The Social Network

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Abstract

There is a longstanding evolutionary drift that pushes organic life towards increasing levels of collaboration. Species that are most successful at evolution are able to grow their network sizes without destroying the host in the process. This is fundamentally achieved by decreasing the trust barrier and the communication barrier that exists between different life forms and integrating to become one with a shared purpose. Over the past two decades, humanity has increased its network size to billions of connected individuals, with over half of the worlds human population connected through online social platforms. These networks are controlled by central corporations tied to an economy that is now destroying the planet, and perpetuating a culture that ignores scientific progress for clout. As these corporations grow ever more powerful over the nation states and the governance systems they rely upon to function properly, human society faces a high risk of collapse if it does not evolve it's systems of organization. This paper offers a potential solution to the problem, by creating a new system of governance and economics for global social platforms that are sustainable for all life on Earth. Through a set of governance runtime modules and smart contracts on a decentralized, public, permissionless, proof-of-stake blockchain, The Social Network is a system to evolve humanity towards collaborating to create a better future for all life on Earth.

1 Governance

The desire of a governance system should be to maximize individual liberty while creating a better society for future generations. Ancient Egyptian Pharaohs, Greek Democrats, Chinese Emperors, European Kings, and American Presidents at their peak all had one thing common - their systems of governance succeeded in electing wise, far-sighted individuals, who prioritise decisions that achieve this above all else. Over time, power has shown to corrupt all, and once the people in power begin to value their own desires rather than the principles which the system requires, societies and governments collapse. The system of governance that has led humanity into the future for the past century is largely based on the Federalist papers written in 1787, which argued that rotating office, executive branch, small factions, and standing armies, would create a successful government.[1] Through a combination of societal shifts, globalization, and technological advances, a number of these assumptions are in need of a revisit.

In the last 10 years, a new technology has emerged which has demonstrated the potential to scale governance systems to meet the needs of humanities global social network sizes. The first iteration of this, was called Bitcoin.[2] Bitcoin spawned a network of users, miners, companies, and influencers from all nations, cultures, and languages. The universal language of mathematics, cryptography, and game theory was enough to coordinate the creation of a 100B+ currency and the worlds largest super computer without a central point of control. Since then, several advancements in distributed ledger technology, i.e. Ethereum, Decentralized Autnomous Organizations (DAOs), and on-chain governance (i.e. Polkadot/Tezos/EOS), have opened the door to creating a fully integrated governance/economic/social system. The Social Network demonstrates this by integrating an on-chain governance system with a network of society DAOs, made up of self-sovereign identities, contributing to the mission economy.

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1.1 Identity

Identity is integral to a functioning society and governance system. However today's forms of identity (usernames, emails, phone numbers) are created and stored on centralized databases owned by single corporations which gives them the power to censor and ban users at their whim. Another problem with the centralized control of identity becomes the ability for hackers to gain access to all identities with a single exploit on a central server, which only becomes more and more probable with time.

The Social Network enables individuals to own their own identity by utilizing Self-Sovereign Identity. All identities on The Social Network are based on public key cryptography via the Edwards-curve Digital Signature Algorithm.[3] Additionally, third parties (also represented by public keys) can sign claims and store them under the individuals public key address on the distributed ledger, giving services an easy way to grant permissions based on the claims an identity has been issued. As long as individuals randomly generate their private key, and are able to store their private key securely without losing access to it, the probability of an attacker gaining control of an identity is less than one in a quattuorvigintillion (roughly the number of atoms in the universe).

In the case an identity private key is lost or stolen, The Social Network implements a social recovery system which works by specifying a set of trusted identities (friends, family, or service providers), a recovery deposit, and a threshold of approvals required to port an identity to a new cryptograhic keypair. To initiate a social recovery, the initiatee must pay the deposit and prove to the specified threshold of trustees that it is a valid recovery request, if it is not and the original owner still owns the key, they can cancel the recovery request, and claim the deposit paid by the attacker. If the request is successful, the ledger history of the previous address remains in tact and is ported to the new cryptographic keypair. More advanced systems of monitoring and alerting can be built on top of this be third party service providers to limit disadvantages, but the ultimate benefits of self-sovereign identity are expected to far outweigh the minor inconveniences that may arise from having to manage your own identity.

