Open Source Blockchain Model of Journalism

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ABSTRACT

The emergence of the blockchain, earlier blockchain technology, and cryptocurrency has changed the way the world deals with commerce [1]. The success of blockchain in cryptoeconomics has led to its application in many domains. This left people with a blockchain as a way to achieve consensus and security in a peer-to-peer application for any class of asset. In this article, we propose the application of blockchain technology to journalism. It is essential because it allows us to maintain archives that cannot be censored or altered after the fact.

Keywords: Blockchain, Ethereum, Distributed Ledger, Journalism, Smart Contract, Open Source, Investigative Journalism.

I. INTRODUCTION

In 1991 the two scientists Stuart Haber and W. Scott Stornetta initiated work on a chain of blocks which was cryptographically secured. The efficiency of their system was improved in 1992, when they incorporated Merkle trees into their design, which allowed collection of multiple documents into one single block [2]. A blockchain is a constantly growing list of records, which are called blocks. The first block in a blockchain is known as the genesis block. Each block is linked to it's previous and successive block and is secured using cryptography.

The first successful implementation of blockchain technology was done in 2009 by Satoshi Nakamoto, when he implemented blockchain as a core component of the cryptocurrencybitcoin [3]. Here the blockchain is used as a public ledger to record all the transactions that take place on the network.

Prior to the invention of the blockchain, the coordination of individual activities on the internet and at the same time ensuring the integrity of data was impossible without a central body. Unrelated individuals relied on the central authority to confirm the occurrence of events. Computer scientists also believed that the distributed group of people could never reach a consensus without the support of the common clearinghouse. This is a well-known computer science problem commonly referred to as the "Byzantine Generals Problem" [4].

Information in a blockchain becomes transparent and verifiable using mathematical puzzles that require a great amount of computation thus making it difficult for a potential attacker to tamper the contents of a shared database. The attacker will need to own at least 51 percent of the total computational power of the entire network to succeed, the probability of which is close to impossible [5]. This way the blockchain solves the "Byzantine Generals Problem".

II. EXISTENTIAL CRISIS FACING JOURNALISM

The advent of the digital age along with great technological advancements has changed the face of journalism. Facebook, Twitter, and other social media platforms have taken over the traditional methods of journalism. This has led to certain challenges like fake news, misleading advertisements creating issues of trust.

The public has witnessed the power of fake news in the 2016 United States Presidential Elections. This had led to dwindling public confidence and lesser support for media in the face of rising clickbait. Often we see biased journalism in favour of a political figure or an organization. A USA TODAY/CNN/Gallup poll found that only 36 percent of Americans believe news organizations get the facts straight, as compared with 54 percent in mid-1989 [6]. Majority of the public is of the opinion that the media likes to feed on sensational news rather than reporting the most important ones. These factors urged us to propose a new methodology of journalism "The Blockchain Model".
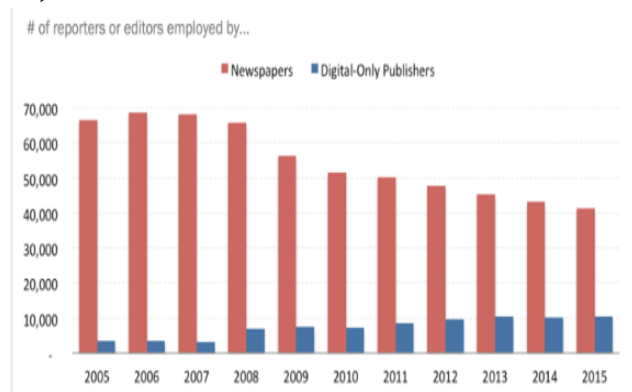
Figure 1. A graph showing how digital form of journalism is taking over the traditional form [7]
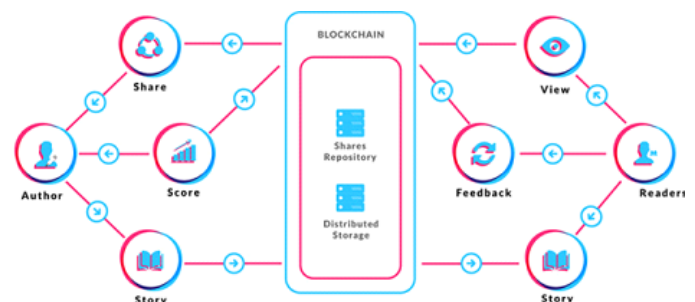
III. BLOCKCHAIN MODEL OF JOURNALISM

The model constitutes three major components. The first one is the author, the second one is the reader and the third one is the blockchain network which connects both the author and the reader.

This particular model is set up on Ethereum like blockchain platform and the information transaction happens through smart contracts [8]. Ethereum is a blockchain platform which allows the users to create smart contracts. The smart contract is the phrase used to describe computer code that can facilitate the exchange of money, content, property, shares, or for that matter anything of value.

The model classifies the users of the network into two groups. One is the author and the other is the reader. The author is the end user who is responsible for reporting the news through the creation of smart contracts. The reader is another end user who reads the articles written by the author.

The blockchain technology comes into play when the authenticity of the news being reported has to be determined. When the smart contracts are run on the blockchain, they run exactly as programmed – respecting the integrity and confidentiality of the Information.

Figure 2. A block diagram illustrating how the blockchain model of journalism is going to work

A reader on the network can subscribe to one or more authors. They get notified every time an author publishes an article. The authors get ratings for their articles. The ratings are given by the readers. The readers can also post comments related to the article. The readers, in turn, receive feedback from the authors and other readers on the network for their comments.

