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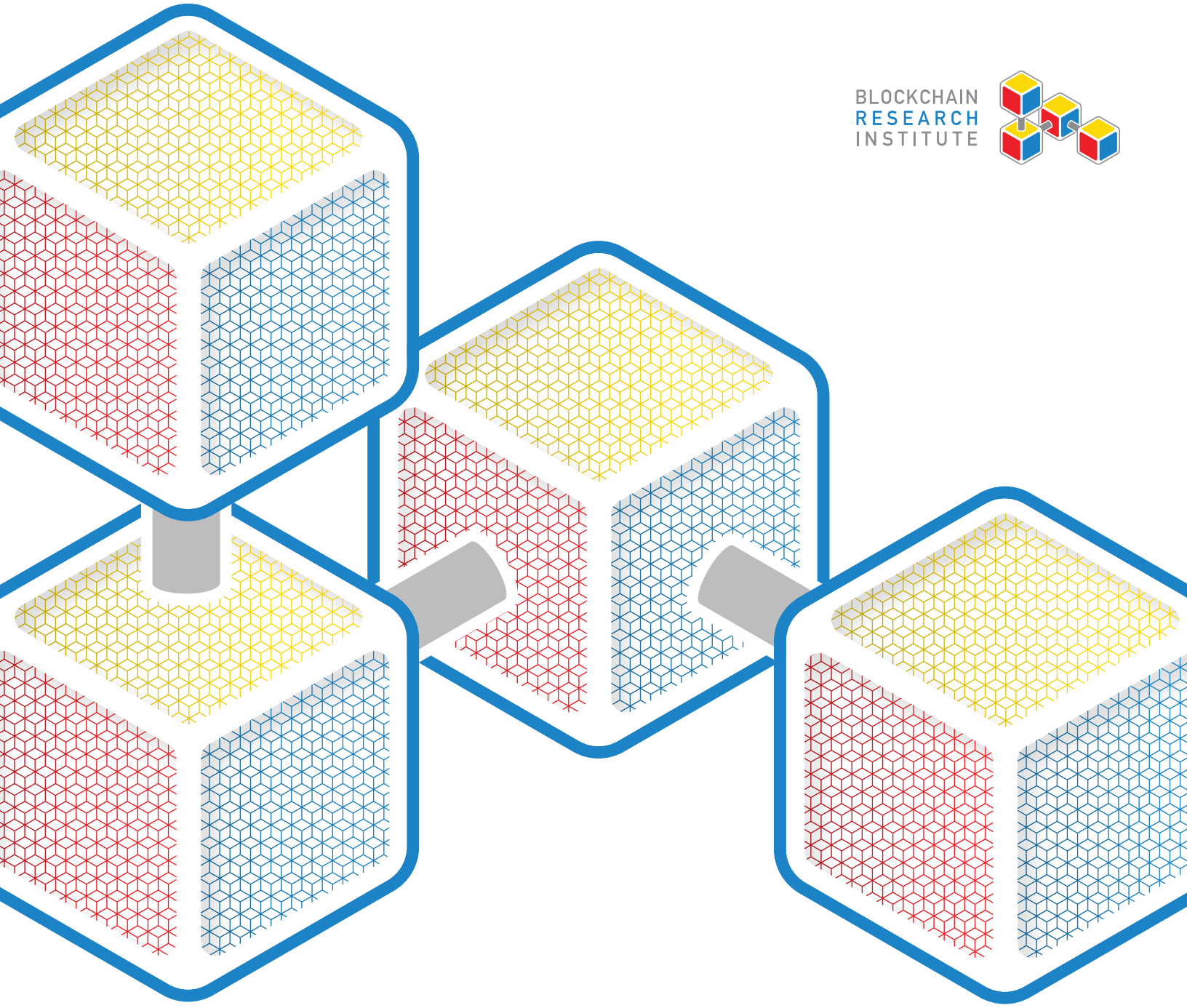

SOCIAL MEDIA ON THE BLOCKCHAIN

AKASHA Ushers in a New Era of Censorship-Resistant Communications

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Blockchain Research Institute

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A BLOCKCHAIN RESEARCH INSTITUTE LIGHTHOUSE CASE STUDY

Realizing the new promise of the digital economy

In 1994, Don Tapscott coined the phrase, "the digital economy," with his book of that title. It discussed how the Web and the Internet of information would bring important changes in business and society. Today the Internet of value creates profound new possibilities.

In 2017, Don and Alex Tapscott launched the Blockchain Research Institute to help realize the new promise of the digital economy. We research the strategic implications of blockchain technology and produce practical insights to contribute global blockchain knowledge and help our members navigate this revolution.

Our findings, conclusions, and recommendations are initially proprietary to our members and ultimately released to the public in support of our mission. To find out more, please visit www.blockchainresearchinstitute.org.

