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BLOCKCHAIN FOR JOURNALISM - POTENTIAL USE CASES

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Abstract:

The blockchain is a shared, distributed database with a cryptographic algorithm to insure the security, safety and immutability of the data. In the present paper, we will do an analysis of possible theoretical use cases of distributed ledger technologies for information sharing in journalism and the current practical applications, which is seen by certain journalists as a technology that could revive an industry in crisis (Quinn, 2019), making "*creators migrate to platforms that provide greater intellectual property*". (Webb, 2019, p. 59)

Keywords: blockchain, journalism, monetization, distribution, attribution

INTRODUCTION

In a world of constant technological revolution, journalism has been affected by many difficult challenges: the need to adapt to the changing media landscape, the transition from 'traditional' journalism to new media, "*understood as computer-based artistic activities*" (Maonvich, 2003) while trying to maintain its' fundamental values and definition – that *"journalism comprises the activities involved in an independent pursuit of accurate information about current or recent events and its original presentation for public edification."* (Shapiro,

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2014). Blogging, *"a frequently updated personal Web page with links to related sites – presents a challenge to journalism, an opportunity for journalism, or a bit of both" (Lowrey, 2006),* was seen as both a threat and a tool with potential for revolution – and paradoxally, both were proven true – it fueled a revolution by empowering citizens and journalists with easy access to content production and delivery, but also lowered the professional standards of media by equating blogging to journalism. Social media, through user generated picture, text or video scoops began to "*regularly lead television bulletins and the front pages of newspapers, whilst a new category of opinionated blogging is redefining the frontiers of journalism itself*" (Nic Newman, 2009), even as early as the Iranian elections of 2009, but also brought new pressure on journalists to have a permanent presence online (Hedman & Djerf-Pierre, 2013). With the advent of cryptocurrency and the rising focus on the blockchain technology, "*viewed as one of the most important technology trends that will influence business and society in the years to come"(Webb, 2015), "a technology that keeps a master list of everyone who has ever interacted with it"* (*Demystifying the Blockchain—The New York Times*, n.d.), we've seen the start of discussions regarding the possibilities the blockchain could offer to journalism and journalists – in 2017, a whitepaper on the Decentralized News Network – News by the People, for the People (Singh, 2017) promised "*a news platform that combines news creation with decentralized networks as a means to delivering factual content, curated by a community of readers, writers and reviewers*" (Singh, 2017), SourcedFact tried to revolutionize open source, community driven fact checking (*Sourced Fact*, n.d.), while PUBLISHprotocol promised to *"restore readership and secure financial sustainability for publishers"* (*PUBLISHprotocol*, n.d.), using the blockchain protocol.

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BLOCKCHAIN AND TECHNOLOGY

Melanie Swan defines blockchain as follows: *"The blockchain is like another application layer to run on the existing stack of Internet protocols, adding an entire new tier to the Internet to enable economic transactions, both immediate digital currency payments (in a universally usable cryptocurrency) and longer-term, more complicated financial contracts. A blockchain is quite literally like a giant spreadsheet for registering all assets, and an accounting system for transacting them on a global scale that can include all forms of assets held by all parties worldwide. Thus, the blockchain can be used for any form of asset registry, inventory, and exchange, including every area of finance, economics, and money; hard assets (physical property); and intangible assets (votes, ideas, reputation, intention, health data, etc.) […] The economy that the blockchain enables is not merely the movement of money, however; it is the transfer of information and the effective allocation of resources that money has enabled in the human- and corporate-scale economy."* (Swan, 2015, pp. ix–x)

The blockchain, the descentraliezd ledger that is at the basis of the Bitcoin cryptocurrency, has major potential implications for many industries. Researchers identified six major sectors where blockchain-based solutions have possible effects on targeted consumers: financial, records management, entertainment and communication (including journalism), state government, supply chain and private transportation. (Schlegel et al., 2018, p. 3481). Blockchain technology emerged as the fundamental architecture underpinning Bitcoin — the digital currency whose security is guaranteed through the use of cryptography, by creating consensus without the need of a centralized database, using instead 'miners' to validate transactions . (O'Dair, 2018, p. 16) The growth of the blockchain has been quick: as a way to raise money, *"Capital Investment in blockchain technology has seen a sudden explosion in 2017 with 4.8 billion investments." (Baber, 2020, p. 121),* with issues emerging from the inherent lack

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of regulation, or even the ability of regulation of such systems. The „*Blockchain [...] exacerbates the specious nature and quality of certain 'truths' because it does not easily allow data to be corrected or erased. This is the append-only or immutable function of blockchain whereby an entire history of entries or transactions remains on the network or in some other form of storage, and even when data is said to be deleted it never actually is*." (Herian, 2019, p. 25).

