.

VI. HOW A BLOCKCHAIN TECHNOLOGY WORKS IN DIGITAL MARKETING?

This block chain technology works simply by linking to preceedig data stored. In this way each data is linked and is impossible to mute it. (The information here is stored in a database that is made of blocks and by nodes with a time stamp). So if there is any need of modification of stored asset, it is necessary to change all the preceeding blocks that has been sealed with time and till now that is in progress.

So, generally this technology works by storing information into blocks and each block is connected to the other block forming it on the ledger chain of blocks and then finally sharing thus making it more secured and trustable.

VII. TYPES OF BLOCK CHAINS IN DIGITAL MARKETING:

While traversing through the various blockchains we analyse the different blockchains that is relevant to digital marketing. Let us have a brief look upon their types in marketing,

i) Public blockchains:

This type of block chain is open and are decentralized networks anyone can involve as a node and validate the process. These blockchains enhances the trust between the advertisers and consumers ensures transparency.

ii) Private blockchains:

These types of blockchains provides only a limited accessing. The means that, only selected entities can have access. They are also called as permissioned blockchains. In the field of marketing, there blockchains ensures the authority (who) of accessing data which promotes privacy.

iii)Consortium blockchains:

It is a hybrid form of block chain where many organizations control the network mutually. It generally enables collaboration among different industries.

iv)Hybrid blockchains:

This type of blockchains is an intersection of both public and private blockchains, which ensures both transparency and privacy.

v) Sidechains:

These blockchains are individual blockchains that are linked to a roof block chain (public) thus allowing the transfer of information between them. In the context of marketing, it is highly beneficial as it is cost effective and promotes scalability for ad campaigns.

vi) Layer 2 solutions:

This type of block chain is also used to reduce costs and improve flexibility. These are off-chain solutions built over an existing block chain to increase performance which is why it is called as layer 2 solution. These blockchains are specifically useful in large scale marketing which enables rapid and cheaper working of smart contracts. By contacting off-chain solution, layer 2 provides real-time knowledge without burdening the main block chain which is really transforming digital marketing.

vii)   NFT-based blockchains:

NFT stands for non-fungible tokens meaning uniqueness of assets. So, NFT based blockchains will trigger a high engagement of consumers by creating a unique way of marketing.

Eg: Real expo marketing and many. Each of the above mentioned block chain type is implemented to various views of marketing which ensures transparency and security to customer assets (information).
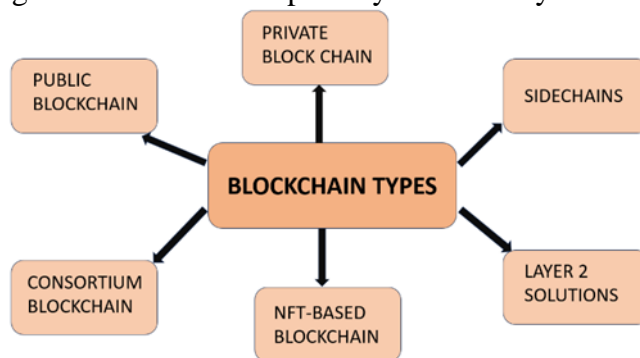
Fig 1.1 Types of block chain

VIII. DISH IN DIGITAL MARKETING:

DISH expands into "Data collection, Intrusive ads cancellation, SEO & SEM, Higher security online purchases". This DISH is nothing but the positive effects of block chain technology in digital marketing. These are the four major area where the transformation has happened with the effect of block chain. Let us see them briefly one by one,

i) Data Collection:

The data that is collected from the consumers is provided by the consumers themselves. They are the ones who take control over their personal data. Based on their preferences, advertising is done to ensure personalization. To make it more clear if a person shows more interest in cosmetics, he/she will receive advertisements according to their consent. Here the block chain is allowing the consumers to choose the ad they wish to encounter.

ii) Intrusive ads cancellation:

We discussed earlier that the consumer/user can choose the advertisements. So if a user can choose the type ads they receive, it shows that the ads they get are of their own wish. So, definitely no particular ad can offend them deviating from their thoughts and interests.

iii) SEO:

The joining point of block chain and SEO gives a rise in digital marketing. The important features of block chain such as visibility & immutability impacts on the SEO practices significantly. Block chain embossed search engines provides the consumer with personalized search results. This is cancelling the intermediatore such as google ads, facebook ads, etc, as the consumers decides their ad contents which automatically mitigates fake ads, irrelevant ads and ad frauds.

iv) High security online purchases:

The above discussed areas will make a tremendous impact in this fourth area with a great graph of increase in security and transparency in e-commerce. The consumer is allowed to know the full-fledged process of product and money transactions which puts an end to frauds and scamming.

The above mentioned are the four areas which has a positive effect of block chain in digital marketing and we address it as DISH area in digital marketing.

