The Starter's Guide To The Open Web

NEAR Protocol and The New Frontier of Opportunity

An 4NTS Guild Publication by

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Introduction

Technology is a fundamental economic and cultural force that has permeated all aspects of human existence. It has changed the way we work, the way we communicate with one another, how we learn, and has generally allowed us to increase our living standards to an incredible degree. It provides endless possibilities for human development and is indeed the key to tackling many financial, social, and environmental challenges.

However, what is becoming evident is that technology is not only a tool to improve life, but also a tool to control it. And while the economic benefits of technological development have mostly benefited a few, its burdens are shared by the masses. Although nobody nowadays can do away with technology, we have very little influence over technological developments. Technology has been the domain of computer programmers and experts - alone - and that has reduced its users to become passive consumers of technology, unaware and unable to critically assess its influences. As a result, average people have suffered from a loss of agency while also becoming more vulnerable to exploitation and manipulation from technology providers.

A striking example of this new form of control is **Big Data**. Large data sets can be analyzed computationally to reveal patterns and trends relating to human behavior and interactions. Collection of this data relies on the use of technology by the population and people's willingness to share personal information. It is collected from social networks, websites, apps, and any use of smart devices. What this digital infrastructure allows its owners to do is unprecedented in our history: To foresee human behavior, to study its patterns, and consequently to develop techniques of control and influence. Shoshana Zuboff has coined this use of private data to shape human behavior in accordance with the marketplace needs '*Surveillance Capitalism*'. Surveillance capitalism: "claims private human experiences for the market dynamic and repurposes private human experience as a free source of raw material for production and sale" (Shoshana Zuboff, 2019). It translates private experience into behavioral data, which then turns into predictions on human behavior which are then traded among businesses.

"In defending itself against another e-mail scanning lawsuit, this one filed in early 2014, Google Accidentally published information about its email scanning process in a court hearing, then quickly attempted and failed to have that information redacted or removed. The case involved the question of precisely what was scanned or read by Google. According to the plaintiffs in the case, which included several large media companies, including the owners of USA Today, Google realized at some point that by scanning only the contents of the inbox, they were missing a lot of potentially useful content. This suit alleged that Google shifted from scanning only archived e-mail, which resides on the Google Server, to scanning all Gmail still in transit, whether it was sent from an iPhone or a laptop while a user was sitting in Starbucks."

- Kevin Mitnick The Art of Invisibility, pg. 32

We are in an era of tech dominance where companies like Google, Amazon and Facebook have an unprecedented amount of control over people's personal data. These companies effectively have the tools to stave off competition and to manipulate people's behavior to increase their financial gains. As the internet is becoming central in our lives, we cannot allow financial returns to be prioritized over our freedom and well-being. Effectively we need to look for alternatives that will not only guarantee a better lifestyle, but also secure and strengthen our freedom of choice and opportunity.

The Opportunity At Hand
A New Ownership Economy

Digital technology is the key to a cultural and social revolution that will allow us to achieve greater equality and greater freedom. Through it, we can rethink the role of institutions and also find solutions to the ongoing socio-economic crisis. In various respects, blockchain technology already constitutes a step in the right direction as it effectively challenges the status quo and provides alternatives to re-establish people's agency. Due to its decentralised nature and their underlying economic incentive models (tokens), blockchain also represents a possibility to radically change the socio-economic landscape bringing about more humane ways of creating, sharing, and distributing wealth.

Blockchain is a tool to decentralise relationships, contracts imbued with value, as well as decision making and ownership. In light of its distributed design, these interactions are prevented from being mediated by gatekeepers of various kinds. As a general purpose technology, the amount of possible blockchain applications are numerous, with thousands of projects being built at the time of writing. The projects range across topics such as governance and accounting tools, to reputation systems, notarizing documentation, digitizing art ownership, lending and sharing value, insurance, social tokens and many others.

Blockchain effectively constitutes the possibility to democratise technology and to grant its users greater freedom and possibilities of creative expression. As this technology develops, we need to break down the barriers to understand blockchain. We must find out what value it can bring to people's life and what concrete problems it can solve, and what challenges it may encounter in its development and concrete applications across industry verticals.

The Current State of Affairs:
What Is Technology For Us?

Technology is often conceived as something that eludes our control, something purely technical that only experts can understand. It is also considered a positive force of development that makes our daily life more easy and pleasant. We trust technology precisely because it absolves such a benevolent function in our lives and because we tend to see its development as neutral in itself. But as Shoshana Zuboff puts it: "[T]echnology is not and never can be a thing in itself, isolated from economies and society" (15).

On the one hand, technological development is bound to the economic incentives of a particular society. In the case of capitalist societies, its development is oriented at the fulfilment of specific market needs, namely cheaper production and securing consumers. On the other, it fulfils socio-political needs that are defined by decision-makers and people's representatives in the case of a democratic society.

Indeed there is nothing inherently wrong in wanting to maximise profits and finding new more efficient ways to do that. And neither is it problematic to put technological development in the hands of decision-makers. However, when hunger for profits leads companies to abuse people's trust and their right to privacy, and when governments do not represent people's interests anymore, we come to understand how technology can quickly be turned against us - oftentimes without even realizing it.