Contents

Foreword

Social media platforms have been in the news recently, not always for good reasons. I have long said that if a platform like Facebook is free for users, then *the users are the product*. That Facebook and other social media platforms distribute and monetize the private information of their users should really not surprise anyone. After all, their terms of service and terms of use often require users to waive certain rights or else to license non-exclusive usage rights to their own content. Consider this term of Facebook's service:

> *For content that is covered by intellectual property rights, like photos and videos (IP content), you specifically give us [Facebook] the following permission, subject to your privacy and application settings: you grant us a non-exclusive, transferable, sub-licensable, royalty-free, worldwide license to use any IP content that you post on or in connection with Facebook (IP License).*[1]

As the leading platforms approach monopoly status, they can act as censors and strongly influence what information will be disseminated and what will be supressed. Bad actors have misused data scraped from social media to sell products and even influence elections. Mark Zuckerberg expressed as much in his testimony before US Congress:

> *It's clear now that we didn't do enough to prevent these tools from being used for harm as well. That goes for fake news, foreign interference in elections, and hate speech, as well as developers and data privacy. We didn't take a broad enough view of our responsibility, and that was a big mistake.*[2]

This project looks closely at how blockchain can improve social media for all stakeholders. Networks can be more private, inclusive, unrestricted, and participatory. It explores the AKASHA Project as a lighthouse case study that illustrates the potential and possible obstacles of blockchain-based social media.

The lead author of this project is our own Hilary Carter, who BRI members will recognize as our director of research. She worked closely with Mihai Alisie, the founder of the AKASHA Project, to deliver a lucid, compelling case. Beyond her role at the BRI, Hilary advises the IVEP Crypto Association and TokenFunder and is a leader in the Canadian blockchain community.

DON TAPSCOTT
Co-Founder and Executive Chairman
Blockchain Research Institute

Case in brief

Social media search activities now rival search engines as a default mechanism for discovery among younger users.

- Social media networks have provided nearly three billion users with free, user-friendly platforms to stay connected to and engaged with friends, family, and associates, transforming how businesses advertise in the process. Social media search activities now rival search engines as a default mechanism for discovery among younger users.[3]
- Beyond the presence of malicious actors such as bots and trolls, social media networks benefit from their monopolistic position and profit from the collection and monetization of user data through the sale of targeted advertising. Perhaps, most egregiously, networks wield tremendous authority, censoring content to uphold their community standards and to comply with the laws of the land. The resulting digital landscape is highly centralized and eerily characteristic of the world envisioned by George Orwell in his novel *1984*.
- Blockchain innovators are actively building alternative networks. They believe that individuals should be free to express themselves online and given the opportunity to share in the value generated by their own activities on social networks. They believe in a world where the digital giants of today should have neither ownership of user-generated data nor the right to censor content.
- Blockchain-based social media applications are creating exciting opportunities for users, and a new set of challenges for society. This study explores the specific ways in which the AKASHA Project—a blockchain-based social media network—leverages the technology of the Ethereum blockchain and the InterPlanetary File System to address social media's current problems, and create enhanced opportunities in communication, primarily the ability for users to express themselves on secure, censorship-resistant networks.
- This case study uncovers the features of AKASHA, a groundbreaking social media application, the challenges it faces in its development and in its plans to scale vis-à-vis social media incumbents, and the new opportunities for freedom of speech on decentralized networks.

Blockchain-based social media applications are creating exciting opportunities for users, and a new set of challenges for society.

What's the problem with social media?

Social media networks are powerful players in the global economy. Facebook and Twitter are tools used to achieve social, economic, and political objectives. They emerged in 2004 and 2006 respectively, and quickly grew in popularity for their ability to meet a fundamental need, that being efficient and cost-effective digital interaction.

In little over 12 years, Facebook has succeeded in centralizing 25 percent of the world's social media data.[4] For brands, social media networks have become instrumental tools in the execution of interactive marketing and sales campaigns targeted at both existing and prospective customers. As a percentage of total marketing budgets, social media spending has tripled in recent years, rising from 3.5 percent in 2006 to 11.7 percent in 2016.[5]

For all their successes, social media networks have their own set of problems associated with them. Let's take a look at the challenges associated with social media networks today.

Malicious actors

Let's begin with a story. In 2016, 13-year-old Angus's Instagram account was hacked. After a two-day lockout, followed by steps to verify his identity and rightful ownership, Angus regained account control and engaged in a lengthy process to reverse the hacker damage. First, Angus began to unfollow the two thousand accounts that had been followed by his profile under hacker control and that were now inundating his feed with unwanted content. Because of Instagram's policies, which limited the number of accounts that a user could unfollow at a given time, Angus had to unfollow each account, one by one. After hours of clicking "unfollow" over several days, Angus finally restored his account to its pre-hack status.