IX. ISSUES IN DIGITAL MARKETING:

Digital marketing in today's evolving platform faces various issues. The primary issue of it is **ad fraud** where fake clicks happens **Data privacy** concerns have elevated making difficult to collect and use personalized data of consumers. The **transparency** of digital marketing is questioned because the advertisers lose their budget tracing system. Another major issue is **ad blockers**. The consumers use ad blockers to prevent the popping of paid ads which puts the marketers to a compulsion of choosing appropriate and more engaging ways of marketing. These are some of the major issues in digital marketing which requires some creative and more effective way of engaging consumers and protecting their virtual assests which is easily handled by block chain technology.

X. HOW BLOCKCHAIN OVERCOMES THE ISSUES IN DIGITAL MARKETING?

Digital marketing facing various issues can easily be corrected with the intrusion of block chain technology. As the block chain is working by storing information into blocks and nodes providing a decentralized ledger make it difficult for the happening of all unwanted activities. Here, in block chain each node is linked together. So any modification requires the modification of all the previous nodes. Here the manipulation of a node is highly impossible. As the block chain has decentralized ledger which gives a transparent and unchangeable record of ads, it prevents **ad frauds** with blockchain the consumer can decide what type of ad they can get, which increases the privacy settings of digital marketing. This blockchain technology also prevents the repetition of ads which calms the mental stability of the consumers. So these are some of ways in which the blockchains are supporting the field of digital marketing.

## XI. COMPARATIVE STUDY OF DIGITAL MARKETING WITH AND WITHOUT BLOCKCHAINS:

S.NO	TERMS	WITHOUT BLOCK CHAIN	WITH BLOCK CHAIN
1.	Ad fraud	Loss in high percentage and decreased ROI.	Increased ROI and high profit maintenance.
2.	Data privacy	Limits the usage of consumer data and imbalance in personalization.	Allows the consumer to personalize content.
3.	Ad blockers	Reduction of paid ads leading to less reach.	High recognition of ads.
4.	Transparency	Budget tracking failure by advertisers.	Budget is tracked by the advertiser.
5.	Brand Trust & Safety	Reduction of trust and spoils the brand name.	Increased because of high transparency.
6.	Content over load	High.	Low.
7.	Consumer attention spam	Decreased.	Increased.
8.	Personalized content	Low in number.	High in number.
9.	Ad fatigue	Reduced consumer engagement.	More efficient targeting of customers thus increasing customers engagement.
10.	Cost	High because of intermediaries.	Low. no intermediaries.

Table1. Comparative study

The above table give a clearer overview of digital marketing with the presence of blockchain technology.

XII. SMART CONTRACTS IN DIGITAL MARKETING:

Smart contracts are one of the best measure provided by blockchains that has elevated this phase of digital marketing. This cancels the interfering of other intermediaries. It works automatically when some pre-written conditions are met.

WORKFLOW OF SMART CONTRACTS:
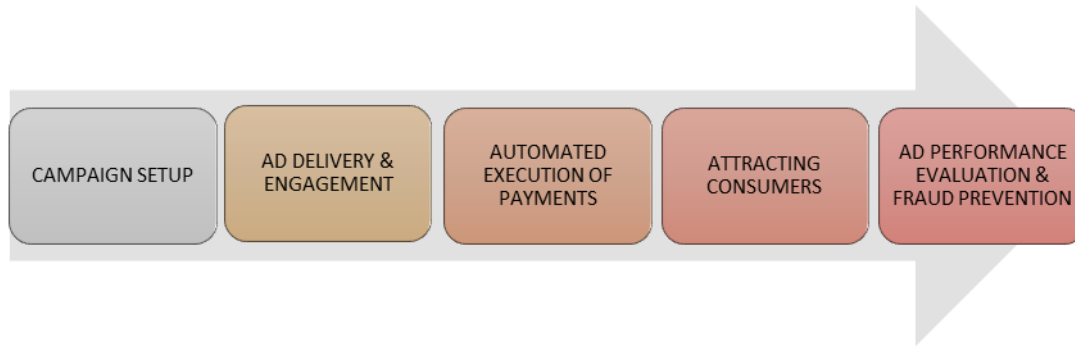
Fig 1.2 Workflow of smart contracts

i) Campign setup:

The advertisers first set their goal based on the marketers need. They set their audience to be targeted, resources to be used and etc, before campaigning and this is encoded as a smart contract (set of rules) onto a blockchain.

ii) Ad delivery & engagement:

After that, the ads are displayed to the consumers through digital platforms and websites.

The consumer engagement (i.e) the number of views and how rapidly the consumers are viewing the ad is also recorded on the blockchain.

iii) Automated execution of payments:

Once the previously specified condition is encountered, the smart contract automatically induces the payment to the publishes, hence minimizes the intermediaries.

iv) Attracting consumers:

Smart contracts also engage the consumers by providing the consumers with additional benefits for interacting with the ads which actively engages more consumers.

v) Ad performance evaluation and fraud prevention:

As all of the ad information's are recorded in the blockchains, these smart contracts ensure the accuracy, transparency and privacy of data and thus the ad fraud is highly prevented and ensures that true users are checked (counted).

