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Decentralised Social Networks: An Overview

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Research and Insights

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Key Takeaways

- Online social networks are a large part of our daily lives - Internet users around the world spend around 2.5 hours daily on social media.

- One criticism of Web2 social media is the centralised structure of dominant social media platforms like Facebook, Twitter, and LinkedIn.

- Detractors argue that centralised control of these platforms has led to problems such as the companies taking the lion's share of the profits from user-generated content, opaque algorithms that are biased towards promoting content that can bring in the most advertising revenue, de-platforming, censorship, and privacy violations.

- Web3's social networks are decentralised and built on blockchains where users can exchange information as well as publish and distribute content to their audience. Because these social media platforms run on blockchains, they are capable of being decentralised and more resistant to censorship and excessive control. Ownership is distributed among builders, creators, and end users, instead of being concentrated among a few centralised entities.

- The current decentralised social networks landscape can be viewed through the lens of these key layers: identity, social graph, social media, messaging, reputation and credentials, content creator economy, feed, and tools.

1. What are Decentralised Social Networks?

1.1 Criticisms of Web2 Social Media

Currently, Internet users around the world spend approximately 2.5 hours a day on social media. Social media can have a far-reaching and large impact on not only online activities but also offline behaviour and life in general.
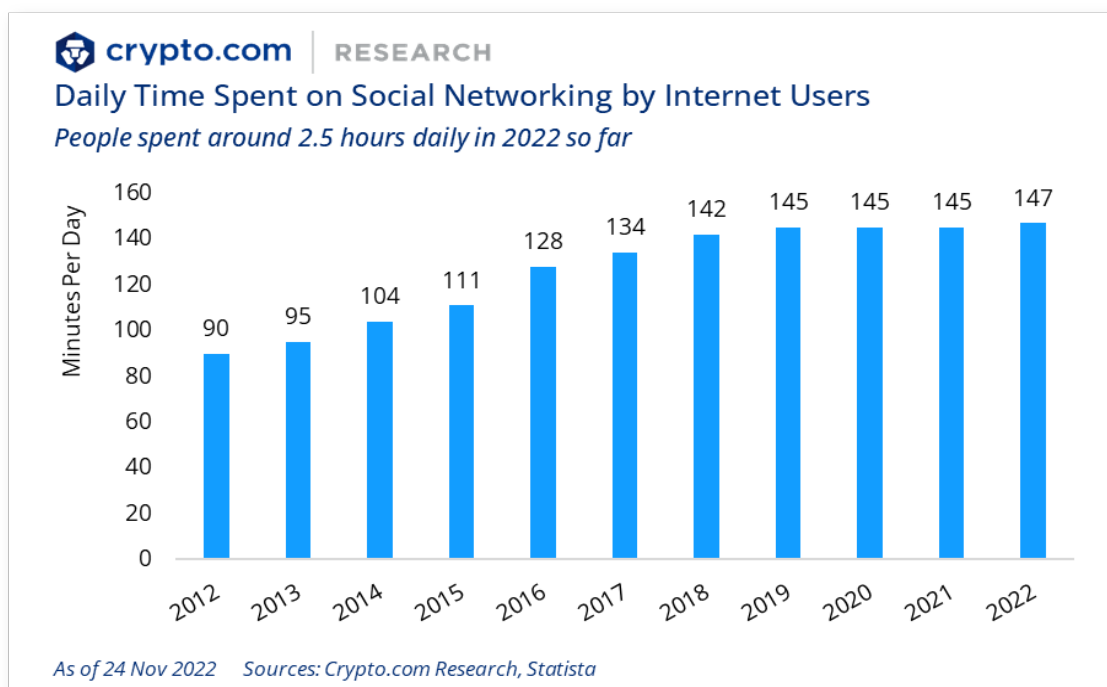
A Statista global online user survey also identified that a significant share of respondents stated that social media had increased their access to information, ease of communication, and freedom of expression. On the other hand, respondents also felt that social media had **worsened their personal privacy** and heightened everyday distractions.

One criticism of Web2 social media is the centralised structure of large social media platforms like Twitter, Facebook, and Instagram. Detractors argue that **centralised control of these platforms has led to problems** such as the companies taking the lion's share of the profits from user-generated content, opaque algorithms that are biased towards promoting content that can bring in the most advertising revenue, de-platforming, censorship, and privacy violations.

However, with the emergence of **Web3**, there is an opportunity to potentially address these issues by **harnessing blockchain technology's capability for decentralisation**.