This story illustrates the first problem with social media networks: their vulnerability to malicious actors. Hackers create chaos for users when they exploit an account and its user data. According to the University of Phoenix, nearly two-thirds of US adults with social media accounts have been hacked.[6]

The presence of malicious actors is a costly problem in both financial and psychological terms. In the last two quarters of 2016, nearly 200 million people stopped using Facebook while nearly 95 million stopped using Twitter.[7] Increasingly, users have demonstrated a willingness to opt out of social media networks; and for those not yet active, malicious actors undermine the merits of joining social networks altogether.

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Censorship

With 62 percent of adults using social media as their primary portal to news, they have given networks like Facebook a new kind of editorial power.[8] In May 2017, Pulitzer Prize-winning journalist Matthew Caruana Galizia was locked out of his Facebook account for 24 hours after publishing content related to Maltese political figures affiliated with the Panama Papers.[9] Since he intended to inform younger voters who might not otherwise have learned about the Panama Papers through traditional outlets such as newspapers, Galizia chose to share his story on Facebook where he could reach younger audiences.[10]

The shutdown and subsequent deletion of Galizia's posts rattled journalists and raised questions about whether Facebook should adopt special policies for accredited journalists.[11] Facebook claimed the removal was in keeping with its community standards; however, it did not respond to requests for comments as to whether the move related to specific pressure from the Maltese government.[12]

Social media networks have demonstrated that censorship is within their rights.

In 2016, Facebook deleted Norwegian Prime Minister Erna Solberg's posting of a Pulitzer Prize-winning image from the Vietnam War, the poignant "Napalm Girl" photograph by Nick Ut, for violating Facebook's nudity policies. The same image had previously been deleted from Norwegian journalist Tom Egeland's Facebook account, which he included as part of a story on the power of war images as they related to influencing world history.[13] Prime Minister Solberg accused Facebook of censorship and editing history, which led to an apology from COO Sheryl Sandberg and the republishing of the image.[14]

Figure 1: Napalm girl

South Vietnamese forces follow after terrified children, including 9-year-old Kim Phuc (center), as they run down Route 1 near Trang Bang after an aerial napalm attack on suspected Viet Cong hiding places on 8 June 1972. A South Vietnamese plane accidentally dropped its flaming napalm on South Vietnamese troops and civilians. The terrified girl had ripped off her burning clothes while fleeing. The children are, from left to right: Phan Thanh Tam, younger brother of Kim Phuc, who lost an eye; Phan Thanh Phouc, youngest brother of Kim Phuc; Kim Phuc; and Kim's cousins Ho Van Bon and Ho Thi Ting. Behind them are soldiers of the Vietnam Army 25th Division.

© 1972 The Associated Press/Nick Ut. Used with permission.

In arbitrating content that may be shared in compliance with jurisdictional laws as well as to uphold their own community standards, social media networks have demonstrated that censorship is within their rights. However, even when censorship is in accordance with standards, these examples illustrate occasions when journalistic reporting efforts and individual freedoms of expression have come under network scrutiny to an extent which, in this author's opinion, is unsettling. Not everyone has the power of a prime minister to reverse such suppression of content.

Concerns about widespread data collection and levels of surveillance are on the rise, and governments are responding accordingly.

Centralized ownership

Social media networks enjoy a monopolistic position in the market. A handful of companies gather huge amounts of data from users (sometimes in ways that cross ethical boundaries), and subsequently monetize that data through the sale of targeted advertising. According to George Soros, "Social media companies exploit the social environment. This is particularly nefarious, because these companies influence how people think and behave. This interferes with the functioning of democracy and the integrity of elections."[15] To date, users have been unable to benefit from the value of the data that they create through their online activities.

Concerns about widespread data collection and levels of surveillance are on the rise, and governments are responding accordingly. In August 2017, the UK's Department for Digital, Culture, Media, and Sport announced the introduction of legislation—a bill that would

Figure 2: La Liberte de la Presse

"La Caricature; Les Ombres Portees, No. 5," 1830, by Jean Ignace Isidore Gérard (J. J. Grandville), Lithograph on paper; gift of Mr. and Mrs. Alvin S. Romansky; The Museum of Fine Arts, Houston, TX. No known copyright restrictions.

implement the EU's General Data and Protection Regulation. The bill will "hand individuals vastly increased powers over the way their personal data are collected and processed, with big fines for organizations that fail to comply."[16] This type of legislation is one of several examples as envisioned by a 2013 Ernst & Young report, which forecasts that the "Golden age of free data will come to an end in 2018."[17] In the wake of the exposure of 87 million Facebook users' data to Cambridge Analytica, the company now faces lawsuits in several jurisdictions and the widespread perception, as described in *The Economist*, that Facebook is "out of control and in denial."[18]

AKASHA stands for Advanced Knowledge Architecture for Social Human Advocacy.