For example, the Hawaiian legislation to regulate virtual currency envisioned the following possible uses: (*Hawaii HB1481 | 2017 | Regular Session*, 2017)

(1) Identity and access management - Verification and identification using advanced cryptography and blockchain technology for digital IDs. Practical applications include verifiable identity for drivers' licenses, tax payments, voting, and other electronic government services;

(2) Health care - Revolutionary enablement of patients' rights to their health care records, and utilization of blockchain technology for "Internet of things" medical devices, increased accountability of health care providers via authentication and record keeping;

(3) Legal - Tracking, verification, authentication, and record keeping of court orders, contracts, titles, and records. This would allow "smart contracts", verified by and recorded on blockchain technology, as immutable records, allowing transparency for the citizens of Hawaii;

(4) Financial Services - Blockchain technology is already widely used in the financial services industry, and is poised to remove billions of dollars in overhead and intermediary fees and services;

(5) Manufacturing - Utilizing blockchains to provide accountability and transparency over provenance of goods and services will reduce counterfeit products and improve competitiveness for local businesses; and

(6) Tourism - Digital currencies such as bitcoin have broad benefits for Hawaii. A large portion of Hawaii's tourism market comes from Asia where

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the use of bitcoin as a virtual currency is expanding. Hawaii has the unique opportunity to explore the use of blockchain technology to make it easier for visitors to consume local goods and services and to drive the tourism economy.

As the possible areas of adoption are vast, so are the potential legal issues – some scholars have coined them 'reminiscent and comparable' (Girasa, 2018, p. 57) to the problems that were tackled with the rise of the internet over twenty years ago, bringing forward issues of jurisdiction, the use of virtual currencies as money, smart contract and their enforcement as well as the intellectual property in the blockchain. The growth of Bitcoin and decentralized applications, of blockchain technologies, decentralized data or even the bittorrent protocol, along with "*a seemingly endless array of startups, altcoins, ideologies, and buzzwords floating around […] it can be difficult to make sense of it all.*" (Raval, 2016, p. 15). The Founder of the Institute for Blockchain Studies tried to make sense of it all through the following classification: blockchain 1.0 is currency, blockchain 2.0 adds in contracts (stocks, bonds, financial assets) and blockchain 3.0 encompasses applications beyond pure finance in areas like governance and health (dapps) (Swan, 2015), or even media and mass communication. For example, Bitmessage (bitmessage.org) is a decentralized, trustless, peer-to-peer communications protocol used to send encrypted messages to another person or persons (Bambara & Allen, 2018, p. 70), created an anonymous P2P communication network.

One thing to remember is that "*there is no such thing as 'the blockchain' as BCT comes in many different forms, with different properties."* (Ølnes et al., 2017, p. 360), thus we have many different blockchains, depending on the network and the users of each 'database'. It is possible for multiple applications or dapps to use the same backend blockchain, like it is for multiple websites to use the same database. Not all blockchains are public or open, and not all users can write to the ledger. Thus, when creating a distributed application for

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journalism, we need to use a need-driven approach, as there is no standard solution or protocol.

BLOCKCHAIN AND JOURNALISM

Narrowing on the area we're concerned with, we've identified six possible directions through which blockchain technologies could help journalism: **monetization, distribution, user feedback, attribution, trust and data retention**. The scope of the current paper is to catalog the current research in the field of applications of blockchain technologies in journalism and media. Blockchain, like journalism, is all about trust, (Quinn, 2019), thus, possible use cases include micropayments to support smaller publications, cryptocurrencies to fund journalists/projects, blockchain-enabled news platforms, permanently maintaining story/research archives, tokenizing reader investment in journalism, eliminating advertisements, implementing reader input more effectively, compensating commenters to incentivize interaction and inspire loyalty ("Blockchain For Journalism," 2018), or even for crowdsourcing information (Kogias et al., 2019, p. 1). The full solution for journalism would be "*a network of public, cryptographically signed, identical "blocks" of data would allow journalists to authenticate content, to promote premium content, to give users ownership of data that might be used to show them advertising, and to responsibly publish and unpublish*" (Mia, 2018), but that solution is not without technical problems or vulnerabilities. Civil tried to introduce a new funding model for journalism (Mohammadi, 2018), but their ICO failed even after gaining large media attention. ("Understanding Civil's Failed Token Sale," 2018). Digital developments present profound implications for media and society (Pavlik, 2014, p. 20), but the main issues with media after 2010 come not only from technological evolution and the change that needs to happen in journalism is more than simply a response to technical change.