Read more about Web3 in our report: Unleashing the Potential of Web3: A More Viable, Responsible, and Inclusive Future

1.2 Social Networks in Web3

Web3 aims to be built upon individuals' personal ownership of their data and to provide an open Internet that is more aligned with end users' interests and their privacy. Web3 is:

- **Decentralised:** Ownership is distributed among builders, creators, and end users, instead of being concentrated among a few centralised entities.

- **Permissionless:** Everyone has the opportunity to participate in Web3 and it is built to be inclusive.

- **Trustless:** Eliminates the need to trust third parties operating between users and users' assets.

Web3's social networks are decentralised and built on blockchains where users can exchange information as well as publish and distribute content to audiences. Because these social media platforms run on blockchains, they are capable of being decentralised and more resistant to censorship. They, therefore, have the potential to be **open to everyone,** meaning that users cannot be redlined. Decentralised social networks also have the following key features and associated benefits:

## Decentralised Social Networks: Features and Benefits

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Features	Benefits
Decentralised applications (dApps) and open-source	• Because the source code for applications is open-source, it is available for public inspection; hence, it does away with opaque algorithms that are common in Web2 social media. • Therefore, blockchain-based social networks could potentially better align the interests of users and platform creators.
No single-point of failure	• Networks that consist of many computers (or nodes) worldwide. Even if some nodes fail, the network could still operate, making applications more resistant to failures and outages.
Uses decentralised storage with high privacy	• Social networks could use decentralised storage for their content, which can protect user information from exploitation and malicious use. • Reduces the risk of bad actors selling users' personal information to advertisers and hackers stealing users' confidential details.
Crypto native	• People can use cryptocurrency directly to access certain features, complete in-app purchases, or tip their favourite content creators. • Improved monetisation framework for content creators via non-fungible tokens (NFTs), in-app crypto payments, and more.
Uses decentralised identities (DID)	• Allows users to have a high level of privacy and anonymity. For instance, an individual can sign in to an Ethereum-based social network using an ENS profile or wallet without having to share personally identifiable information, such as names and email addresses.
Uses decentralised autonomous organisations (DAO)	• DAOs, which are made up of a group of people with a stake in the platform's future, could engage in platform governance in a decentralised manner (e.g. how to regulate certain social media posts). This contrasts with the centralised structure of Web2 social media platforms, where only a few people make top-down decisions on issues of censorship.