The AKASHA Project solution

Through the development of blockchain technology, we can now communicate on social networks that are addressing the above-stated problems. Leading the initiative is the AKASHA Foundation. AKASHA stands for Advanced Knowledge Architecture for Social Human Advocacy. It is a groundbreaking, blockchain-based social media network that is poised to change how users communicate online, enabling unprecedented levels of protection from malicious actors and new levels of freedom of expression previously inconceivable.

Project origins

The AKASHA Project is the brainchild of Ethereum co-founder Mihai Alisie, whose roots in blockchain technology run deep. He and Vitalik Buterin began formally collaborating as co-founders of *Bitcoin Magazine* in 2011, where Alisie took on the role of editor-in-chief. It was an early example of Alisie's interest in publishing. According to Alisie, "the magazine gave us an authentic opportunity to immerse ourselves in this emerging community and technology."[19]

After two years, he and Buterin became more fully aware of what bitcoin could and could not do. Says Alisie,

> *Vitalik's mind got a glimpse at something truly amazing. In late 2013 I received an email from Vitalik with his first stab at how a general purpose blockchain could work. It didn't have a name at the time. Later on, the idea started crystalizing into what became Ethereum, the Ethereum Whitepaper, and the Ethereum Project.*[20]

While Ethereum made AKASHA technologically feasible, it was a story of economic censorship that gave AKASHA its inspiration.

Ethereum, an open-source blockchain protocol, would provide the technological framework necessary to build secure, hack-proof, and censorship resistant applications, the very features that would come to define The AKASHA Project.

While Ethereum made AKASHA technologically feasible, it was a story of economic censorship that gave AKASHA its inspiration. A visit from a South Korean-based journalist provided Alisie with insights into a specific issue: freedom of speech.

Alisie set out to create AKASHA as a tool that would "respect basic human rights online by using a different approach and technology stack."

The journalist described how censored and controlled the local mass media had become through advertising. If this particular company disagrees in any way with whatever was published in a particular newspaper, they will "punish" the newspaper by pulling their advertising money.

After this journalist and his team broke an important story on a sponsoring company, the story was pulled from the morning print edition. This resonated with me. I started thinking about how broken the publishing system itself is.

I started to think about how Ethereum can be used to solve this problem. In the following months, the Ethereum Genesis took place, but it didn't feel at all like a finish line. To me, it was more like the starting line for one of the most epic marathons in the history of the Internet.[21]

Network architecture

Just as the actors of the commedia dell'arte derived creative means to tell stories of a political or religious nature on a public stage—carefully avoiding powerful church censors of the 16th century in the process—modern-day communicators have now circumvented the restrictions of present day, all thanks to blockchain technology. Alisie set out to create AKASHA as a tool that would "respect basic human rights online by using a different approach and technology stack."[22]

Figure 3: Commedia dell'Arte

"Drawing, Water color; Performers of a Commedia dell'Arte, 1827," designed by Saverio della Gatta (Italian, 1777–1829); Italy; pen and black ink and water colors on paper; 11.8 × 18.1 cm (4 5/8 × 7 1/8 in.); gift of Eleanor and Sarah Hewitt; accession number 1931-73-15; object ID 18329261. Cooper Hewitt, Smithsonian Design Museum, New York City. No known copyright restrictions.

How does one go about building a communications network on technology originally designed for peer-to-peer electronic cash? This was not an easy question to answer, but the problem was not insurmountable. For most, the nascent technology might seem intimidating; but for Alisie, the problems to be solved pushed the AKASHA team into a trial-and-error mindset. According to Alisie,

> *I think the thing that allowed us to push through all this was "passion." It is important to find an idea or project that inspires you, that makes you passionate. We are happy to get out of bed and meet every day, hacking away at challenges coming our way. It's something we enjoy doing, it doesn't feel like "work."*[23]

Posts on the AKASHA platform are logged as transactions on the Ethereum blockchain, creating a permanent communication record.

AKASHA is powered by the Ethereum blockchain—a network built to enable the development and management of value-based applications beyond monetary transfer—and the InterPlanetary File System (IPFS), a global, distributed file system where content can be stored "off chain." Freedom of expression was viewed, and exchanged, as a new asset class unto itself.

The alpha version of AKASHA's user interface took over six months to design and almost a year to implement into code. Now in functional beta, approximately 10 months following its alpha release, AKASHA is a social media platform open and accessible to anyone. It's free and features a user interface that reflects the best ideas of digital networks created in the last 20 years. Posts on the platform are logged as transactions on the Ethereum blockchain, creating a permanent communication record.

How AKASHA works compared to Facebook

There are a number of important distinctions between AKASHA and Facebook (Table 1, next page).[24] When a user publishes something on Facebook, the user's browser is uploading the data to Facebook's servers. From there, Facebook sends the data to friends' browsers where it is rendered. In other words, Facebook is a data intermediary, controlling and monetizing the interactions between friends.

Users are entirely in command of the type of content they want to subscribe to.

