Crypto Politics:
Notes on Sociotechnical Imaginaries of Governance in
Blockchain Based Technologies

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This chapter examines sociotechnical imaginaries of governance in blockchain based technologies, focusing on the Ethereum project.[1] After introducing the subject matter, three approaches towards the question of governance by leading figures of the Ethereum project are described: First, the approach of fully automated algorithmic governance (advocated by Gavin Wood); second, the techno-social approach (promoted by Vlad Zamfir), which emphasizes the importance of human participation and in so doing, keeps humans decisively in the loop. Lastly the radical liberalist approach (supported by Vitalik Buterin in cooperation with Glen Weyl) has been incorporated.[2] While at times directed towards different levels within the discourse-spanning both the ongoing debate on how a given blockchain based platform itself should be governed (governance *of* blockchains) as well as propositions for the use of blockchain based technologies as tools for governance (governance *by* blockchains)— each of the three approaches exemplifies a specific reasoning regarding the general question of how to govern. It is this reasoning and the associated sociotechnical imaginaries of governance, that are the subject of this chapter.[3]

doodle [ˈduːdl**]**

daydreaming with figural intentions

[1] The *Etherum* project is a public, global, open-source, blockchain-based distributed computing platform for 'decentralised' applications. First proposed in December 2013 by Vitalik Buterin, it went 'live' in July 2015. Like other blockchains, it has its own cryptocurrency (in this case, 'Ether' or in short ETH) as inherent part of its protocol design. Cf ethereum.org/what-is-ethereum/

[2] These points will be taken up directly, but see: CleanApp (2018) 'The Wood-Zamfir Governance Debates,' blogger, *Crypto Law Review,* at medium.com/cryptolawreview/the-wood-zamfir-govern-ance-debates-80e92436a457 and Vitalik Buterin (2019), 'On Collusion,' *Vitalik Buterin's Website* at vitalik.ca/gener-al/2019/04/03/col-lusion.html, as well as: Vitalik Buterin and Glen E. Weyl (2018), 'Liberation Through Radical Decentralisation,' *Medium* (blog), at medium.com/@Vi-talikButerin/libera-tion-through-rad-ical-decentralisa-tion-22fc4bedc2ac

[3] The ideas for this chapter emerged out of intense dis-cussions, collabo-rations, frustration, and joy at the RIAT in Vienna during the time of the Data Loam project. It had been a practice that oscil-lated between art, theory and applied technological skill. My thanks go out to all the people involved at RIAT during that time. Thanks also to Felix Stalder and Robert Seifert for their feedback on previous versions of the text and thanks to Jaya Klara Brekke for the insightful exchange on the politics of blockchain based technologies. This text owes a lot to all of these people. The vast majority of this chapter has been written in late 2018–19. When possible new sources have been added during the publishing process of the book.

Introduction

A blockchain is a cryptographically secured, 'decentralised' distributed ledger, that stores data in a highly verifiable way, for as long as the given blockchain is maintained. Blockchains were invented as the base layer technology of the cryptocurrency Bitcoin, but have since been promoted as a multi-purpose technology with a variety of supposed use cases. The blockchain based technologies described in this chapter are 'permissionless' blockchains, meaning that the data stored in the blockchain is publicly accessible and that anyone with sufficient knowledge and equipment can potentially engage in the process of verifying the integrity of the data being stored and create new blocks for the chain. The term 'decentralised' is set in inverted commas, since it is frequently used within blockchain communities as a marketing term and often used in a highly ideologically loaded manner. The often underlying suggestion, that power structures within blockchain based networks are 'decentralised' is highly questionable, as is the suggestion that blockchain based technologies could be used to decentralize somewhat automatically (political) power in other fields of society.[4] Rather, the notion of 'decentralisation' is an essential part of the narratives that inform the sociotechnical imaginaries of governance that are the subject of this chapter. Sociotechnical imaginaries are defined by Sheila Jasanoff as "[...] collectively held, institutionally stabilised, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology."[5]

In order to develop (seemingly) plausible visions of future governance, the architects and advocates of blockchain based technologies presuppose certain assumptions about economics, philosophy, and politics as given. By including certain positions and excluding others, a quasi-naturalisation of thought is being performed, a naturalisation that itself stands on the shoulders of assumptions within the respective fields. Together these naturalisations form imaginary standpoints (e.g. around the notion of decentralisation, markets or privacy) that serve as a common ground upon which the sociotechnical imaginaries of blockchain based governance are being developed.