It is becoming increasingly obvious that technology allows companies and governments alike to pursue projects of control and manipulation that bluntly violate people's rights to privacy and freedom without their knowledge. And now like never before we need to find alternatives to counter this worrisome state of affairs. In the pages to follow we will discuss the various problems that arise from the current state of affairs and we will examine how and to which extent blockchain can provide a solution to these issues.
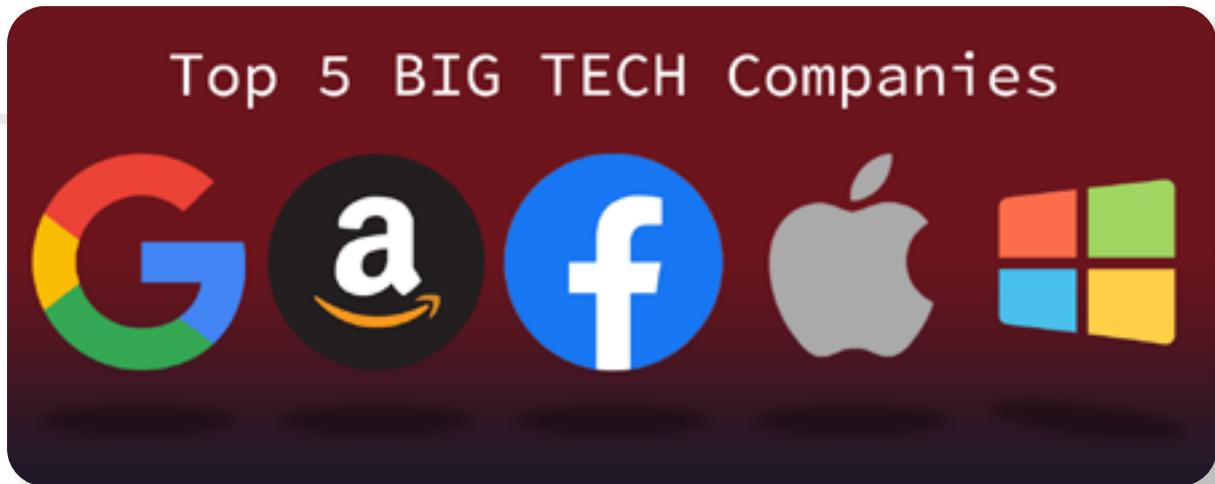
Surveillance Capitalism and the Advent of Psychopolitics

The terms *Surveillance Capitalism* and *Psychopolitics* were introduced by philosophers Shoshana Zuboff, and Byung-Chul Han respectively, to describe the processes of control and manipulation implemented by the society of information. These terms are particularly useful for understanding the dynamics that are taking place in societies where technology is used (or rather misused) for the fulfilment of economic and political objectives that disregard people's rights.

Surveillance capitalism is a more efficient evolution of capitalism that allows the economic system to thrive thanks to the exploitation of consumers' behavioural data. Companies like Amazon, Google, and Facebook rely on people's use of digital connection to gather data that can help them and other companies to improve their products and to anticipate future needs. Not only does this result in a disproportionate amount of power and profits concentrated within these companies, but it also affects the freedom and privacy of individuals as they unknowingly utilize such platforms.
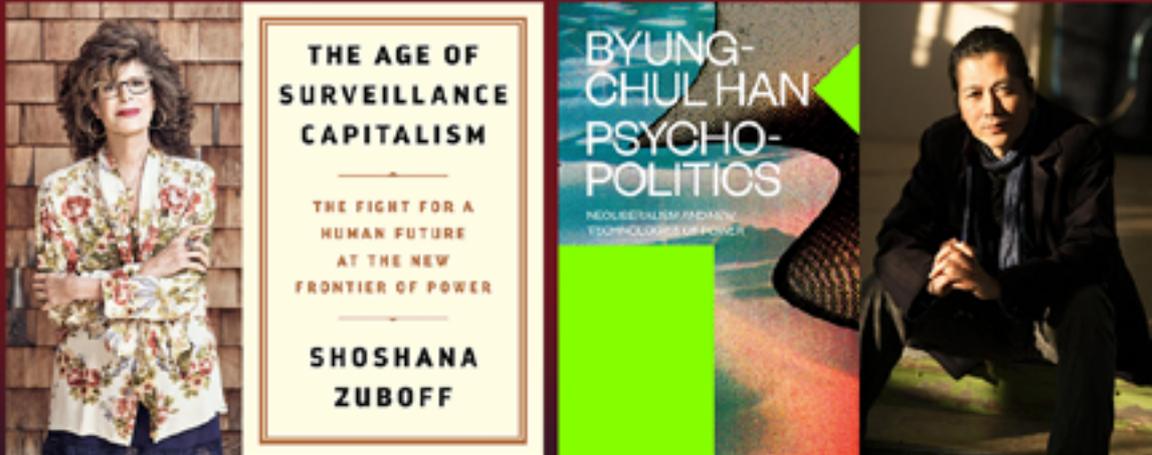
Shoshana Zuboff   Byung-Chul Han

Amazon is one of the prime examples of the misuse of big data. Its business model is based on the use of predictive analytics that allows for aggressive and manipulative targeted marketing. On the one hand that helps the company increase customer satisfaction and therefore increase loyalty, and on the other it promotes unhealthy consumerism. By using a collaborative filtering engine (CFE) Amazon analyses your purchases, your searches, your wish list, etc.. and creates targeted advertisements, promotions, price changes. In an investopedia article by Jennifer Lewis, Amazon scheme is succinctly explained:

"Big data is also used for managing Amazon's prices to attract more customers and increase net income (net profit) by an annual average of 143% between 2016 and 2019.17 Prices are set according to your activity on the website, competitors' pricing, product availability, item preferences, order history, expected profit margin, and other factors. Product prices generally change every 10 minutes as big data is updated and analyzed. As a result, Amazon typically offers discounts on best-selling items and

earns larger profits on less-popular items. For example, the cost of a novel on the New York Times Best Sellers list may be 25% less than the retail price, while a novel not on the list could cost 10% more than the same book sold by a competitor".

Amazon's success is effectively built on a business model that exploits the personal information of its customers to create desires and lure them into buying more products that they would not even have thought about without the deployment of such aggressive marketing strategies. This gives Amazon a competitive advantage over other businesses and it also makes it imperative for them to copy their scheme.

As Amazon is the most successful business on the planet and has a net worth of $ 1.7 trillion, it is going to become the major player in other industries as well, in particular the security industry, especially considering the amount of information this company has and is allowed to use freely and share with other parties. In light of this state of affairs, we should reflect on the implications it is going to have on our lives and the lives of those only growing up today.