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Posetti considers that technology is not the solution for journalism, but rather one of the issues with it – he introduced the "journalism innovation wheel" (Posetti, 2018) as a way to improve journalism in this day and age, as opposed being influenced by the "shiny things syndrome", the constant illusion that technology alone is the answer to problems that are not of technological nature. Posetti created a model framework for journalism innovation focused on the following: 1. Reporting / storytelling 2. Audience engagement 3. Technology/Product 4. Distribution 5. Business 6. Leadership / Management 7. Organisation 8. People and culture.

Some of the earliest work in the journalism blockchain space was related no to the monetization or distribution of articles, but to their creation. Story blocks are also a new concept of utilizing the blockchain for journalism (Maxwell et al., 2017, p. 80),. Maxwell et al. ran three workshops, experiments with the construction of stories from fragments in an experimental blockchain system, providing "*a glimpse into how blockchain technologies can open unique opportunities to explore how storytelling might adapt as distributed ledger technologies become part of how we read, write and share stories."* (Maxwell et al., 2017, p. 95).

Kim and Yoon tackled the distribution and data retention pain points in journalism and proposed a new journalism model based on blockchain with sharing space (Kim & Yoon, 2019, p. 1), which they considered necessary in order for journalism to adapt, adjust to the new technologies. Their proposed model is a distributed system by hybrid blockchain for journalism, where articles are stored in the chain, and the blockchain becomes a database of linked articles. They proposed a new model of "proof of sharing" (Kim & Yoon, 2019, p. 8), starting with the creation of a list of preapproved journalists, which are the only ones that can submit articles to the chain, a new set of self-regulating rules and personalized display of articles for consumers.

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Shae and Tsai proposed an AI blockchain platform for trusting news, as a response to the spread of fake news in recent years (Shae & Tsai, 2019, p. 1610). Their reply is a technological solution to a social problem, creating a blockchain platform using AI algorithms to rank all news and providing incentives for the general public to work as news validators, a multimedia component designed to tackle tampering in multimedia stories, which is a growing issue with the advent of "deep fakes", but also a mechanism to integrate the AI fake news detector with the blockchain. Their goal is "*to develop fake news prediction models before the fake news propagates, and to research on the effective personalization intervention mechanisms*" (Shae & Tsai, 2019, p. 1618). Working on the same problem, attribution and trust, Al-Saqaf proposed creating a blockchain-based fact check registry (Al-Saqaf, 2019, p. 1), an application to help fact checkers work better and faster, while also maintaining a registry of the information they verified.

POLIS identified several areas in which the blockchain could improve the work of journalists (Erkkilä & Yle, 2019, p. 5):

- a widely used cryptocurrency with low or no-cost transactions would make it easier to charge very small amounts for media products.

- a cryptocurrency or token could also make it easier for media companies to incentivise users for co-operation and content creation.

- an automated content and rights management marketplace.

- tools for controlling the origin and integrity of content.

- a distributed publishing environment which means that a single server failure would not take down the content itself.

- a distributed publishing environment to counter censorship

- a decentralized publishing platform, without central ownership and control.

Veit noted that there are some noteworthy initiatives around the blockchain community, with "*main categories concerning how interested parties*

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presume blockchain can, or will, intertwine with journalism are designated within four overarching themes": (Veit, 2019, p. 36)

1. Blockchain-based payment systems

Viewership in media is traditionally monetized through advertising, but the blockchain offers different solutions – it's possible for journalists to be directly incentivized by their readers, even before starting to work on a story. There's also an opportunity in rewarding users for their attention – such example is SocialFlow, which rewards users for advertising engagement. (Veit, 2019, p. 40)

2. Increasing access to quality and verified information

The quality of journalism can be increased through factchecking, better attribution of information, the reduction in editorial interference and the removal of gatekeepers, all potential use cases for blockchains.

3. Accessing public data secured in government blockchains

Sunshine laws, that guarantee freedom of information for citizens and journalists to government information exist in large number of countries, but access to that data can sometimes be difficult. A secure hybrid blockchain could allow easier access for journalists to public information.

4. Reduce government surveillance, imposed censorship and better respect for privacy

Promising outcomes of blockchain-based platforms for journalists would be uninhibited messaging apps, unmonitored file-storage, or uncensored bulletins for local, national, or international news agencies .(Veit, 2019, p. 47)

CONCLUSIONS

The blockchain was awarded the fifth spot in a "five technologies that may shake our world" ranking made in 2016, (N. Newman, 2016, p. 43) but has yet to live up to the hype. The technical options are already there for the evolution

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of blockchain technologies in journalism, but the social and cultural impact remains to be seen.

While there is plenty of untapped potential, there is so far no single blockchain application that has revolutionized the media industry and gain widespread adoption, but there are projects in the works in multiple areas that could distrupt journalism: monetization, distribution, user feedback, attribution, trust and data retention.

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