Sources: Crypto.com Research, Ethereum.org

Published on 6 Dec 2022

2. Decentralised Social Networks Landscape

Blockchain-based social media applications are gaining traction, as seen by the rising trend of the total number of unique wallets interacting with the smart contracts of social dApps.
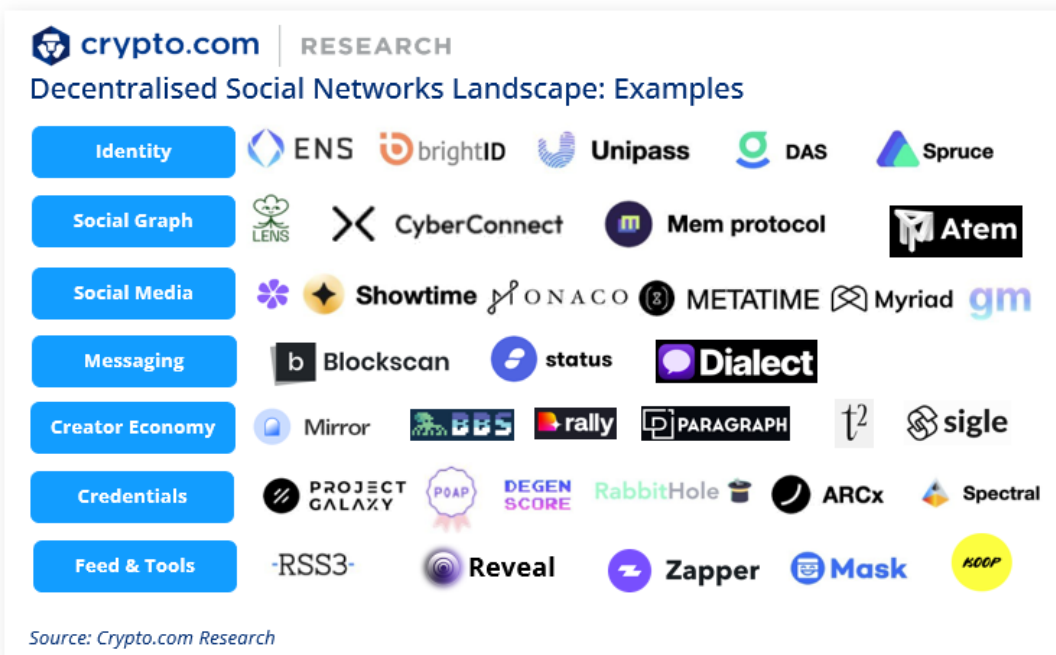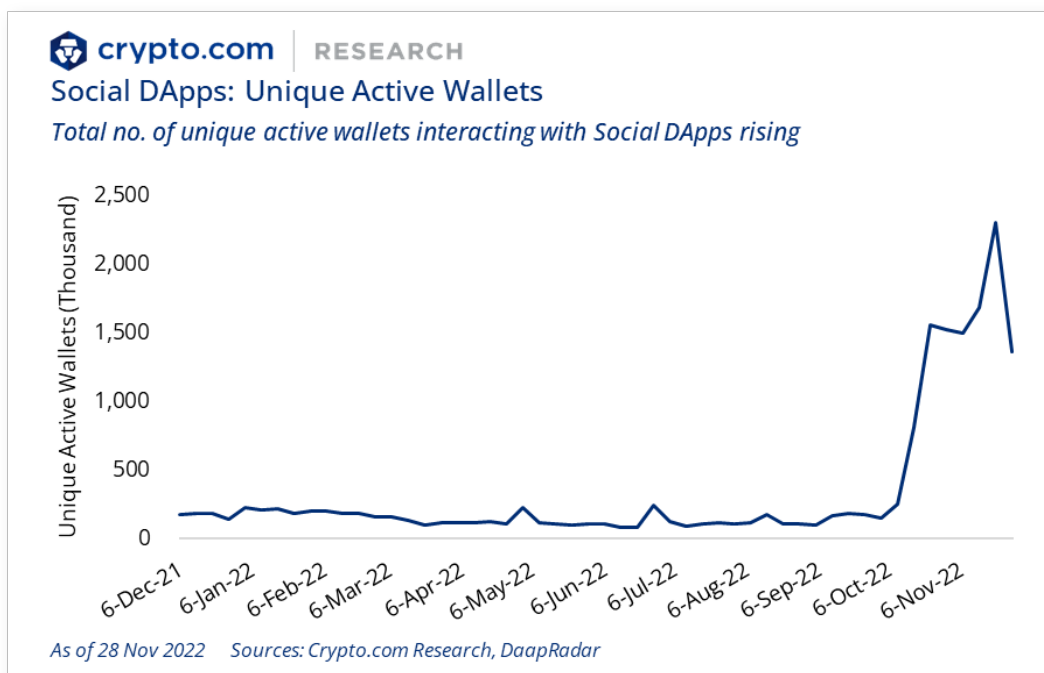
Web2 is dominated by several large corporations but the Web3 landscape is much more varied:

Social Networks Landscape

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Category	Web2 Examples	Web3 Examples	
Identity	• Email address • Social media account • OAuth	• Ethereum Name Service (ENS) • BrightID	• Unipass • Spruce • DAS
Social Graph	• Facebook • Twitter • Instagram	• Lens Protocol • CyberConnect • Mem Protocol • Atem	
Social Media	• Facebook • Instagram • Twitter • LinkedIn • Reddit •	• gm.xyz • Monaco • Lenster • Minds	• Myriad • Showtime • Metatime
Messaging	• WhatsApp • Messenger • Telegram	• Status • Blockscan Chat • Dialect	
Creator Economy	• Medium • Substack	• Mirror • BBS • Rally	• Paragraph • Sigle • T2
Credentials	Behavioural data counts towards your credentials, which companies like Google and Facebook run algorithms on to send you targeted advertisements.	• Project Galaxy • POAP • Degen Score	• RabbitHole • ARCx • Spectral
Feed	• RSS	• RSS3 • Context • Wall • Zapper	
Tools	• Meltwater • Sprout Social • Agorapulse	• Mask • DeWork • TeaParty	• Koop • Coinvise

Source: Crypto.com Research

2.1 Identity

Web2 Examples	Web3 Examples
• Email address • Social media account • OAuth	• Ethereum Name Service (ENS) • BrightID • Unipass • Spruce • DAS

In Web1, the typical identity model is centralised, where each platform stores the usernames and passwords of their users in a database. In Web2, the model shifted to 'federated identity', such as signing in with social media platforms like Google, Twitter, and Facebook. **In Web3, the identity of a user is decentralised and based on blockchain wallets.**

- **Self-sovereign identity and decentralised identifiers:** One key concept of Web3 identity is self-sovereign identity (SSI). This refers to users controlling the information that proves their identity to websites and online applications. A closely related concept is **decentralised identifiers (DIDs)**, which are a novel identifier type that enables verifiable and decentralised digital identity, and can be used to enable SSIs.