When a person publishes something on AKASHA, the person's browser is uploading the data onto the IPFS network and the Ethereum blockchain. From there, friends "listen to the blockchain" through their decentralized applications or browsers and are notified that someone in their network has published something new. When two friends access the content, the data are copied locally. If a third friend accesses the data, then the data would be served from two nodes instead of one, and so on.

Unlike incumbent digital platforms that take a one-size-fits-all route for curation, moderation, and incentives, AKASHA's user interface does not automatically reinforce content patterns and preferences. Algorithms used by Google and Facebook prioritize search results and newsfeeds based on past user interactions, reinforcing biases

Table 1: A comparison of Facebook and AKASHA

	Facebook	AKASHA
Location	Menlo Park, California	Zug, Switzerland
Ownership	Publicly traded US company	Nonprofit foundation
Network architecture	Centralized with spoke and hub data servers	Decentralized architecture with a distributed file system running on decentralized hardware and software
Development	Centralized	Decentralized
Content curation	Algorithm-directed	User-directed
Security	Password-protected	Asymmetrical cryptography (private/public key pair and password)
Privacy and other rights	Governed by community standards and jurisdictional laws	Governed by community through open protocols and open source software
Data collected	Content data that users share with each other such as photos, messages, e-mail addresses, and behavioral data that is collected to improve advertising and services	AKASHA collects no user data of any kind because it hosts no user content data and it has no ads and no desire for ads
Funding	Venture capital, initial public offering	Self-funded experiment testing with various token models
Business model	Over 80% of revenues from advertising sales	In search of sustainable business models respecting the users' self-sovereignty
Scalability	2.2 billion users since 2005	25,000 users since February 2018
Facilitation	Social sharing, advertising	Shared and persistent new "commons" layer enabling freedom of expression, collective memory, and social sharing

and singular world views, distorting reality in the process. AKASHA users control which information they come upon and can determine the sources of that information and the value others are assigning to it.[25] Users are entirely in command of the type of content they want to subscribe to.

Rather than censorship of content, AKASHA will give its users the opportunity to moderate content, flagging it as spam, designating it as high quality, or other.

In this paradigm, there is no middleman or screening process; AKASHA has removed the layer associated with censorship. If an author chooses to publish using the tag, "Astronomy," all users listening to the Astronomy tag will receive the article in their stream(s).[26] Only authors themselves can decide whether their content is unlisted on the network. Rather than censorship of content, AKASHA will give its users the opportunity to moderate content, flagging it as spam, designating it as high quality, or other.

After Alisie reviewed the above table, he suggested another comparison, specifically of "the categories of information collected by Facebook versus AKASHA processes." He pointed to three types of data:

- Content (intellectual property, free speech, and private communications), "the data that the users share with each other such as photos, messages, et cetera"
- Behavioral (movement on the site, time spent with content, time of day used), "data that is collected to improve advertising"
- Identity (name, birthdate, address, education)

Table 2 (next page) shows the categories of data collected by Facebook, as listed publicly in its "Data Policy."[27]

Alisie made several important points about data collection.

> *The toxic data that triggered the whole scandal comes mainly from the second category because it includes very, very, very personal data about the users—starting from the number of seconds spent reading an article, to the clicks and pages visited after leaving Facebook. In comparison, AKASHA does not collect any kind of data to make ads better—since we have no ads or the desire to have them—and does not host the data that users share with each other since it is a decentralized network. Quite a different "species" altogether and I feel that this is not very well highlighted currently in this table.*
>
> *Another very important distinction is regarding the user's identity: in the case of Facebook, the user has absolutely no control over "his" identity. In the case of AKASHA, the user has complete control over his identity.*[28]

"In the case of AKASHA, the user has complete control over his identity."

MIHAI ALISIE
Founder
AKASHA Project

Decentralized development

AKASHA built its platform based on the collective intelligence of the alpha and beta test user bases. The success of the alpha version proved that there was appetite for such a platform. By late 2017, 8,000 identities were created on the alpha; shortly after the beta was publicly launched in February 2018, there were more than 20,000 users.[29]

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During the various testing phases, failure is seen as a critical path to success. Alisie says, "If we'd tried to take a shortcut around a particular failure, we might miss important lessons that served us further down the road. Experiment-driven research was definitely the right approach in our case."[30] It's an approach that the AKASHA team continues to apply as they further develop the network's incentive model, "using every suggestion, failure, and iteration as an opportunity to learn something new."[31]