Google is probably the most powerful corporation operating with a whopping 92% of internet searches going through Google Search. Its many services go beyond that: It powers a majority of apps in the Play store, handles emails of a large portion of the world, and has even started offering Cloud services for file storage. Through such activities it is able to collect data about users' every click, tap, query, and movement from all of those sources and more. Its big data techniques and tools are by far the most advanced in the tech industry. That makes Google a great successful business that is able to provide efficient services, but is also what makes it a powerful tool of surveillance and exploitation.

Google claims that it does not sell its users' data, but that does not mean it does not capitalise off of it. In fact, it uses data to build individual profiles with demographic information and interests which allow advertisers to target groups of people based on their qualities. Additionally, it capitalises on users' information by real time-bidding. The extents of Google influence, though, go way beyond marketing. In a 2010 interview, Eric Schmidt, Google's former CEO talked about the fact that knowing so many things about someone's personal life, like preferences, location, etc. enables them to accurately guess what your thoughts might be too. This of course gives them a great deal of power and influence.

What is even more disturbing though, is that Google has a lot in common with intelligence agencies as they both are keen in gathering personal information. It is not a surprise that Google works with the military and government contractors. In an article published by The Guardian, Yasha Levine gives a concerning outline of Google's involvement with military and intelligence agencies. Throughout the years Google closed off lucrative deals with the likes of more the NSA and CIA. In a deal with the NSA from 2003, Google provided the agency "with a customised search solution that could scan and recognise millions of documents in 24 languages".

This is just one example of the deals Google is involved with. In general there is much more to Google's involvement with intelligence agencies showing the extent Google helps support the development of an increasingly controlling surveillance state.

facebook

In recent years it has become clear that Facebook has been using artificial intelligence to analyse their behaviour of its users. Facebook has also been known to use this data for the creation and spread of propaganda as well as targeted advertising.

The most notorious case of Facebook's detrimental effect on society is the 2014 Facebook-Cambridge Analytica data scandal where millions of users' data was sold without their consent to Cambridge Analytica for the purpose of targeted political advertisements. These data were used for the spread of propaganda and fake news which created a disruption of democratic processes.

As Google and Amazon, Facebook has access to a huge amount of personal data that enables the company to create detailed profiles of its users. This precious information is very valuable to other companies that are willing to pay lump sums of money to Facebook to access it in order to optimise their products.

Facebook constantly optimises itself and creates features that lures people into spending more time using the social network and sharing more precious information. Users basically spend their time and energy to create Facebook's wealth without even knowing it. But what is worse is that users do not know how their data is used, to whom they are sold, and what the implications are going to be.

The most troubling aspect of this way of conducting business is that users are not aware that the data and content they freely share on platforms such as Facebook is sold to other companies for huge sums of money to produce targeted advertising. What the analysis of these data allows, however, goes beyond marketing. As these companies have access to very private information about our preferences, and behaviour, they

are able to derive information about our psychology, our weaknesses, future behaviour and use them to fulfil different objectives e.g. political control.

What this scheme gives rise to is an incredible asymmetry between provider and user: "Surveillance capitalism knows everything *about us*, whereas their operations are designed to be unknowable *to us*. They accumulate vast domains of new knowledge *from us*, but not *for us* (11)". Needless to say, the user finds himself at loss in this kind of relationship.

Figure 1: The Behavioral Value Reinvestment Cycle
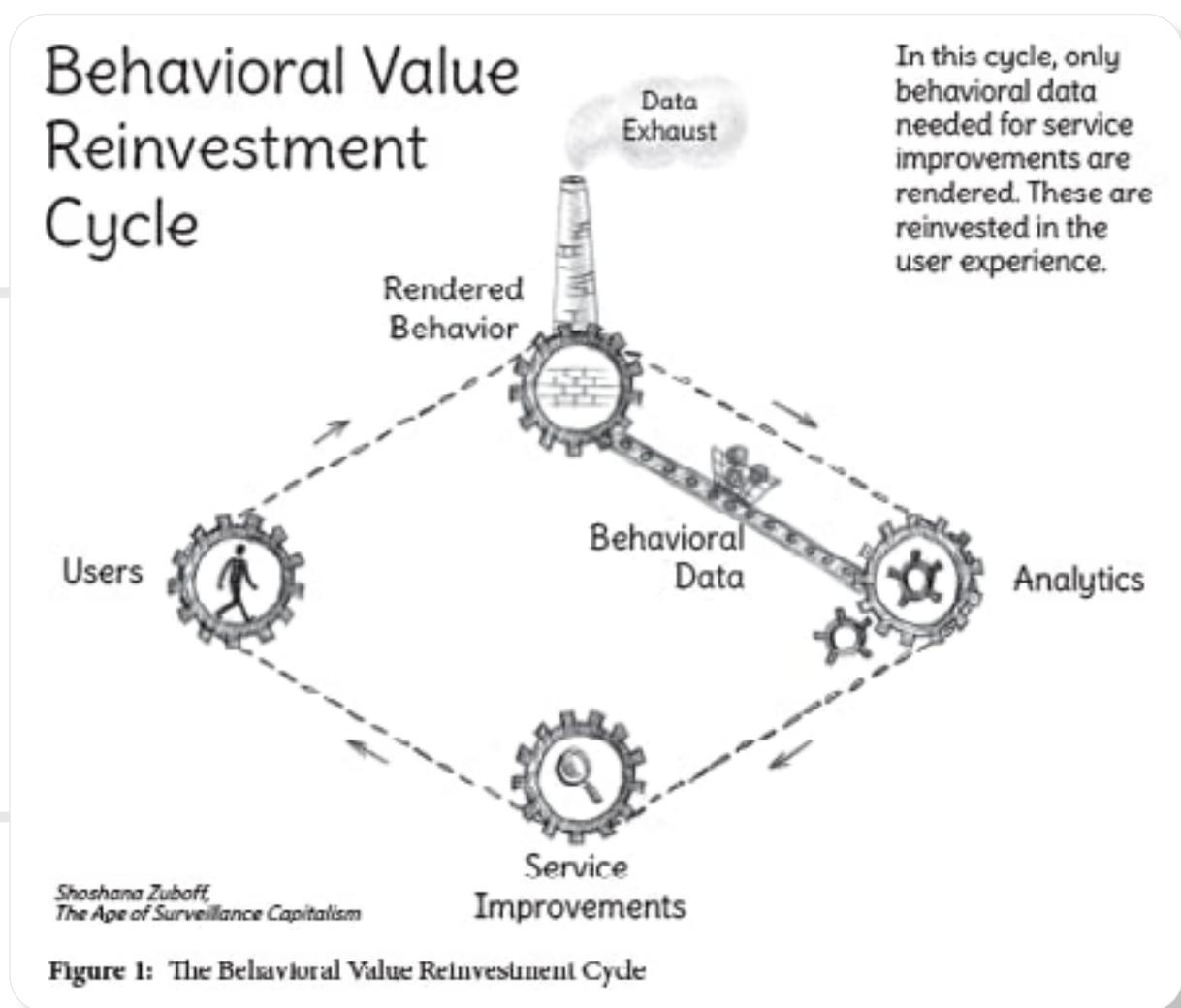
In *Psychopolitics: Neoliberalism and New Technologies of Power* (2017), Byung-Chul Han warns about the psychological control that surveillance capitalism makes possible. In fact, the access that companies and governments alike have over people's sensitive information is unheard of even for the most authoritarian governments of today. Users are not coerced to share their information; they are rather lured into that, and are kept unaware about the consequences that this bears.