- **Web3 domains:** These are a popular type of Web3 identity, taking the form of a human-readable domain name that maps a crypto wallet address and can end with extensions such as .crypto, .cro, or .eth. A Web3 domain is also typically a non-fungible token, which means it can be minted and sold just like any other NFT. A popular example of a Web3 domain is Ethereum Name Service (ENS). It has over 2.76 million names and 594K owners at the time of writing.

- **Proof-of-Identity:** This is another type of Web3 identity. BrightID is an example of a social identity network using proof-of-identity and it allows users to prove to applications that they are not using multiple accounts. It solves the unique identity problem through the creation and analysis of a giant social graph of people all around the world.

Read more about Web3 identities in our report: Welcome to Web3: Identity, Soulbound Tokens, and Decentralised Society

2.2 Social Graph

Web2 Examples	Web3 Examples
• Facebook • Twitter • Instagram	• Lens Protocol • CyberConnect • Mem Protocol • Atem

A social graph is a **representation of how entities are connected on social media platforms**. For instance, in Web2, your Facebook social graph would represent the friends you are connected with, their friends, and how they are connected to you. It is the global mapping of everybody and how they are related.

- Web2 social graphs are stored in centralised servers owned by the social media companies themselves. Your profile, connections, and content are locked to a specific platform. Only the platforms themselves and external entities that might buy this data have access to it. Social graphs on Web2 platforms are also not portable, meaning every time you switch from one social network to another (e.g., Facebook to LinkedIn), you have to create new connections again.

- A decentralised social graph built on the blockchain, in contrast, is **portable across any social platform**, including games or the metaverse. This means you can retain the same social connections that you currently have across any platform. User data is also stored on decentralised servers, limiting the chance of the data being accessed by external entities for commercial reasons.

Become *a private member to access our report: Decentralised Storage Solutions in Web3.*

Examples of decentralised social graph protocols are:

- **Lens Protocol:** This was built by the team behind the well-known DeFi lending platform Aave (AAVE). It uses the Polygon (MATIC) proof-of-stake blockchain. Lens Protocol is a user-owned, open social graph that any application can plug into. Since users own their data, they can bring it to any application built on top of Lens Protocol. Centred around NFTs, Lens hosts capabilities for developers to build applications analogous to social media, as well as analytics tools, integrations of DeFi functions, such as loans and staking, and user-governed DAOs.

- **CyberConnect:** A decentralised social graph protocol that helps Web3 applications bootstrap network effects. Developers are provided with a set of tools to build applications with meaningful social experiences. For example, it can recommend people to follow based on users' relationships and social data from both off-chain and on-chain sources. Users can publish their data as an NFT on a chosen blockchain for monetisation purposes.

Read more about social graphs in our report: *Social Graph and Digital Identity Landscape in Web3*

2.3 Social Media

Web2	Web3
- Facebook - Instagram - Twitter - LinkedIn - Reddit	- gm.xyz - Monaco - Lenster - Chillchat - Minds - Myriad - Showtime - Metatime

Web3 social media is sometimes referred to as SocialFi because it brings together the principles of social media and decentralised finance (DeFi).

- Web3 social media platforms offer a decentralised approach to creating and managing the content generated by its participants.

- Monetisation typically happens in cryptocurrencies, while identity management and digital ownership are driven by NFTs.

- These platforms are structured as DAOs that are better suited to prevent centralised censorship decisions.

Some examples of Web3 social media platforms are:

- **GM.xyz:** GM's immediate goal is to "make creating and managing a DAO or crypto-asset community as easy as spinning up a subreddit". It is similar to Reddit, where users can build and manage communities that revolve around a specific topic.

- **Minds:** An open source social network where users earn MINDS tokens for contributing to the network. The token rewards are received when you create popular content, refer friends, or provide liquidity. The tokens can then be used to promote your content (1 token = 1,000 impressions) or send tips to content creators to show support and unlock special perks.