[4] Angela Walch (2019), *'Deconstructing "Decentralisation": Exploring the Core Claim of Crypto Systems,'* in Chris Brunmmer (ed), *Cryptoassets: Legal, Regulatory, and Monetary Perspectives*, Oxford: Oxford University Press, 39–68.

[5] Sheila Jasanoff (2015), *'Future Imperfect: Science, Technology, and the Imaginations of Modernity,'* in Sheila Jasanoff and Hyun Kim (Eds.), *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, Chicago: University of Chicago Press, 19

The cypherpunk movement

From the start, deeply political 'visions of desirable futures' played a crucial role in the development and propagation of blockchain based technologies. The ideological roots of the technology lie in the cypherpunk movement, with its emphasis on privacy and strong ties to anarcho-capitalism and US-type libertarianism in the form of so-called crypto anarchy.[6] Timothy May, author of the canonical *Crypto Anarchist Manifesto,* describes it as the 'absence of government':

"[Crypto anarchy has] the same sense of anarchy used in anarchocapitalism, the libertarian free-market ideology that promotes voluntary, uncoerced economic transactions."[7]

Correspondingly the success of Bitcoin is closely tied to narratives of dissident rebellion against the State, up to the point of a hoped for technological escape from politics altogether.[8] Yet, while the ideological framework of crypto anarchism certainly informed the invention of digital currencies and specifically that of Bitcoin and does indeed live on to be of influence within the community of blockchain enthusiasts, it has to be clearly stated that not all cryptocurrencies or blockchain based technologies in general subscribe to a crypto anarchist framework.[9] Rather, the open source nature of blockchain based technologies created a variety of ways in which the technology was approached, both in terms of use cases apart from crypto-currencies, as well as in terms of ideological and political orientations.[10]

[6] Cf Eric Hughes (1993), *A Cypherpunk's Manifesto*, at activism.net/cypherpunk/manifesto.html and Timothy C. May (1988), *The Crypto Anarchist Manifesto*, at activism.net/cypherpunk/crypto-anarchy.html, as well as Eric Hughes (1994), *Cyphernomicon*, at ia800208.us.archive.org/10/items/cyphernomicon/cyphernomicon.txt

[7] Timothy C. May (2001 [1994]), 'Crypto Anarchy and Virtual Communities,' in Peter Ludlow (ed.), Crypto Anarchy, Cyberstates, and Pirate Utopias, (Cambridge, MA: MIT Press), 69.

[8] For a somewhat polemic, but still informative account cf: David Golumbia (2016), *The Politics of Bitcoin: Software as Right-Wing Extremism*, Forerunners: Ideas First, (Minneapolis: University of Minnesota Press), 9–32; for a much more nuanced analysis of the political in blockchains that is very much relevant for this chapter, see: Jaya Klara Brekke (2019), *Disassembling the Trust Machine: Three cuts on the political matter of the blockchain*, PHD Thesis, (Durham University), 71–87 at distributingchains.info/wp-content/uploads/2019/06/Disassembling-TrustMachine_Brekke2019.pdf; more specifically on the role of the state see: Marcella Atzori (2017), "*Blockchain Technology and Decentralised Governance: Is the State Still Necessary?,*" in the *Journal of Governance and Regulation,* Vol 6, number 1, 45-62 at dx.doi.org/10.22495/jgr_v6_i1_p5

[9] Brett Scott (2014), "*Visions of a Techno-Leviathan: The Politics of the Bitcoin Blockchain*," E-International Relations, at www.e-ir.info/2014/06/01/visions-of-a-techno-leviathan-the-politics-of-the-bitcoin-blockchain/

[10] Matthias Tarasiewicz and Andrew Newman (2015), "*Cryptocurrencies as Distributed Community Experiments,*" *Handbook of Digital Currency*, (San Diego: Academic Press), 201–22 at doi.org/10.1016/B978-0-12-802117-0.00010-2