1.2 Societies

In 1787, the Confederation of America had just ended a large war, and was in dire shape, and a battle between anti-federalists (claiming decentralized governance was the best) and federalists (claiming central governance was the best) ensued to design a new system of governance for what would later become the United States of America. The most significant defence of central government rests on one crucial premise; that national politicians will be wiser and more far-sighted than state and local politicians, who were said to be "the wrong kind of men", uneducated, unenlightened, lacked foresight, experience, and national vision. Nationalists argued that a wise senate would protect the people from being manipulated by fear to see the larger picture. This then became the core reasoning behind not letting people govern themselves.[1]

Fast forward 200 years, and humanity is now witnessing the most powerful democracies in the world electing politicians who utilize social platforms to manipulate the public. Through fake news and highly sophisticated psychometric based targeting, these centralized, for-profit social platforms have the power to control even the most educated, enlightened, and experienced governments, by manipulating the public for corporate gain and political power. Simultaneously, humanity has developed speed of light communication systems to achieve global consensus faster than ever before, yet relies on legacy voting systems as slow as the post office to determine who can make executive decisions. Today's social platforms now contain the knowledge of humanity, and are used to come to consensus and identify leaders through a combination of social graphs (followers/connections), and content filtering (tags/topics/likes). What is missing is a way to

allocate the executive power of a given problem to the right leaders on social platforms, and distributed ledger technology can help solve this.

Societies on The Social Network are initialized by a founder, and able to specify their own criteria for membership approval or rejection, allowing for location, nationality, interest, or knowledge based Societies to be created. After founding a Society, a proxy account address is created and set to the founders identity. As more members join, this proxy address can be changed to a multi-signature account, a DAO contract, or any other smart contract developed by the open source community. This allows for the rapid evolution of various forms of transparent, programmable, and upgradeable governance systems which collaborate together forming The Social Network Executive Branch. Madison argued in Federalist paper 10,[1] that a successful governance system must prevent majority factions, which is why the United States constitution called for each senator to represent a maximum of 30,000 individuals. For this reason, The Social Network Societies must elect a representative for every 77,777 members. Additionally, because there is no restriction on Society creation in the digital space, only the top 777 Societies will be elected to the executive branch.

According to Alexander Hamilton, the problem with decentralising executive power is that it becomes impossible to determine who the responsibility falls on if the execution is split between any more than one person, or in other words, responsibility is shifted with so much dexterity that the public is always left in suspense to determine who to blame.[1] This is also playing out in relatively new blockchain governance experiments, where experiments with smart contracts and other on-chain governance systems have raised billions of dollars, and achieved very little non-speculative results when compared to their centralised competitors. It is simply much easier to monitor a single executive for good behaviour than any number of executives greater than one. For this reason, a verifiable random function will select a random Head of Society to act as the President of The Social Network Executive Branch to report the current state of the network to the rest of the world, and provide direction in times of indecision.

1.3 Missions

Every major government in the past was involved in a war against humanity. The Bank of England issued the first bank note to pay off the Kings war debt in 1694, the United States of America created the federal reserve to fund military expenditure, and the list goes on since the 1400's. A standing army however necessary it may be, is always dangerous to the liberty of others, and with today's global social network reminding us daily how connected we really are, makes little sense. With the removal of the gold standard, and the introduction of credit and digital banking, the need for paper money has largely disappeared. Talks of a digital dollar are now emerging by central banks across the world. If implemented correctly, this could be a good thing for humanity. To evolve from this past, The Social Network introduces a set of fixed supply digital currencies, representing the Missions.

On October 24th, 1945 at the end of World War II, a network of nation states came together to form what is now the largest intergovernmental organization in the world - the United Nations (UN). The original intention was to promote peace and security and prevent future world wars. But with the turn of the new millennium, the United Nations expanded their role from global peacekeeping to international economic and social cooperation, human rights, freedom, and other roles around building a better future for humanity. They defined a set of 17 Sustainable Development Goals (SDG's) for the world to achieve by the year 2030.[4] If the goal is to evolve the global social network, the objectives of the United Nations provide a great place to start. For this reason, The Social Network introduces a set of 17 Mission digital currencies, representing each of the UN SDG's. Additional Missions can be added or removed to adapt to the changing

needs of humanity over time by The Social Network Executive Branch.