In the blockchain network, any change that has to be made needs to be converted into a block and few complex mathematical algorithms have to be run to cryptographically hash the particular block and then place it on the network [5]. This process is known as mining. A miner is an investor that devotes time, computer space and energy to sorting through blocks.

In this model, we propose a concept of news mining. Not any miner on the network can verify the authenticity of the news. A person who wishes to perform mining for the news network should register himself with the geographical location where he lives. In this way, he will be allowed to mine (verify) the news which is easily accessible to him. This further ensures the blocking of fake news. If the news is false it is immediately rejected and not placed on the network and reported.

In any blockchain network, the miner gets paid in two forms [5]. They are block rewards and transaction fees. Since we propose an open source model, the miner gets paid in only block rewards. The miner also gets credit points for identifying the fake news which enhances his probability of winning the mining race.

One of the features of the blockchain is that it is immutable [9]. This feature is exploited in this model to provide a solution to fake reporting. The author of a particular article has to think twice before he publishes his article on the network. If the article is found to contain fake news the corresponding author will lose his credibility on the network.

IV. ADVANTAGES OF THE MODEL

A. Decentralization of Authority
The full-fledged implementation of this model on a large scale will make newsrooms completely powerless. The power to report an incident, bring awareness about any issue completely lies in the hands of the general public leading to the eradication of biased journalism.

B. Creates an Open Source Awareness
A series of polls conducted over a seven month period, by the Center for Policy Attitudes and Center for International and Security Studies at the University of Maryland, found that Americans receiving their news from non-profit organizations were inclined to have accurate perceptions [6]. This only goes to prove the fact that a body of like-minded people who are not working for any financial benefits are more likely to produce good quality news compared to the commercial newsrooms.

C. An Advertisement Free Platform
The digitization of news through the web has made the media more of a market place for advertisements than news display.
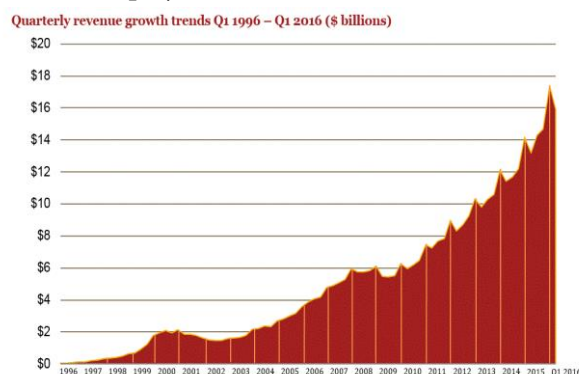
Figure 3. A graph showing digital revenue earned by the newsrooms [10]

The above graph clearly indicates that the newsrooms have become greedy for money and are not interested in spreading news for the benefit of the society.

D. The Reporter Remains Anonymous
In September 2012, UNESCO's International Programme for the Development of Communication concluded that journalism is one of the most dangerous professions in the world. This encourages ingenuity in reporting the news and masking of the original news due to fear.

In the blockchain platform, every end user on the network is anonymous to the other. This way the author does not have to disclose his identity to anyone and can report news truthfully and fearlessly.

E. An Alternative Form of Investigative Journalism

It is a form of journalism in which the journalists assess a particular subject in great depth. Often these subjects are political delinquency, corporate misconduct, and other major issues. Since this form of journalism takes several months or years they are often not encouraged by newsrooms and are often practiced by freelance journalists. Our model places a fantastic platform for these type of journalists to pursue their subjects of keen interests. They can turn their findings into a series of articles on our platform.

To carry out investigative journalism as an organization is very expensive. The graph below illustrates and projects the expenses. If not carried out by renowned organizations the readers would doubt the authenticity of the investigation. Our model is a perfect solution to this problem. By the application of blockchain model, we can keep the expenditure to a minimum while not compromising on the authenticity.
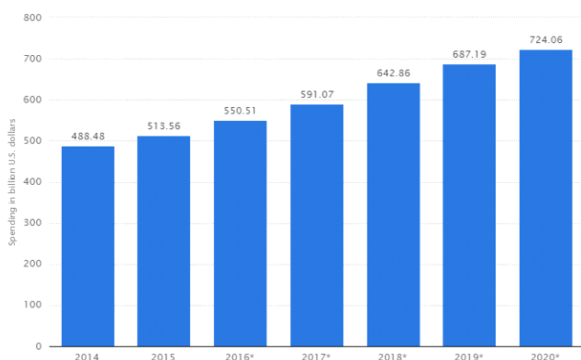
Figure 4. A graph showing the amount of money spent by organizations on investigative journalism [11]

F. Accountability

In this model, each and every reporter is responsible for his or her own actions. The accountability is thus traced back to only one person and not an organization or a newsroom as in traditional journalism. The world has witnessed many situations in which due to the mistake of one reporter or an editor the entire news organization associated with the news had to be banned or shut down temporarily leading to many innocent employees losing their jobs. Since our model eradicates the concept of newsrooms such happenings can be prevented.

V. CONCLUSION

The blockchain technology is finding its application in various fields. We predict that over the years our open source platform model for news might lead to a general public awareness and be a successful platform like the Open Source Initiative of the computer science domain.

We hope that our model provides a permanent solution to the fake news menace which is currently creating havoc in the society. Also, this gives rise to a feeling of collective responsibility in the society. The blockchain model on a large scale can change the way the society has seen news reporting. It has the potential to reconstruct the job description of a journalist.

This model not only serves as a tool to prevent the wrong information from propagating but also allows access to the right information to every individual who aspires for it at free of cost. Thus through the evolution of blockchain technology, we propose a model to bring about a revolution in the journalism industry.

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