- **Chillchat:** A 2D pixel-based NFT Metaverse centred around art and socialising. Users can create and mint virtual worlds, characters, and pets. Chillchat aims to become the Discord 3.0 of the metaverse, where all NFT and real-life communities come together.

2.4 Messaging

Web2 Examples	Web3 Examples
- WhatsApp - Telegram	- Blockscan Chat - Status - Dialect

- **Status:** This dApp describes itself as a private, secure communication tool to uphold human rights and empower sovereign communities. It uses a peer-to-peer model that prevents any third party from controlling users' data. Status also combines the messenger tool with a crypto wallet and Web3 browser.

- **Blockscan Chat:** A messaging platform for users to engage in wallet-to-wallet instant chat with any Ethereum-compatible address. It is made by the team behind Etherscan, a widely used Ethereum blockchain explorer, and is currently in beta testing.

2.5 Reputation and Credentials

Web2 Examples	Web3 Examples
Behavioural data counts towards your credentials, which companies like Google and Facebook run algorithms on to send you targeted advertisements.	- Project Galaxy - POAP - Degen Score - RabbitHole - ARCx - Spectral

Reputation, or credentials, makes up a portion of the social fabric that you interact with. Credentials grant you access to certain privileges like driving a car or landing jobs, and send social signals that you have mastery of a specific skill. The very first credential issued to you was probably your birth certificate, which serves as proof of your identity. Credentials are important building blocks of your identity, providing context on you as a person and your competencies. These serve as proxies for your reputation.

- In **centralised structures, credential data is segregated across closed databases** that are owned and permissioned by applications, government organisations, and financial and credit institutions. Critics say that this has led to a fractured landscape that is not open to the individuals who should own that data or the applications that need it. In Web2 for example, all of your behavioural data counts towards your credentials. Companies like Facebook and Google run algorithms on your credentials so that they can send you targeted advertisements.

- Web3 **has the capability to enable users to own their credentials.** Social network applications can then use your credentials to find a suitable target audience, reward community contributors, and provide access to certain privileges. With the advancement of Web3 and DAOs, there could be an increase in behavioural data generated by waves of new users. This will provide the necessary infrastructure to help these new users build digital credentials.

Some examples of blockchain-based credentials protocols are:

- **Project Galaxy:** This project offers Galxe ID, which can be your universal username that represents your multichain/multiwallet identities in Web3. You can display the credentials collected in the Web3 world and showcase the history of your achievements. As a metaverse DID, developers can integrate the Galxe ID toolkit and offer customised features to users based on their digital credentials, or enrich user profiles in their product. Project Galaxy also offers Galxe OAT (on-chain achievement token), and Galxe Passport.

- **POAP:** Stands for "Proof of Attendance Protocol". It offers collectible NFTs minted under the Proof of Attendance Protocol smart contract. Each POAP is a digital record held by collectors as digital proof that they attended, or participated in, a physical, virtual, or spiritual event. POAPs act as an attestation of some form of interaction between the issuer and the collectors and have many uses for growing and connecting with your community. These collectibles can be used to control access to content and communication channels, engage people in collaborative initiatives,

distribute awards through airdrops or raffles, and various other applications. This can all be done without collecting or storing any personal information.

2.6 Tools

Web2 Examples	Web3 Examples
• Meltwater • Sprout Social • Agorapulse	• Mask • DeWork • TeaParty • Koop • Coinvise

Examples of Web3 social media tools are:

- **Mask:** Mask Network aims to bridge Web2 users to Web3. By bringing the decentralised application ecosystem onto traditional Web2 social networks, the Mask extension provides a decentralised option for features Web2 users are familiar with. Users enjoy secure, decentralised social messaging, payment networks, file storage, and file sharing without ever leaving their favourite Web2 social media networks. This is done via a browser extension, which introduces an ecosystem of popular Web3 dApps/features that works on top of existing Web2 platforms like Facebook and Twitter.

- **Dework:** A workflow management tool for both DAOs and contributors. Dework aims to make it easy for DAOs to let their communities vote on proposals, create bounties, track progress on those bounties, and pay out contributors. Individual contributors get their own profiles, where you can see tasks they have completed, how much they have been compensated for their contributions, which DAOs they are a part of, and what roles they have in their DAOs.

2.7 Content Creator Economy

Web2 Examples	Web3 Examples
• Medium • Substack	• Mirror • BBS • Rally • Paragraph • Sigle • T2

The content creator economy refers to the group of people who make money from their creations, typically as an entrepreneur on the Internet. The creator economy comprises, but is not limited to, artists, writers, musicians, social media influencers, photographers, and videographers. A key criticism of Web2 is that most of the revenue generated from content ends up with the platforms and not the creators.