11 For financial industry, see: Deloitte US (2020), "*Global Blockchain Survey,*" at deloitte.com/us/en/pages/consulting/articles/innovation-blockchain-survey.html; For platform cooperativism, see Platform Co-operativism–P2P Foundation (n.d.), at wiki.p2pfoundation.net/Platform_Cooperativism; For FairCoin, see: Thomas König and Enric Duran (2016), *FairCoin V2 White Paper* at chain.fair-coin.org/download/FairCoin2-whitepaper-V1.1.pdf

12 Vitalik Buterin (2015), "*The Evolution of Ethereum,*" at blog.ethereum.org/2015/09/28/the-evolution-of-ethereum. See also Vitalik Buterin (2013), *"Ethereum: The Ultimate Smart Contract and Decentralised Application Platform*," at web.archive.org/w20131228111141/http://vbuterin.com/ethereum.html

This resulted in a diverse field of actors being interested in the technology from the now heavily invested financial industry to platform cooperatives and syndicalist structures like the Faircoin community.[11] An important step in the process of diversification was the development of a blockchain-based distributed computing platform mentioned at the outset: Ethereum. The project went live in July 2015 with the premise of being a blockchain with a built-in Turing-complete programming language that would allow users to build any kind of applications on top of the platform.[12] The wide range of potential applicability of its generalised technological architecture, the consistently high influence within the fast paced blockchain community, and the active discourse among its developers and communities about social, political, economic and philosophical questions regarding the impact of blockchain based technologies on society, make Ethereum the ideal case study.

The mentality of governance

The uses of the term governance in the approaches presented in this chapter are diverse. It is not my intention to correct or to discredit these different notions, nor to provide another narrow definition of the term. Instead I will use the term governance in two ways: First to refer to an ongoing discussion within the Ethereum community and the broader blockchain community that labels itself to be a discourse around questions of governance.[13]

13 Vlad Zamfir (2018), "*How to Participate in Blockchain Governance in Good Faith (and with Good Manners),*" at medium.com/@Vlad_Zamfir/how-to-participate-in-blockchain-governance-in-good-faith-and-with-good-manners-bd4e16846434. Cf Vitalik Buterin (2017), "*Notes on Blockchain Governance,*" at vitalik.ca/general/2017/12/17/voting.html. For later debates, see Vitalik Buterin (2018), "*Reply by Buterin to Zamfir's 'My Intentions for Blockchain Governance',*" at medium.com/@VitalikButerin/i-replee-with-your-anti-immutbility-posi-3694b565e2b, Brian Fabian Crain and Gavin Wood (2018), "*#259 Gavin Wood: Substrate, Polkadot and the Case for On-Chain Governance,*" *Epicentre Podcast*, at youtube.com/watch?v=eP-4mT19S_jg. Cf Frederik Harrysson, Anna Rose, Gavin Wood and Vlad Zamfir (2019) "*Vlad and Gav Go Head-to-Head on Blockchain Governance,*" *Zero Knowledge Podcast*, at www.zeroknowledge.fm/52

Within this I will make use of the differentiation between the governance of blockchains—meaning the ways in which a given blockchain based platform is itself governed—and governance by blockchains meaning the use of blockchain based technologies for the purpose of governance.[14]

The second way in which I will make use of the term governance is embedded in Michel Foucault's concept of governmentality, which emphasizes the strong relation between governing (*gouverner*) and modes of thought (*mentalité*).[15] Within this I highlight the essential role of 'a conduct of conduct' that places economic thought in general, and specifically the market, as a producer of truth at the centre of contemporary rationales of governance.[16] This broadened definition of governance coming from a perspective of governmentality studies allows for the analysis of underlying layers of assumptions that inform the positions that are being examined in this chapter. Ultimately it is concerned with the different rationales that are brought forward in order to argue for specific types of governance as parts of 'visions of desirable futures.' It aims to contribute to the discussion by shifting the view to the ground upon which the argument is being held.