Table 2: Example of categories of data collected by Facebook

Categories	Nature of data
User's own content	Photos, posts, and messages users provide when they use Facebook, including whenever they share, message, or communicate with others
Behavioral data on usage	Information about how they use Facebook, such as the types of content they view or the frequency and duration of their activities
Content about users	Content and information that other people provide about users, such as when they tag a user in a photo or upload other users' contact information
Social circles	Information about the people and groups users are connected to and how users interact with these people or groups, and contact information users provide if they upload or import, say, an address book
Purchases and payment data	Information about users' purchases, their payment information, such as their credit or debit card numbers and other card information, other account and authentication information, and details of billing and shipping"
Device data	Information from computers, phones, or other devices where users install or access Facebook, including operating system, hardware version, device settings, file and software names and types, battery and signal strength, and device identifiers
Connectivity data	Information such as the name of user's mobile operator or ISP, browser type, language and time zone, mobile number, and IP address
Location	User locations, including specific geographic locations, such as through GPS, Bluetooth, or Wi-Fi signals of devices
Third-party data	Information when users visit or utilize third-party websites and apps that use Facebook's services, users' activities on and off Facebook from third parties and companies owned or operated by Facebook

Source of data: "Data Policy," Facebook Inc. (US jurisdiction), 29 Sept. 2016.

Where the alpha proved that the idea of a social network on Ethereum and IPFS was feasible, the goals of the beta, and future releases of AKASHA, are continuing to stress-test the following:

- Smart contracts security and architecture
- The carrying capacity of Ethereum and the IPFS network in terms of transaction volume
- Incentive mechanisms for users through an ERC-20 compatible token soon to be called Essence, understanding what makes a token work and why
- Co-creation of incentivized attention algorithms, prioritizing the development of a DAO-like framework for solving global issues and problems that human beings greatly care about
- User experience and interface, eventually introducing color as a universal communication language and content-signaling tool, intended to represent emotions and reactions to content and as a preliminary means of curating feeds[32]

As a token, Essence is fundamentally an economic signal. (The AETH token was AKASHA's first cryptoeconomic experiment. Essence is its second.) It is designed to reward contributors for collaboration at a variety of levels, including content creation, content flagging, content up-voting (expressed using a color signal), or, the collection of signals themselves as a means to gather user feedback.

For AKASHA users, unforgeable signatures and timestamps make it "cryptographically impossible for someone to impersonate your account without access to your key and password."

Synchronizing to the AKASHA platform has improved dramatically, from 10 minutes in the early beta to just a few seconds, provided that the user has installed the MetaMask extension or is running another Web 3.0 service provider. AKASHA will introduce its web version with its release 0.7, named "Mend the Gap." AKASHA is now accessible through such browsers as Chrome, Firefox, Opera, and Brave, and so new users can more easily join the network. Once connected, users enjoy the immediate opportunity of publishing content on a censorship-resistant network.

Security

Network security features of Ethereum underpin AKASHA. Like all applications built on top of Ethereum, the task is to ensure the security of the smart contracts that are fundamental to the AKASHA Project's functionality. To achieve this, the team plans to have both independent audits and to organize community "breakathons" for exposing any weaknesses that developers might have missed in the early phases.[33] "This is pioneering at its best," says Alisie.[34]

For AKASHA users, unforgeable signatures and timestamps make it "cryptographically impossible for someone to impersonate your account without access to your key and password."[35] This will be a welcome relief to solve the problem of hacking, giving AKASHA a unique position in the market as a decentralized and cryptographically secure social media application.

As is true with other blockchain networks, security is only as effective as users' ability to safeguard their private keys. Human folly—in the form of forgotten passwords and misplaced or lost private keys—remains a problem to be solved for the whole blockchain ecosystem.

The 51 percent attack problem is as relevant to AKASHA as it is to bitcoin. Could an authoritarian regime, a wealthy family, or super PAC (political action committee) hell-bent on controlling the news cycle in favor of a political candidate potentially take a 51 percent stake in AKASHA? In a world of fake news, many democratic institutions are at risk if the truth is at risk. Alisie acknowledges it remains one of the "classic crypto problems" for which he and the rest of the community are still searching for answers. He says, "We are well aware of this potential vector of attack and we'll seek to find solid answers backed by data during the beta and beyond."[36]

AKASHA intends to address the problem of trolls, who plague incumbent social networks.

AKASHA also intends to address the problem of trolls, who plague incumbent social networks. One of the goals of the beta is to test the functionality of signaling and curating content, with the help of a tokenized system rewarding certain actions, including the flagging of content as spam, fake, or abusive. Through colored Essence tokens, color-coded content will be tested as a means to filter academic, peer-reviewed content from fake news quickly.

Financing innovation

Unlike many blockchain-based initiatives, the AKASHA Project has not conducted an ICO. The team is entirely committed to rolling out a minimum viable product before going to market. In fact, Alisie is critical of tokenized fundraising as a broad-brush strategy for financing blockchain innovation:

> *When you start from the token and work your way backwards you are very likely to build the rest of the system in such a way that justifies the existence of the token. And once reality meets your assumptions through real implementations, if the token assumptions are flawed, you risk the entire system to collapse.*[37]

He suggests a different approach, one that centers around problem solving and the roadmap to getting there: "Try to look at the problem(s) without a token first. Keep an open mind about alternative monetization strategies and do not pigeon hole your project with a token just because you want or need to raise money."[38]

Just as Rome was not built in a day, one of the most significant challenges for any startup is its ability to achieve critical mass.