By willingly sharing our information we make surveillance easier. Big data allows us to get insights into dynamics of social communication and patterns of human behaviour, and consequently the development of techniques of control and manipulation. For instance, by having access to our online thoughts, habits, desires, the technologies of control have the ability to study our emotional responses and exploit them.

Triggering emotional responses becomes very easy when you have intimate knowledge of someone's psychological makeup: "Emotions are performative in the sense that they evoke certain actions:

> *"Emotions are performative in the sense that they evoke certain actions: Like inclinations, they represent the energetic and sensory foundation to action... They constitute the pre-reflexive, semi-conscious, bodily-instinctive place of action, of which one is often not properly aware"*
> (*Psychopolitics*, p. 59).

The mobilisation of emotions is particularly useful since emotions give rise to quick reactions, open up new needs and fields of consumption, and they allow ideas to find their way into our memory more easily. In short, this system that relies on the exploitation of personal data is particularly efficient because it allows those that possess the data, to trigger emotional responses to achieve their goals.

Reclaiming data ownership becomes crucial if we want to avoid manipulation, for this reason, we urgently need to look for digital alternatives that enable users to retain control over their data. It is no longer acceptable that people's private experiences are exploited behind their backs and treated like any other good. Technology should lead to more freedom and not to more efficient control and exploitation of the population. We need technologies that represent these values and that prioritise them over profits.

Can Blockchain Resolve these Problems?

Blockchain is one of the most revolutionary inventions in recent memory. It's development built off of research on cryptography by Stuart Haber, Scott Stornetta, and David Chaum that in the late seventies laid the foundations of what would later become blockchain. Notably, it is Satoshi Nakamoto (pseudonym) who is credited with pioneering blockchain technology as we know it today. In 2008 a paper on Bitcoin was published which defined Bitcoin as: "A Peer-to-Peer electronic cash system". They put forward an electronic payment system based on the concept of cryptography. It provided a solution to reduce the costs of transactions, and to prevent issues of double spending and traceability. Soon after the release of this paper a program to implement the Bitcoin system was released and gained huge success.

Blockchain is "a distributed ledger technology [that] enables the secure transfer of money, assets, and information via the Internet without the need for a third-party intermediary, such as banks or other financial institutions" (Swan 2015, ix). It is a public electronic ledger based on a peer-to-peer system that is openly shared among different users to create a record of transactions that are virtually impossible to change. Each page in a ledger of transactions forms a block and that block has an impact on the following block through cryptographic hashing that creates a unique code that ties it to the next block.

Because blockchain's development is tied to Bitcoin, there is the tendency to equate blockchain to Bitcoin, however, Bitcoin was only the first application of this technology. In fact, blockchain's applications go well beyond the financial realm. With many promising developments in past years, blockchain applications have the capacity to recreate and reimagine human systems so as to help us tackle the most pressing challenges of our century.

This allows blockchain to be a secure digital registry to record, transfer and verify asset ownership and to preserve the integrity and authenticity of sensitive documents or records (Swan et al., 2017). Because of the decentralised nature of blockchain, the data hashed on chain is much more secure than those stored in a centralised database. Consequently, blockchain offers new perspectives on the way we make services more secure and efficient.

How Can Blockchain Empower You and Your Community?

Blockchain' decentralised nature and economic incentive models (tokens) represent new ways of improving the current socio-economic structure and enhance people's agency. As blockchain users can rely on the resilience and irreversibility of the system, it provides them with greater freedom, transparency, and security in transactions. Moreover, it can be employed for recording anything that can be expressed in code, from birth certificates to titles of ownership and votes (Swan 2015, p. 9–28), proving to be an incredibly versatile tool.

Because a blockchain operates as a decentralised database where data is replicated across several unrelated nodes, no single node can assume control of users' data or act as a gatekeeper. Users can control their information and transactions in the ledger that can be accessed through encryption keys that are independent from the service or application that generated it (Dickson, 2017). This allows users to to handle one's

own data and offers the possibility to overcome the downside of a centralised architecture that leaves tech giants and corporations in control of private data which they monetise without our consent.

The Central Value Proposition of Blockchain: Blockchain offers an infrastructure that is neutral and more secure than any centralised system since the control is shared among a distributed network of stakeholders. For this reason, it can be seen as a tool for strengthening trust and efficiency in trade and the public sector alike. Through the necessary encryption and control mechanisms, blockchain safeguards transparency by storing information in such a way that it cannot be altered without recording the changes made. The terms of every transaction remain irrevocable, being open for inspection to everyone or to authorised auditors. That makes it easier for users to engage in transactions, execute contracts, etc. as the system provides solid guarantees.