Building unstoppable applications: Ethereum as a case study

Ethereum was invented in order to transcend the narrow use case of blockchains as simple ledgers for cryptocurrencies. While also having its own cryptocurrency, called Ether (or ETH in short), the Ethereum blockchain was built in order to allow for the execution of any kind of computation within the blockchain, thereby providing a base layer infrastructure for a decentralised internet-to-come. From the start, imaginaries of automation have played an important role in the construction of sociotechnical imaginaries of governance. The supposedly immutable nature of blockchain based technologies gave these imaginaries a twist of unstoppable force that led to the Ethereum advertising slogan 'build unstoppable applications.'[17] The unstoppable in this case is meant literally, since any application built on top of Ethereum would be distributed throughout the whole network and run on what Ethereum's developers call a 'world computer'. Hence a programme run on the Ethereum blockchain could not be turned off by simply shutting down a single computer, a feature that was supposed to usher in a new era of 'decentralised' power

[14] Quinn DuPont (2018), "*Governing Blockchains and the Blockchain Government*," *Blockchain Research Network*, at www.blockchainresearchnetwork.org/governing-block-ins-and-the-blockchain-government/

[15] For a definition of governmentality, see: Michel Foucault (2007 [1977–78]), *Security, Territory, Population: Lectures at the Collège de France,* translated by Graham Burchell, (New York: Palgrave Macmillan), 108–9;

[16] On economic thought as a conduct of conduct see Michel Foucault (2008 [1977–78]), *The birth of biopolitics: lectures at the Collège de France, 1978–79,* (New York: Palgrave Macmillan), 27–50.

[17] See the 2020 snapshot of the original Ethereum page at web.archive.org/181115143400/https://ethereum.org/

[18] Nick Szabo (1997), "*Formalising and Securing Relationships on Public Networks,*" in *First Monday* 2, no. 9, at firstmonday.org/ojs/index.php/fm/article/view/548

distribution and censorship resistant communication. The supposed 'unstoppable' nature of blockchain technology gets even more significant through the ability of the Ethereum platform to run so-called smart contracts.[18] In the context of blockchain based technologies smart contracts are potentially self-executing and self-enforcing programmes, running on the blockchain for as long as there are funds to pay the fees, accruing for their computational operations.

Since smart contracts can control and administer (digital) assets and potentially allow for the automation of a variety of processes, they have been an important source for the sociotechnical imaginaries surrounding blockchain based technologies. Early on, the combination of a Turing-complete programmeming language and the possibility to create smart contracts sparked the imagination of new forms of governance within the Ethereum community. A recurring concept herein is that of so-called decentralised autonomous organisations (DAO's). DAO's are conceptualised as organisations formed through assemblages of smart contracts which, once set up properly, could run, maintain and potentially advance themselves autonomously, thereby giving birth to entirely new forms of social organisation.[19]

[19] Vitalik Buterin (2014), "*DAOs Are Not Scary, Part 1: Self-Enforcing Contracts And Factum Law,*" at bitcoinmagazine.com/articles/daos-scary-part-1-self-enforcing-contracts-factum-law-1393297672

A crucial question in the conception of DAO's was how to organize the governance of the DAO itself; namely, how to ensure further human control over a structure that was built with the intention to circumvent the perceived pitfalls of human politics. For this, Buterin early on proposed the concept of futarchy as a possible way of governing DAO's of the future. Futarchy was developed by the economist Robin Hanson and is based on the use of so-called prediction markets (essentially bets) in order to come to decisions about a given policy. In the case of a state, for example, democratically elected officials would decide on a metric such as GDP growth and prediction markets would then produce the necessary information on which policy should be adopted in order to optimize the given metric. These policies would then become law.[20] Just as Bitcoin was proposed explicitly to circumvent the State's monopoly on the issuing of money, a concept like futarchy explicitly addresses the question of legitimation of (political) power. In the case of futarchy, the information created by the market is seen as superior to traditional governance structures.

[20] Robin Hanson (2013), "*Shall We Vote on Values, But Bet on Beliefs?,*" in *Journal of Political Philosophy* 21, no. 2, 151–78 at doi.org/10.1111/jopp.12008

Thus for Buterin: "The system also elegantly combines public participation and professional analysis. Many people decry democracy as a descent to mediocrity and demagoguery, and prefer decisions to be made by skilled technocratic experts."[21]

The idea of markets as direct mechanisms of governance that govern through the supposed production of (market) truth as information is deeply embedded within the sociotechnical imaginaries of blockchain based technologies. A now infamous project called 'The DAO' initially successfully managed to capture the Ethereum community's excitement for experiments in algorithmic governance. It at once marks a significant break in the general sentiment regarding automated governance through its spectacular downfall. 'The DAO' was the first major implementation of the concept of 'decentralised autonomous organisation' in general and within the Ethereum platform specifically.[22] The short lived project (2016–17) raised high hopes and millions of dollars worth in Ether. It was supposed to accomplish what had been a vision for many within the community; that is, to create an organisation in which the participants maintain direct control of their investment and whose governance rules would be fully formalised in code and automatically enforced through the blockchain.[23]