BENEFITS OF SMART CONTRACTS:
❖ Visibility & faith
❖ Automation
❖ Fraud prevention
❖ Reduced costs
❖ Raise in ROI (Rate of Interest)

So these smart contracts in block chains play a vital role in the evolution of marketing in the digital landscape.

XIII. CASE STUDY: BLOCKCHAIN IN DIGITAL MARKETING:

i) UNILEVER: FIGHTING AD FRAUD:

• **Issue faced:**

Unilever, the largest consumer goods companies faced issues because of ad frauds which ultimately caused them significant losses in its digital marketing procedures. To face this issue, they used the blockchain technology to control frauds and to increase their profits.

• **Blockchain solution:**

To solve this issue, Unilever joined with IBM to launch a blockchain based solution for their digital marketing campaigns which is focused on improving the transparency in the ad supply chain with this solution, unilever was able to follow up the each and every single segment of advertisement process thus preventing the ad frauds.

• **Output:**

By implementing blockchain, unilever, controlled its ad frauds. This transparency given by blockchain saved them from spending millions yet reaching their consumers with non-fraud ads.

ii) TOYOTA: BLOCKCHAIN FOR CONSUMER TARGETTING:

- **Issue faced:**

The issue that Toyota faced was that they were not sure if their ad campaigns were reaching the real customers (i.e) humans/lots.

- **Blockchain solution:**

Toyota on collaboration with lucidity, tracked its digital campaigns to make sure that the ads were reaching real consumers and not lots.

- **Output:**

This blockchain helped toyota to gain accurate customer insights and hence improved its digital ad campaigns. It also stated that about 21% improvement in its ad campaigns because of accurate targeting and decreased frauds.

iii) NESTLE & CARREFOUR: BLOCKCHAIN FOR PRODUCT TRACKABILITY:

- **Issue faced:**

Consumers started to ask for the integrity of the products. They were interested to know about the process and if not they were losing their trust on their product. The trust issue of their consumers were their biggest drawback. To solve this issue, they implemented blockchain.

- **Blockchain solution:**

Nestle and Carrefour joined with IBM's food trust blockchain, the consumers could scan the QR codes on the packet of the product to get an in-depth data of the process of how it is made. This brought out the transparency of the product embossing the trust in consumers.

- **Output:**

With this blockchain solution, the brands reputation was saved and also the brand loyalty was exposed to increasing trust among the consumers

XIV. FUTURE OF BLOCKCHAIN BASED DIGITAL MARKETING:

Blockchains ability to increase visibility, privacy and security of information is significantly helping for the growth of digital marketing. In future, this blockchain is going to transform the field of digital marketing with emerging trend that is needed shape the industry.

i) In future, the transparency of ads will reach a higher point in the graph which ultimately leads to the increased trust and engagement of customers.

ii) Decentralization of information will allow the users to take control over their personal data and sell it to the publishers directly in exchange for rewards without interruption of any outliers.

iii) Smart contracts in future will help reducing the human error because of its advantage of automation of payments (automatic feature).

iv) With blockchain, decentralized automonous organizations (DAO's) growth increases that allows the individual organizations to self-analyze and customize their ad campaigns which involves the content, user need and experience regulation. This will increase strength of relationship between marketers and the consumers.

These are some of the trends in blockchain marketing. This is definitely a never dying field, where continous updation to the trends is really necessary to improve our marketing flaws and skills.

XV. CHALLENGES:

❖ As marketing campaigns often deal with larger volumes of data, the scalability of blockchain is questioned here. It may cause higher processing times.

❖ It can be expensive not everyone can to the blockchain solution costs. Specially during the network congestion, the costs are at peak.

❖ This technology requires a professional to deal with its process and procedures. Specially, the primary stages of implementing blockchain requires a high technical facility.

❖ It also deals with privacy issues as it ensures and transparency of the consumer data. Through it is beneficial for the marketers, it stands as a threat for consumers.

The above mentioned are some of the challenges in blockchain marketing even though it has many advantages.

XVI. CONCLUSION:

In conclusion, blockchain has the capability to transform the landscape of digital marketing with its key aspects of transparency, privacy and security. In future, these key features hold a strong nature of fuiliding the consumer-product-trust and strengthening the consumer-marketer relationship with this technology in hand, ads in digital medium can be prevented from frauds and various other spams. The use of mart contracts providing automation, so altogether this technology is beneficial for digital ad campaigns in various forms.

Even though it is beneficial, as block chain technology is still in its growing phase these are some challenges in it that is to be handled with care overcoming these difficulties would require innovation, creation and collaboration to give a more meaningful blockchain solutions. Apart from this, the blockchain technology is definitely a big monstes that is rapidly growing and will be grow further. So it will play vital role in reshaping the structure of digital marketing.

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