The transparency and accountability that public blockchain technologies afford can play a huge role in limiting online surveillance, censorship, detecting human rights abuses, limiting corruption, and providing new ways of fractionalizing and distributing value. In short, blockchain provides a foundation for a new type of economy - one that is centered upon personal ownership of assets and data. This economy is known as the **Ownership Economy**.

The Ownership Economy
Where Value is made Transparent, Fractional, Contract Based, and Global

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Define Ownership Economy: In its narrow sense, the ownership economy, as explained by Jesse Walden, is an economical system offering *"platforms that are not only built, operated, and funded by users—but owned by users too"*. [Forbes](#) explains the mechanism as follows: *"In the ownership economy, users become owners by consuming a product or putting money or assets into the system. For example, in the context of a financial product, you would put in crypto, which then gets lent out, either as crypto, stablecoin, or converted into fiat."* As a broader concept, the ownership economy strives to bootstrap adoption, participation and individual empowerment through a better economic alignment directly between users.

Smart Contracts = A New Form of Management Responsibility

Ownership encourages users to contribute more to a product or protocol's development in terms of generating creative ideas, developing communities, and sharing computing resources, so as to effectively stimulate innovation and interaction. This stands in stark contrast to traditional development models: Consider for example, when a developer in a big company X builds some cool software. He creates some Z value. Yet, this Z amount is not entirely translated into his income. A percentage is retained by his manager; the manager of the manager; the director of the board and also perhaps the director of the board drizzled with the director sauce...You know how that works. And these people might not even have a slightest idea how to write a line of code.

In comparison, building on open-source cryptographically-secure protocols, developers have the ability to share in the value created for other uses within a platform. Blockchain eco-systems appeal to a token economy in which value is fractionalized and distributed directly between users. On the protocol level of the blockchain, developers can autonomously decide how the accrued value of services/libraries/software will be

distributed amongst participants, while creating the protocol: Future decisions are decided upon by vote.

Smart contracts (or peer-to-code contracts) are the instrument of the ownership economy that has the potential to solve the issue of unnecessary intermediacy. What exactly are smart contracts?

Define Smart Contract (Peer-to-Code Contract): *"Computerised transaction protocols which autonomously execute the terms of a contract"* (Tapscott&Tapscott, 2016). Smart contracts are actually smart. Imagine you want to buy some property and there is a whole range of regulations from different parties involved and a bunch of transactions to be made. All of that hussle can be done without third parties by a computer code protocol that executes the terms automatically when the conditions are met. Once the programmed code is entered in the blockchain, it cannot be changed and always operates following the command.

This efficient and cost effective transactioning system eliminates our heavy dependence upon traditional intermediaries (commercial lawyers, banks, credit systems, manager of managers, etc.) and allows our developer to get paid what he actually earns without paying any commissions. Long live distributive justice!

Smart contracts boost efficiency because the rules of the transaction are validated beforehand. The code is basically just waiting for the party to meet the terms to execute the operation. The authorisation of the transaction is unlikely to be delayed because your lawyer is sick. It will not be "forgotten" because it is the end of the fiscal year or transferred to the new consultant with his own issues because the other one simply died (We wish him a long and happy life of course... perhaps far away from the blockchain though). Obtained disintermediation reduces the power of the human factors, hence the optimal capacity.

Just as the ownership economy goes far beyond tokenization, smart contracts have a broader scope of applications across industries of society. In fact, if you are not a developer and still wondering why the heck smart contracts are important for larger society and the infrastructure of the future, consider the following use cases:

Use Case #1: Improving data transparency in clinical trials using smart contracts (Nugent et al., 2016)

Clinical trial practices have the reputation of suffering from poorly manipulated statistics, missing data, endpoint switching, data dredging and selective publication. Consequently, researchers obtain results that do not represent underlying reality at hand. So, what? Well, in the best case scenario these results get published in some poor quality article, which is bad but not that bad. In the worst case scenario, we get a vaccine that harms (if not kills) certain groups of people due to fraudulent clinical trials. While the scientific community tries to prevent these (un)conscious frauds on the side of the researchers, the government does not have much to offer. In this context, smart contracts can act as trusted administrators in data manipulation. A data infrastructure for handling clinical trials can be merged with a set of smart contracts to provide a history of public records clarifying the validity of a particular study or trial. This time-stamped document indicated by a transaction serves as a proof-of-existence verification and immutably captures all aspects of data reporting during all stages of the trials. This way, the researchers need to stick to the initial clinical protocol and they become unable to mess around with the measurements, subject sample size and other scientific sins to fish for their holy grail of 0.05 statistical significance. Simply put, smart contracts help modern science to overcome the scientific statistical crisis.

Use Case #2: Empowering Artists and Musicians (Pentland &Hardjono, 2019)

A data cooperative for artists and musicians (or member-owned organizations) has a legal responsibility to its members in the access, management, and use of the members'

personal data for their benefit. Blockchain and smart contracts in particular can remedy the various challenges currently faced by the cultural sector with regards to license tracking management for artists and creators.

Firstly, a data cooperative can include shared repositories with authoritative information (or metadata) regarding the creation of a given piece of content on a shared IT infrastructure. The main issue today is the lack of consistent and complete metadata regarding the creation of a given artistic work. Metadata does not include the actual work itself or carry the legal ownership or copyright information of the musical work. It just serves as a timestamped proof of existence. Secondly, a shared ledger for music/ art metadata registration can enhance and automate tasks or functions related to the music rights and licensing between users downstream from the artists.

Eventually, smart contracts will also save creators time and money in dealing with legal costs due to the shared standard software template that all artists will be using to tokenize or value their work. Again, like our developer who loses the percentage of his salary to the manager, artists will be able to automatically share their revenue with the whole supply chain of related actors and intermediaries (consisting of a music publisher, a record label, webcasters, digital service providers....).

Overall, creators are faced with a situation today where individual assets and personal data is being exploited by intermediaries and middlement, without sufficient value being returned to the creator (Have you heard of Taylor Swifts' dispute to re-record some of her early songs?). Blockchain enables a variety of new models for the community support of art, music, and media through the use of smart contracts and tokenized value. We assume that legal institutions could support data cooperative services as well, but unfortunately existing laws are not yet aligned with the developing technology.