Implementation challenges

Just as Rome was not built in a day, one of the most significant challenges for any startup is its ability to achieve critical mass. Encouraging the migration from incumbent social media networks onto blockchain-based applications like AKASHA will prove to be challenging, though perhaps not as challenging as it would have been

prior to Facebook CEO Mark Zuckerberg's April 2018 testimony before US Congress. The conversation about data rights and privacy has gone mainstream, and blockchain innovators like the team behind AKASHA have an opportunity to attract advocates and developers to the task at hand.

Copyright protection

What is unclear is how AKASHA will address the issue of copyright protection, and how it would govern incidents of infringement.

What is unclear is how AKASHA will address the issue of copyright protection, and how it would govern incidents of infringement. If a photographer uploaded her work to AKASHA, she could specify the terms of use for it. Since the photograph is located on the IPFS by a hash uniquely generated from the photo file itself, if anyone tried to upload the same photograph to AKASHA, the network would direct that person to original photograph and its license. Perhaps blockchain's immutable architecture would serve as a disincentive for individuals to publish other people's copyrighted content. Facebook users are governed by its policies on intellectual property, which are subject to jurisdictional laws, and content is screened by systems such as Audible Magic, which prevent unauthorized videos from being uploaded onto the network. What AKASHA can provide for now, as a control mechanism, is a persistent platform of record.

Scalability

Projects of any description need network effects in order to scale. The question AKASHA founders need to answer is whether there is

Figure 4: Die Gute Presse

Caricature "Die 'gute' Presse," 1847, by an unknown draftsman, for Der Leuchtturm, ed. Ernst Keil, via Wikimedia Commons. No known copyright restrictions.

a community of interest at the ready, and one that is committed to playing the long game. Currently, the Ethereum community on Reddit has nearly 350,000 subscribers. Having a near-term milestone of 100,000 AKASHA beta users is not unreasonable. AKASHA has much work to do, however, before incumbents or authoritarian regimes see it as a threat.

Future iterations will reward the publishing and curation of content, engagement, and other types of behavior such as sharing unused network storage space.

Incentive mechanisms underpin most human behavior and are the fuel of blockchain-based ecosystems. AKASHA is no exception. Providing the right economic incentives through a platform-specific token is part of the network's scaling strategy. Future iterations will reward the publishing and curation of content, engagement, and other types of behavior such as sharing unused network storage space.[39]

Ultimately, AKASHA aims to provide an easy-to-use channel for mass communication and collaboration. When combined with borderless

Figure 5: Madame Anastasie, par Gill

"Madame Anastasie," 19 July 1874, by André Gill (pseudonym of Louis-Alexandre Gosset de Guines, 1840-1885) for L'Éclipse, n° 299. BnF, prints and photography, YA1-115-FOL. La caricature et la censure, La Presse à la Une, Bibliothèque nationale de France François-Mitterrand, Paris. No known copyright restrictions.

economic interactions enabled by blockchain-based networks, what will emerge is the manifestation of "crypto for the masses."[40]

Alisie's vision was to create "diverse communities forming around common values, leveraging the power of self-organization and cryptocurrency in ways that we cannot foresee yet."[41] Not unlike community-based crowdfunding to drive social change, AKASHA is an important tool, created specifically to improve broken media and publishing systems. While other networks such as Medium set out to support freedom of speech, none have been successful in sustaining those ideals.[42]

Perhaps ironically, AKASHA has used, and will continue to use, existing social media channels like Twitter and Medium to spread the word about the project. Growth will ultimately depend on a rewarding user experience, an easy-to-use interface, high levels of user engagement and incentive mechanisms, a fully functional tech stack, security, and a diverse user base.

Facilitating organizational change

Growth will depend on a rewarding user experience, an easy-to-use interface, high levels of user engagement and incentive mechanisms, a fully functional tech stack, security, and a diverse user base.

AKASHA can be seen as a tool impacting more than simply online communications. Alisie sees it as an instrument for organizational change and a gateway to furthering innovation and changing business models. Social networks like AKASHA "will offer people the tools to create new organizational models that bring drastic efficiency and transparency gains over the old models," says Alisie.[43]

For brands who want to be positioned as forward-thinking and innovative, it makes sense for them to have their own presence on innovative networks. Like any other social network, AKASHA can be used as a blogging platform, as a place to post job announcements, and engage with customers to get precise feedback on products and services.