- Web3 changes the creator economy landscape because, through blockchain technology, you don't need a middle-man to sit between creator and consumer. Instead, creators and consumers can engage peer-to-peer without a platform taking profits. In Web3, platforms also don't take ownership of the asset. Instead, the creator has full ownership of their assets. They can tokenise their work by launching a token, which fans can hold in the hope that it increases in value. Alternatively, they can mint their work as NFTs.

Some examples of blockchain-based projects for content creators are:

- **Mirror:** A Web3 publishing platform for writers. Mirror allows writers to mint their content as NFTs, whether it's a poem, an essay, novel, or short story. They can then monetise it by setting a customisable supply and price for their NFTs. Writers also become co-owners of the platform, rather than just users.

- **BBS:** A blockchain network of user-owned message boards, where users can create forums to post, comment, and share ideas while generating revenue from their content. BBS describes itself as Reddit forum with moderators, decentralised to run on any website. The network itself is the collection of all the BBS boards, wherever they are. Anyone can create a BBS board, on any subject, and run it on their own domain. Every post is an NFT that users can create, buy, sell, and collect revenue from the ad space on posts they own.

2.8 Feed

Web2 Examples	Web3 Examples
• RSS	• RSS3 • Context • Wall • Zapper

Social media feeds can track, aggregate, and present the latest activity and content from multiple social media channels. Some examples of such projects are:

- **RSS3:** An information dissemination protocol for Web3 with the core elements of feed and search. This means that wherever and however a piece of information is created and stored, RSS3 will deliver it to the apps and users in need. An example of this in a social networks context is RSS3's collaboration with Lens Protocol, a decentralised social graph. All activity on Lens will be accessible through the RSS3 API, rss3.io, and all apps built with the support of RSS3. Any app that wants to utilise data from Lens can do so via the RSS3 API.

- **Context:** This feed protocol allows you to watch the on-chain activity in other people's crypto wallets, so you never miss out on new and trending NFT projects. It can be used to watch the wallets of friends, influencers, DAOs, and celebrities. You can participate in the projects you discover right within the feed itself.

3. Conclusion

Web3's decentralised social networks built on blockchains are capable of being more resistant to censorship and excessive control, potentially disrupting traditional Web2 social media which is dominated by a handful of platforms. Decentralised social networks aim to enable participants to take back ownership of and better monetise their content and data. However, while there is significant potential in Web3 social networks, they are still nascent and face several challenges, including scalability and sustainable economic models.

- **Scalable infrastructure:** Social media interactions require large throughputs. For example, Web2 social media platform Facebook, according to some statistics, generates 4 petabytes of data per day. Every minute, 510,000 comments are posted, 293,000 statuses are updated, 4

million posts are liked, and 136,000 photos are uploaded. The challenge for Web3 social networks is whether they can handle this magnitude of activity. The scalability problems of blockchains are well-documented and Ethereum's much-anticipated recent transition to a proof-of-stake consensus mechanism (called The Merge), for instance, was implemented as a first step towards achieving greater scalability.

Read more about Ethereum: The Merge.

Some examples of technological innovations that are trying to tackle blockchain scalability problems are Layer-2 scaling solutions, sidechains, sharding, and zero-knowledge rollups.

Read more in our report Peeling Away the Layers: Introducing the New Layer-1 and Layer-2 Blockchain Landscape.

Read more in our report Scaling Blockchains: Layer-1 vs Layer-2 - An Overview of Scaling Solutions.

- **Sustainable economic models:** Similar to DeFi, another key challenge of SocialFi is creating economic models that sustain through stress and outlier scenarios. Decentralised platforms, be they DeFi or SocialFi, can offer large incentives for their participants. Yet, the jury is still out on whether these incentives are sustainable in the long run. Decentralised social networks are in their infancy and are still being experimented with on a small scale. Models must be stress tested through several market cycles and black swan events before gaining mass adoption.

  - For instance, if you are invested in an influencer's social token so that you can engage with their posts, you are exposed to the risks that they post something perceived as harmful. Such posts could lead to the devaluation of the social token and result in a cascade of losses to the participants of the system. In a social media platform, where influencers operate in echo chambers, losses to one key part of the ecosystem can potentially lead to contagion effects.

  - Another adverse situation could be if short sellers intentionally undermine an influencer to crash their social token's value.

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