Legal Issues Accompanying Smart Contracts

At the time of writing, developers all over the world are building the technology to reimagine and recreate many of our existing systems using code and peer-to-code contracts as a new form of managing responsibility. The reasons to be optimistic about smart contracts are abundant: increase in commercial efficiency, reduce transaction and legal costs, support transparent transacting, permeability and applicability in various domains of the society. We welcome the dawn of smart contracts, yet we want you to have the full picture- Regardless of whether you are just reading this for fun or you are someone who is about to make a choice. We want you to have the chance to make valid, well-informed, and committed decisions by addressing the potential difficulties surrounding smart contracts and the future development of open-source blockchain protocols:

Who can enter the contract?

A big question is whether minors can legally enter the field of smart contracting. Should they have limited exceptions? For instance, purchasing an item on Amazon would be fine, but what about when it comes to alcohol? Should elaborate screening procedures be in place for determining age- or does this challenge the open-source and free nature of the protocol?

Contracting with the Wrong Identity

This one is not as easily solved as the minors issue. Assuming a false identity is a common practice for financial theft and identity fraud across cyberspace, and to make matters more complicated, users have thousands of nicknames/login names on the web. There is a need for legal enforceability here as well: Where do we draw the line between verifiability and anonymity?

The "Momentum"

When has an offer officially been made and accepted? Is it once the purchasing party transmits the offer? Once the offer is received and authenticated through consensus?

Or when it is coded and added to the blockchain? The answer is not straightforward yet and existing laws do not capture this either.

Certainty of terms

While humans use natural language to communicate, computers (and programmers) use high-level programming languages. Smart contracts are drafted and encoded by programmers. The question is: How will regular humans like judges in court treat the content of smart contracts if they cannot even correctly interpret the terms thereof?

Remedial Issue

Once the smart contract enters the blockchain, it is nearly impossible to amend the terms. Error correction of the digital contracts is extremely time-consuming and complex. What we definitely do NOT want is to apply traditional contract law to rectify mistakes in the smart contract code.

### Establishing Legal 'intent' in Further Contracting

Some contracts are smart enough to enter parties into subsequent, separate "follow-up" contracts. But should the 'bot' be able to enter human beings into a legal relationship? In England, for instance, automated computer systems are not able to bind parties because they are thought to lack consciousness of a human mind. The situation in the US is more mixed: it acknowledges the legal power of computers in some cases but not in others. The moral of the story is that the global legal regulations do not have a clear-cut procedure for working around smart contracts, so we need to start looking into that before blockchain technology enters its full mode.

We have given a non-exhaustive list of examples that illustrate the immense potential blockchain and specifically smart contracts offer to the world. As a tool of the ownership economy, smart contracting allows for distribution of resources and responsibilities in a new, decentralized, fair and transparent way.

Why Build on NEAR?
"The devil is in the details"

Today cyberspace enjoys many blockchains which means that it is very unlikely that there will be one universal blockchain in the future. This is not necessarily a bad thing because each blockchain ecosystem compliments one another in creative ways with its own unique internal architecture. Additionally, competitive collaboration is good: It means a better product for the user at the end of the day. Yet, if you are just getting into the crypto space or willing to start building on a certain blockchain, the agony of choice might be overwhelming. They all strive towards the same goal but "the devil is in the details" (Near Without The Noise #2, 19:22).
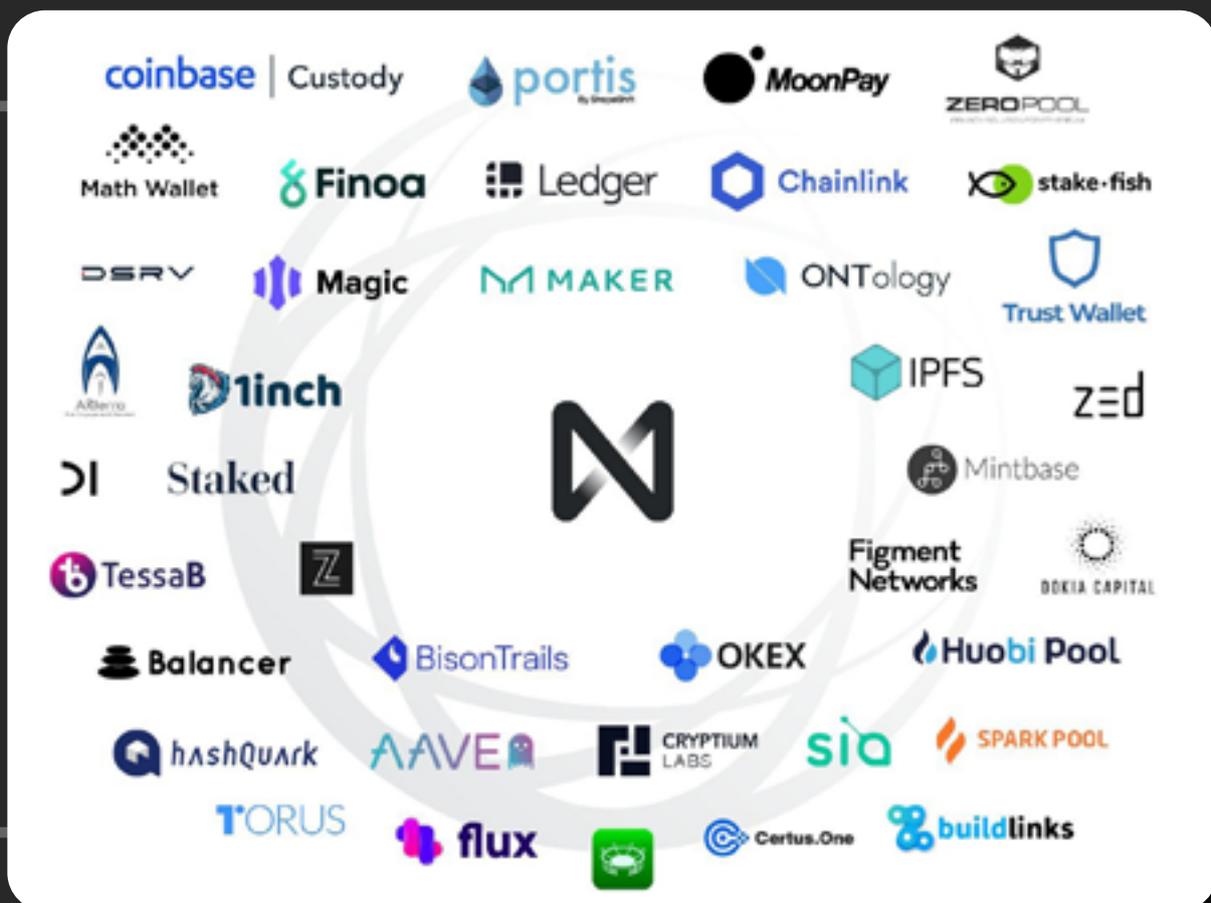
NEAR Protocol is already making an impact in the crypto space.