When asked how businesses and governments should prepare for a blockchain world of which AKASHA is simply a part, Alisie is reminded of a quote by moral philosopher Eric Hoffer: "In times of change, learners inherit the earth; while the learned find themselves beautifully equipped to deal with a world that no longer exists."[44]

Implications for society

Tim Berners-Lee, inventor of the World Wide Web, gave the "Swell by Ripple" 2017 conference audience some advice regarding the importance of building digital tools responsibly.[45] In essence, he said that we are indeed accountable for our respective innovations and their unintended consequences. That's why we must try to envision the world we're creating. What are the downsides of creating censorship-resistant platforms? How do we encourage diverse ideas? How do we ensure that the core human values of truth, justice, and equality are not drowned out by hate speech?

On Twitter, Vinay Gupta—Hexayurt creator and Ethereum insider—expressed concern that blockchain-based social media platforms are

likely to be dominated initially by the alt-right, serving as immutable records for neo-Nazi ideology and providing a framework for such ideology to flourish.[46] However, it can only do so if it remains unopposed by a counter culture rooted in democratic values. To be relevant and impactful, the social media networks of tomorrow must incentivize participation of all parties along the ideological spectrum.

Freedom and network integrity are the order of the day for AKASHA, and for many who are building blockchain-based infrastructure.

AKASHA is prepared to take the good, the bad, and the ugly, all in the name of freedom. Freedom of speech is an idea that has yet to find a digital home until now. It can be whatever the community wills it to be. If democratic ideals are upheld, it is because the world wills them to be upheld.

If early adopters profligate hate speech, then networks such as the AKASHA Project could find that they offer little appeal to anyone outside fringe groups. A network hijacking by neo-Nazis could stall, if not cripple, the mass adoption of the network. To combat this, Alisie intends on "actively engaging organizations worldwide that have among their core values freedom of speech and positive social impact."[47]

Freedom and network integrity are the order of the day for AKASHA, and for many who are building blockchain-based infrastructure. It is the principle of building a better world that keeps the team focused—a self-organizing mechanism for the people forming the network, instead of centralized control systems setting the social agenda.[48] It is Alisie's hope that AKASHA will help journalists around the world to regain their voices.

Through blockchain technology, the digital world is changing quickly. It's a brave new world, and the time to discover it and show leadership in it is now.

Key takeaways

It's a brave new world, and the time to discover it and show leadership in it is now.

- Blockchain technology is being actively developed and applied to solve problems specific to social media networks, including hacks, censorship, and centralization. Organizations, governments, journalists, and individuals should increase their awareness of these tools as an item on their innovation agendas.
- Pioneer users of blockchain networks should approach their participation as a journey of discovery. There are many issues still to be addressed. Writing off applications in their infancy today would be short-sighted for their future potential.
- Incumbent social media networks can expect an increasingly robust, competitive landscape from decentralized applications over time. Rethinking their business model

A network designed to uphold freedom of expression will succeed if it equally upholds the humanist goals of peace, tolerance, and equality alongside it.

and value proposition to create new incentives for users, and transforming their organizations to rebuild lost trust, will be needed to remain competitive. Incumbents have the resources to solve their pressing problems, but they also need the will.

- For mass migration to take place, new social media networks will need to offer incentive mechanisms, easy-to-use interfaces, and steady streams of new users. Once Grandma joins AKASHA, it will have come of age, ushering in a new era of digital human rights along with new ownership models of user-generated data.
- Censorship-resistant networks must show leadership in their digital innovation, demonstrating an understanding of the risks of hate speech and potential brand damage caused by communities bent on destruction. A network designed to uphold freedom of expression will succeed if it equally upholds the humanist goals of peace, tolerance, and equality alongside it.

About the author

Hilary Carter is director of research at the Blockchain Research Institute where she works closely with more than 50 blockchain thought leaders to conduct the definitive investigation into blockchain applications, strategy, and use cases. She serves as an advisor to IVEP.io, a Swiss-registered Interactive Video and Experience Protocol, and TokenFunder.io, Ontario's first regulated initial token offering. Hilary is a speaker, a management graduate of the London School of Economics, and holds the Certified Bitcoin Professional designation.

Disclosures

Hilary Carter participated in both the alpha and beta test of the AKASHA Project. She has provided feedback on the AKASHA Project communication document presented at DEVCON3 and AKASHA version 0.8. She has no ownership stake in AKASHA.

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About the Blockchain Research Institute

Co-founded in 2017 by Don and Alex Tapscott, the Blockchain Research Institute is a knowledge network organized to help realize the new promise of the digital economy. It builds on their yearlong investigation of distributed ledger technology, which culminated in the publication of their critically acclaimed book, *Blockchain Revolution* (Portfolio|Penguin).

Our syndicated research program, which is funded by major corporations and government agencies, aims to fill a large gap in the global understanding of blockchain technology and its strategic implications for business, government, and society.

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Research areas include financial services, manufacturing, retail, energy and resources, technology, media, telecommunications, healthcare, and government as well as the management of organizations, the transformation of the corporation, and the regulation of innovation. We also explore blockchain's potential role in the Internet of Things, robotics and autonomous machines, artificial intelligence, and other emerging technologies.

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