Societies can create goods and services to earn the Mission digital currencies from the public, and also by applying to The Social Network treasury where they are minted into, outlined in the next section. Societies which hold the most reserves in Mission tokens, will be used to determine which Societies are best aligned with the current objectives of The Social Network. Token holders can vote on which Missions are the highest priority using the native blockchain token, to better allocate resources to Societies aligned with those missions, and elect their leaders to The Social Network Executive branch on the next governance rotation period. Rotation periods are set to be 7 days by default, but this is configurable by the blockchain token holders in the future, allowing for The Social Network to redirect global resources to the current needs of Society orders of magnitude faster than any governance system to date. With the Mission governance system, individuals are able to gain a level of transparency of what The Social Network is focused on, and where funds are going in real time, that can scale to meet the needs of the planetary era. Combined with Self-Sovereign Identity and Society DAO's the benefits of centralized governance can be balanced with the powers of decentralized to reduce corruption and realize a vision which philosophers of the past only dreamed of.

2 Economics

Energy is and always will be the currency of life. Real economies are completely dependant on energy, and thrive when new forms of energy are found. The wars of the previous century and access to fossil fuels is largely what determined who experienced the most growth. However, the repercussions of burning fossil fuels has led to the biggest dilemma of this century, how will humanity maintain economic/energy growth, without destroying Earth's ability to sustain life? Most politicians and economists know this, and instead of facing the reality, decide to kick the can down the road by printing more capital to keep the illusion of growth going.[5] Unfortunately this does not solve the underlying issue and only makes matters worse. It is for this reason that the native currency on The Social Network Blockchain will be named, CHI to remember it's connection to the fundamental unit of currency in life, energy.

CHI will be the native unit of accounting on The Social Network Blockchain, which can be linked to a unit of renewable energy, and used to pay transaction fees to incentivize a decentralized network of Validators to secure a public, permissionless, Proof-of-Stake Blockchain. A portion of the transaction fees automatically collect into The Social Treasury, which can then be used to fund the creation of more sustainable Societies in the world by the governance system. Generally speaking, systems which maximize useful energy, generally out compete those which do not. Which is why the economics of The Social Network will aim to maximize it's ability to decrease the trust and communication barrier by uniting all of humanity towards a shared set of missions through decentralized autonomous organization (DAO). Similar to how Bitcoin was able to demonstrate a system of shared trust in banking, The Social Network will demonstrate a system of shared trust in human purpose.

2.1 Staking

Proof-of-Work Blockchains like Bitcoin waste a lot of energy. Instead of incentivizing an arms race of computing resources to secure the decentralized ledger, The Social Network utilizes a nominated Proof-of-Stake algorithm used on the Polkadot blockchain[6] which drastically reduces the energy requirements of securing transactions. Validators run nodes and attract capital (CHI) to be non-custodially staked by a Validator, and the more CHI is staked on a Validator, the

higher the likelihood a Validator will be selected to validate blocks and earn block rewards and transaction fees.

Upon Genesis, 77m CHI will be issued and distributed to the first social platform to be built that implements the protocol. Block rewards are allocated 70% to stakers and the 30% to the global treasury. Initially the block reward will be set to an inflation rate of 20% per month, and will decrease at a rate of approximately 3.72% to result in a total supply of roughly 7.7B CHI around the year 2030, when inflation will become negligible. Additionally, Validators on The Social Network are able to specify a Mission they wish to support, to attract stakers who also believe in the same mission. When block rewards are paid to Validators, the corresponding Mission digital currency will be minted and transferred to the global treasury for Societies to earn by providing goods and services aligned with that mission.

The Mission digital currencies have a max supply of 7,777,777,777 tokens that can be issued, to roughly represent the global population. The more capital is staked to a mission, the faster it will reach the total supply. This system enables CHI holders to direct the energy of The Social Network towards different missions at any moment in time by simply reallocating their stake to different Mission Validators. Provided the Social Network government can garner enough votes, new missions can also be added in the future to re-align the network towards new missions in the future.