The best way to understand this game, according to the Technical Product Manager at NEAR Dr. Alex Shevchenko, is to look at blockchains as different countries that have distinct political regimes, social systems, and mentality. It is up to you at this point to choose the country where you want to live, work and make money.

NEAR Protocol is one of the most cutting-edge Layer 1 blockchain ecosystems that exist nowadays. Being in line with the values of the ownership economy, the NEAR team translates their philosophy of collaboration, decentralization and efficiency into action by creating a dynamically sharded cloud platform capable of handling high transaction volumes with miniscule fees, and 30% returns to developers for the contracts they code.

Looking at the history of the project, the NEAR Team has always been excited about attracting bright minds and supporting them through education: This is most evident through the NEAR sponsored Open-Web Collective, as well as the NEAR Whiteboard series. Having introduced The Guild Program, NEAR has emphasized the importance of nurturing responsible and interested members who will maintain the ecosystem. There are many ways to reach out to the NEAR team regarding any question, so feel welcome to contact them with any ambition.

Next to building a strong community, NEAR Protocol has been designed to collaborate with other blockchains. Since there will be no single blockchain any time soon, projects need to think about effective communication between each other and with their end users. Often the perspective of the developer who started building on one blockchain and is willing to move to the new one is being neglected. The transition is often extremely uncomfortable, requiring a lot of extra effort from the user's side in addition to learning new programming languages and re-building their products.

At the moment, the NEAR team is working on an [ETH-NEAR Rainbow Bridge](#) which will allow a smooth transition for developers from Ethereum to NEAR and vice-versa. If you have built a decentralized application on Ethereum, it will be time consuming to write the code from scratch in order to deploy it on another blockchain environment, like NEAR. NEAR has solved this migration problem. You can just take the code of your smart contract as it is (or with minor changes) and deploy it on NEAR. The goal here is to provide Ethereum developers with a smooth transition to NEAR. Once the Rainbow Bridge is ready, it will be easier to re-apply the principle to other blockchains, optimizing communication and interoperability between different blockchains further. The Rainbow Bridge is just one of the concrete actions NEAR has undertaken in attempt to create a truly decentralized and permissionless architecture.

NEAR is a quietly professional protocol, led by a team of world class developers and crypto experts. However at the end of the day, it is the design of the core protocol that speaks for itself: On NEAR usability and scalability are emphasized before all else. This means that developers can expect to build dApps quickly and easily in Rust or AssemblyScript, but also their gas fees will be miniscule and the protocol will scale with more mass traction over time.

Governance and New Paradigms of Collaboration and Power

"But who will guard the guards themselves?"

Juvenal circa A.D.

How does the blockchain regulate itself? How does it determine the rules for interaction? The terms of joining? The rules for interactions with 'outsiders? How are the rules of the smart contracts updated when needed? And most importantly, who will be accountable for all of these to be executed properly? No one and everyone.

The blockchain is a novel technology for governance. Unlike traditional governance systems that always require a third party, the new paradigm of collaborative governance seeks to solve the coordination problem in group decision making. Check: The guards will guard themselves. And that is why the guards must learn to coordinate better.

DAOs: What Are They?

Decentralized Autonomous Organizations (DAOs) that govern certain crypto projects are coordinated by the stakeholders of a protocol invested in its security, development and design. On a more fundamental level, crypto economic incentives and self-executing code ensure the day-to-day operations of a protocol, most frequently in the form of validating new transactions and voting on governance proposals (sometimes one, sometimes the other, sometimes both). They keep the network safe and get rewarded for it by the native network tokens (crypto-economic incentives). As such, token holders of a protocol effectively guide collective action and account for individual pieces of information (activity) coming from everyone's perspective. They work to ensure the protocol continues to function in line with the beliefs of the community. Through this process, crypto democracy happens.

DAOs tackle the problem of traditional governance in multiple ways. DAOs are transparent: everyone can check on how the code operates. They standardize collaboration rules: Members of DAOs are not bound by any legal relationships, there is

only one governing "law" - the protocol (or smart contract) that regulates the behavior of all the network participants and the capacity to vote as a token holder. While traditional laws differ across countries and times, this stays interchangeable: code only appends new information and does not remove anything.

While the founding fathers of crypto projects are there to direct the network from its infancy up until the launch of the protocol, they then slowly vanish and hand over power over the protocol to the network users who are already familiar (important!) with the system. At this point, we are talking about a protocol DAO - a fully decentralized, open organization that is run and controlled by software. Members of such an organization have learned to interact with it so that no third authority is needed to supervise the processes. For this, companies in crypto (and all the other ones too!) need to honestly ask themselves: Can the culture of my organization compete? Is collective decision-making effective? Can the organization detect its own mistakes and correct them?