Yet, an 'exploit' within the code allowed a hacker to use unintended behaviour of the code to drain millions in Ether from 'The DAO's' smart contract. Quickly leading figures within the Ethereum community stepped in and coordinated with multiple cryptocurrency exchanges and informal technical leaders within the space in order to exert emergency measures and stop the draining of the smart contract that held the funds. What followed touched the core of the sociotechnical imaginaries surrounding blockchain based technologies. The immutability of the blockchain, once a core premise of the technology itself, was now up for debate. The discussions culminated around the question whether or not a so-called 'hard fork', an update to a new protocol version that is not backwards compatible, should be used to create a version of the blockchain in which the hack had never happened. Due to the intense disagreement over what was seen by some as a breach of the immutability paradigm, a small minority of miners used the subsequent hard fork to continue to mine on the chain depreciated by the majority. In doing so, they created a new

[21] Vitalik Buterin (2014), "*An Introduction to Futarchy,*" at blog.ethereum.org/2014/08/21/introduction-futarchy. This echoes earlier 18th c liberals such as Edmund Burke (1968 [1790]), "*Reflections on the Revolution in France: And the Proceedings in Certain Societies in London Relative to that Event,*" (Middlesex: Penguin Books), 85ff.

[22] Detailed discussion of the events surrounding 'The DAO' can be found at: Quinn DuPont (2017), "*Experiments in Algorithmic Governance: A History and Ethnography of 'The DAO,' a Failed Decentralised Autonomous Organisation*," *Bitcoin and Beyond*, (London: Routledge), 157–77; see also Brekke, "*Disassembling the Trust Machine*," 185–90.

[23] Christoph Jentzsch (2016), "*Decentralised Autonomous Organisation to Automate Governance,*" at download.slock.it/public/DAO/WhitePaper.pdf

crypto-currency (ETC–Ethereum Classic) in which the 'The DAO' hack had not been circumvented and therefore the immutability paradigm left untouched.

The striving for an alleged 'end of politics' in favor of decentralised, algorithmic self-organisation that served as one of the foundational myths surrounding blockchain based technologies, had led to a situation where the necessity of ordinary politics came to light with immense intensity. Yet, although 'The DAO' undeniably was a failure, the inherent contradictions between the sociotechnical imaginary of a supposedly objective, instrumental form of algorithmic governance and the de-facto enactment of emergency measures through largely informal actors, triggered a process of self-reflection and a broadened discourse around the notion of governance within the Ethereum community. This discourse is not only concerned with the question of how blockchain based technologies are thought to be technologies for the purpose of governance, but is crucially directed towards the question of how to govern a blockchain based platform like Ethereum itself.

The discourse questions some of the core value proposals of the technology, like the supposed immutability of the shared ledger, and illustrates the continuous process of reinventing blockchain based sociotechnical imaginaries of governance. This ongoing discussion around questions of governance within the Ethereum Project is closely tied to the general question of where the involved protagonists would see Ethereum heading in the future.

With the first major experiment in decentralised autonomous organisations in ashes, competitors on the rise and at times exuberant expectations by the public, new and convincing approaches towards questions of governance were emerging. This becomes an essential task the leadership of Ethereum continues to face. By proposing approaches towards these questions, the three positions described in the following inevitably engage in the construction of new (or updated) sociotechnical imaginaries. In the following I will briefly describe the core positions brought forward by Wood, Zamfir and Buterin, which is labelled 'Code still is law' (Wood), 'Crypto Politics' (Zamfir) and 'Radical Liberalism' (Buterin/Weyl).

drone [drəʊn]

bizarrely if one googles 'drone' from an american site, the very first hit states: 'low humming sound'; 'a continuous musical pitch' or (our favourite) 'a stingless male bee.' one has to be living on another planet not to know this may also have something to do with new forms of warfare, surveillance, distributing of drugs in prison, and even the telescoping of stunning photographs of imagination, once the provenance of the majestic bird. Outstretched, and impossible to reach plateaus now made possible by the more vulgar militarised-cum-civilian lines of flight.