2.2 Treasury

The Treasury sits at the center of The Social Network. With no central point of control, it is controlled by a Decentralized Autonomous Organization (DAO), consisting of the of Societies, Validators, and CHI holders on The Social Network. The treasury collects funds by automatic distribution of transaction fees (originally set to half of the fees), and the minted Mission digital currencies from block rewards given to Validators. The allocation of these funds is left to participants of The Social Network to decide, but it is suggested the following guidelines are followed and enforced by the governance system and community which forms around the network:

1) CHI should be distributed to the fund the creation of renewable energy production for Societies on The Social Network, creating a network of self-sustaining Societies. Therefore as usage of CHI goes up, more of these Societies can be created.

2) Mission digital currencies should be distributed to Societies that are dedicated to helping solve the global missions, and accept the mission tokens as a form of payment. This will serve to create a market for competing to create better goods and services that are aligned with the missions, and drive usage of both the mission tokens and CHI.

Without the production of scientific projects the printing of more money does nothing. What has happened in the last few decades is the invention of social media, which has distracted the mass of society from one of an academic merit driven society, to one of influence and social clout. Combining this e-news type of society with mass printing of money, will surely cause the system to fail. The Social Network Treasury provides a solution by enabling social platforms for Web 3.0 to couple themselves towards a greater purpose of evolving the collective human intelligence, rather than dumbing it down.

2.3 Finance

Bitcoin's primary success was to demonstrating a technology that can decentralize the banks, and the second largest blockchain, Ethereum's primary success was demonstrating how to

decentralize the financial markets. Ethereum accomplished this by creating Turing complete programming language on the blockchain called the Ethereum Virtual Machine (EVM), enabling 'smart contracts' (software programs stored on chain) to perform operations on blockchain assets, and opening up a world of possibilities beyond simple balance transfer. In 2018, Ethereum smart contracts surpassed the amount of funding given to startups than traditional Venture Capital, and in 2020 smart contracts which replace financial services like lending, exchanges, and insurance now have over $10B USD deployed.

Instead of increased regulations and bureaucratic processes to reduce the trust required for the retail sector to access financial services, decentralized finance accomplishes the same with audited, open source code that is utilizes mathematics and distributed ledger technology. As trust in financial industry is declining worldwide, trust in decentralised protocols and digital currencies are rising as demonstrated by the exponential growth of the decentralized financial industry in the past 3 years. For this reason, The Social Network Blockchain utilizes two forms of smart contract programming based on the Substrate framework:[6]

1) An Ethereum Virtual machine, which enables unmodified Ethereum smart contract code to be deployed to The Social Network Blockchain. Existing Ethereum smart contract tooling and the solidity programming language can be used to write and compile and deploy code to the Social Network Blockchain. EVM smart contracts will ideally be used by smart contract developers offering Decentralized Finance (DeFi) services on The Social Network, as they can seemlessly deploy already audited and battle-tested Ethereum DeFi smart contracts.

2) Ink, A WebAssembly (WASM) based smart contract and runtime module based system. This newer smart contract language features a number of performance optimizations, and allows for greater correctness and safety by using the Rust programming language. Ink smart contracts will be ideally used by developers of Decentralized Autnomous Organization's (DAOs), enabling Societies to plug and play with a set of various DAO smart contracts for their needs.

3) Runtime modules, which enable core components of The Social Network code to be modified, added, or removed with permission of The Social Network Governance system. These runtime modules provide low level access to the entire blockchain, and have a high barrier to entry, making them only useful for cases of emergency and require consensus from a majority of the network token holders to go live, unlike smart contracts which allow for permissionless innovation.

3 Social

The original intention of online social platforms controlled by corporations began in innocent ways, i.e. as ways to share photos and videos with friends. However, in the past two decades, technology companies have battled in boardrooms to control the combined knowledge and attention of humanity, and as a result grown more power than even the strongest nation states. By collecting ever increasing amounts of data on billions of people across all borders, religions, and cultures, they are able to influence the largest nation states in the world and earn a profit from it by selling this control to the highest bidder.