Today we do not yet have fully decentralized and autonomous organizations; the rules of the smart contract are always the point of centralization. Nevertheless, the concept of DAOs has attracted thousands of brilliant minds to deal with that issue but they still lack the critical elements for effective collective decision making. As such, there is an underlying need to pay more attention to the social aspect of governance and self-organization: The technology is already there, but the humans still need to learn how to interact with it and probably re-learn how to collaborate efficiently with each other.

The moral of the story is that the tools and mechanisms of the networks should all be aligned with the community's shared goals and strategy, create additional social value, and contribute to its shared identity. To arrive at the point of 100% effective DAOs, the user-experiences have to be co-designed by and for the members.

What Kind of Leaders Do We Need?

In developing crypto-teams we aim at a new smart collective. That means that we cannot lose the founding team soon after the native token is launched. Teams tend to distance

themselves from participating in the protocol governance as an attempt to decentralize leadership and governance of the protocol. Wait, but this is what we wanted, right? Decentralize power. Well, yes. But not too soon.

We first need to build an empowered community of members. The team should not leave the scene before it has incentivized network participation and established a time frame for growing and scaling the network (until such a point arrives that the network is self-sustaining without the guidance of the said organisation). The team needs to provide guidance, decision-making power, and structure to the distributed ecosystem. To nurture such a community, the team needs to prioritize collective participation where earnings are allocated to members based on how much they use the network (versus amount of equity they hold). Giving concrete examples, one might think of:

1. Including tokenholders into the decision-making processes about choosing the management or upgrading the protocol, for instance. The network should allow members to contribute to its governance. People love to be heard, and when they feel they are, a strong commitment to the system is likely to evolve.

2. Focusing on utility and not the price. Encourage motivation to use the services the network provides instead of focusing on the financial return. This allows for liquidity to accrue, participation to scale and to retain members that are genuinely interested in the vision and mission of the project.

3. Rewarding tokenholders based on their contribution to the network (eg. lending or staking tokens). The more activities they do, the more they get rewarded. That is the loop of real value creation!

4. Being transparent and consistent when providing information to the members. What you want is to give your members the full picture necessary to make valid, informed and committed (investor) decisions.

5. Introducing lock-up periods. A lock up is a timespan when the tokenholders cannot sell their tokens. The amount of locked up tokens is one of the biggest growth indicators at the moment. Members seeing that people are cashing out their tokens at the first day of sale undermines members' good anticipation of the long run profits. Locking up the token means sustainability, also in the eyes of investors. Thus, to strengthen the confidence in the token and show commitment to the protocol, the team can introduce a lock up period upon launch of the protocol.

In addition to the above mentioned principles, asset tokenization also contributes to the creation of an engaged community of people. The "token economy" fractionalizes ownership by opening more investment opportunities. Since tokens are highly divisible, it becomes easier for anyone to pursue a very small percentage of the underlying asset. Also, a token economy is all about transparency, because everything the tokenholder does is visible for the rest of the community. Members are, consequently, endorsed to behave in the right way on the network. Last but not least, tokenization helps long-term orientation and sustainability because the tokenholders manipulate their tokens within the community (using tokens for payments of the services offered or investing), which endorses more activity on the network. Then users are again rewarded by the tokens for their performance. This loop does not let the value created to escape the network. Instead, it promotes even more interaction, cooperation and mutual benefits by backing each other up.

Sharp Darts is a Validator On NEAR That Epitomizes This Collaborative Mindset
As a validator, Sharp Darts will stake NEAR tokens you delegate to it. In return, they will take a small percentage of the reward and then use that to invest in new projects launching on top of the protocol. This virtuous cycle demonstrates how in a collaborative ecosystem, value is distributed in a shared and open manner so that at the end of the day, if the protocol wins, everyone wins.

To sum up, the blockchain community strives to be an open community. There is still a huge gap between the regular population and IT developers about what blockchain is and also about the new rules of the internet in general. The teams and the leaders in the new paradigm of collaboration should do their best to involve their members more to eliminate this information asymmetry.

The situation today is that users enjoy super fast access to the online content throughout the world because all the web user data is centralized in the hands of Google, Facebook and other profit-making entities. In doing so, users also become more and more dependent upon the cyber monopolists. DAOs offer a new way to break free from this loop allowing users to claim their freedom and regain control over their data. Today, public trust in technology like Facebook is decreasing. That means that we are at the right moment to reassess what we do and how we do it across cyberspace.

Where Do We Go From Here?

The transitional paradigm shift from Web2 to Web3 is taking place before our eyes. A new way of approaching value, ownership, internet platform development, and data security has presented itself through the evolution of open-source crypto-economic protocols. In light of these developments two concluding points should be mentioned:

First, existing systems of surveillance and control, handled by big tech companies, are entrenched and expanding into new domains of reality. As a result, the status quo of surveillance, data capture, and data manipulation will not only continue, but actually expand deeper into our lives. From this perspective the development of crypto-economic protocols is a breath of fresh air at a time when big tech and big data are eating the world.

Second, as a general purpose technology, blockchain has the potential to infiltrate and disrupt many of our existing systems and infrastructure over time - well beyond the

domain of finance. In the coming years, it is clear that new blockchain based solutions will reinvent industries, from real estate, to mitigating climate change, to handling smart cities. The plethora of opportunities available is in many ways reminiscent of the early 1990s for the original internet: The best is yet to come. To conclude, we would like to encourage everyone to familiarize themselves with the fast developing crypto industry, and specifically take a close look at NEAR Protocol and the opportunities it holds for entrepreneurs, developers, and users everywhere.

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A Note About 4NTS Guild:

4NTS Guild is an early Guild of the NEAR Ecosystem. At 4NTS we work within the NEAR Ecosystem to promote the creation of a better and more Open Web through the different projects launching on NEAR Protocol. We are at the beginning of a world-changing paradigm shift in the way we digitize and handle value. We believe that in order to build an open-web, collaboration and communication from participants everywhere in the world is the best pathway forward. You can learn more about 4NTS and the many other Guilds in the NEAR Ecosystem at Nearguilds.com.

We Hope To Have You Building In the NEAR Ecosystem Sometime Soon.

Ozymandius, Founder and Head of 4NTS Guild

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