Online social networks are produced for some purpose, and with some design, embody some meaning. Therefore platforms built on The Social Network will hopefully provide much greater meaning and connection to humanity than social platforms of the past, and avoid the pitfalls that previous social platforms have fallen into. Funding of these interfaces can be done through The Social Network Treasury, and attract developers who understand the potential for this new open

source system. Addition features of the economy can be developed by smart contract developers to further extend The Social Networks capabilities to allocate capital to solving the problems humanity will face. If a fraction of the tremendous talent that has been used for creating better mass manipulation systems to sell people things they don't need, is instead applied to creating a better life for all of humanity, the outlook for humanity does not need to be so bleak.

Platforms built on The Social Network can rely on the built in mechanisms and incentives to enforce a cultural boundary, but must constantly act to maintain it's integrity. A potential solution is to breaking this problem into three levels of responsibility: missions (responsible for coordinating global scale problems), societies (responsible for coordinating larger scale projects towards the missions), and circles (responsible for completing smaller tasks for the projects). This will allow anyone to jump in and make a local impact, while relying on a transparent and decentralized financial and governance system to trust that it is actually making an impact on the global goals.

Current social platforms organize and exploit human beings for corporate gain, have led to an increase in depression rates, narcotizing dysfunction, and promotes consumerism in the form of games and fandom. With the rise of AI, humanity now must make a very important decision - continue on the path to domestication by the technology they created, or reclaim their freedom and humanity by reclaiming and re-purposing The Social Network. In the future the key challenge for our time for society will be to build and nurture sustainable communities.

4 Conclusions

If we look at all of humanity as one united organism, Earth as its vast nervous system, a global brain in which each of us is a single nerve cell. Like nerve cells clustering into ganglion, humans have organized themselves into clusters of communities. Society's slower forms of communication like the postal service are like our relatively slow chemical communication networks of the body. The faster, electronic based telecommunication networks are flashing billions of messages back and forth just like the fibres which link nerve cells in our brain, and our vast data centres of messages, videos, blogs, and other records can be seen as the memory storage of the global brain. The higher order functions like our ability to process information, learn and gain wisdom, are very much like the financial markets ability to gain knowledge and invent new solutions to grow the global intelligence.[7]

The Social Network embodies a philosophical underpinning of the current time: the belief humanity's accepted forms of large-scale decision-making aren't working well, and proposes a new system to attempt to solve the systemic issues facing global governance, economics, and society. Human biology is not going to change for some time – but our culture and our economic system could. How will we use the coming financial/energy recalibration to move towards a slower, wiser, less damaging system? What sorts of responses would be beneficial? What sort of new stories do we need? If the 2020 health, ecological, economic, and government crises have shown anything, it is the need for a completely new system that is sustainable for generations to come. Instead of repeating history and risking the total collapse of humanity by not evolving our systems, humanity must evolve into a more advanced, collective human race. This is the potential of humanity that The Social Network is hoping to unlock.

References

[1] Alexander Hamilton, J. J., James Madison "The Federalist Papers." (1788) (accessed 13 March 2020) http://www.foundingfathers.info/federalistpapers/fedindex.htm.

[2] Nakamoto, S. "Bitcoin: A peer to peer electronic cash." (2008) (accessed 13 March 2020) https://bitcoin.org/bitcoin.pdf.

[3] Bernstein, D. J. "Curve25519: new Diffie-Hellman speed records." (2006) (accessed November 2020) https://cr.yp.to/ecdh/curve25519-20060209.pdf.

[4] United Nations, G. A. "Transforming our world: the 2030 Agenda for Sustainable Development." (Published September 2015), https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1.

[5] Hagens, N. "Economics for the future – Beyond the superorganism." (Published March 2020 - Vol 169 - Ecological Economics), https://doi.org/10.1016/j.ecolecon.2019.106520.

[6] Wood, G. "Polkadot: Vision for a heterogeneous multi-chain framework." (Published 2016), https://polkadot.network/PolkaDotPaper.pdf.

[7] Russell, P. "The Global Brain." (Published 2011), https://www.youtube.com/watch?v=B1sr9x263LM.