Code still is law

"This makes an underlying and opaque assertion that governance should be voting-based or should be democratic and I'm not convinced on either case, yet." (Gavin Wood)[24]

By now, the notion of fully automated governance is highly contested amongst leading figures within the Ethereum community. However, Gavin Wood, co-founder of Ethereum, remains to be a strong advocate for the algorithmic automation of governance.[25] Wood's position has to be read in continuity of the code-is-law paradigm of the early days of Ethereum, in which the authority of code stands above that of other authorities. Wood argues that, given the appropriate technological progress, the processes of governance can be sufficiently formalised to be fully encoded and automatically enacted on the blockchain through smart contracts. This approach is called 'on-chain-governance.' The transparent enactment of said processes should allow for a trust based on mathematics and technology that would otherwise be lost in the grey areas of human interaction.[26] As described, this sentiment had been at the heart of the sociotechnical imaginaries of governance within the Ethereum community, leading up to the 'The DAO' crisis. It is a sentiment that Gavin Wood had helped to create early on in his highly influential Ethereum yellow paper, a founding document of Ethereum, in which he describes the technology as follows:

"Dealings in this proposed system would have several attributes not often found in the real world. The incorruptibility of judgement, often difficult to find, comes naturally from a disinterested algorithmic interpreter. Transparency, or being able to see exactly how a state or judgement came about through the transaction log and rules or instructional codes, never happens perfectly in human-based systems; since natural language is necessarily vague, information is often lacking, and plain old prejudices are difficult to shake. Overall, I wish to provide a system such that users can be guaranteed that no matter with which other individuals, systems or organisations they interact, they can do so with absolute confidence in the possible outcomes and how those outcomes might come about."[27]

[24] Web3 Foundation (2018), *Web3 Summit Governance Panel with Vlad Zamfir, Gavin Wood, Arthur Breitman & Adrian Brink* at www.youtube.com/watch?v=eO3f-G_1YrE4.

[25] For an overview of Wood's position, see his second interview on the *Epicentre Podcast*: Crain and Wood, "*#259 Gavin Wood.*"

[26] Cf Brekke, "*Disassembling the Trust Machine,*" 83–87.

[27] Gavin Wood (2014), "*Ethereum: A Secure Decentralised Generalised Transaction Ledger,*" *Ethereum Project Yellow Paper (EIP-150 Revision),* 151 at gavwood.com/paper.pdf. White and yellow papers are a specifically interesting text genre, since they combine technical specifications for a given project with sometime manifesto-like passages.

To ensure the future flexibility of the automated governance system (for example: in case of crisis or simply in order to be able to adapt to changing circumstances), Wood agrees that there should be a way to create the possibility for human input into the system as long as it is strictly defined. For this, Wood also refers to futarchy and 'economic games' as mechanisms to ensure the quasi-objective generation of information through markets as one way of human input into the system.

However, Wood is not a market fundamentalist, but much more of a process fundamentalist. When confronted by Zamfir on the crucial question of human input into the system, Wood replies that he does not believe that markets can do everything, but that strictly defined, processes are not limited to use cases which cannot adapt.[28] This position allows him to stick to the general principles of the code-is-law paradigm. For Wood, the fiasco around 'The DAO' and the subsequent informal intervention to rescue the funds has not shown that the approach of code-is-law has failed. Rather the reverse: that not only is it proven, but all the more necessary. Yes, there were bugs in the code, but those could be fixed. For Wood, the more essential lesson from 'The DAO' is that the current governance structures within the biggest blockchain based technologies are, far from being transparent or 'decentralised', suffer instead from human fallibility that the technology was once thought to engineer away:

> "Bitcoin is essentially controlled by Bitcoin core and seven or eight miners, maybe a few exchanges. Ethereum, if it wants to do a hardfork, is a dictatorship. If Vitalik states, this is the way Ethereum should hardfork, ETH will hardfork that way. [The] Ethereum foundation has a trademark, Vitalik controls the Ethereum Foundation. It's as simple as that. So, the governance processes of the major two cryptocurrencies are plutocracy / oligarchy and dictatorship."[29]

Following from this, for Wood, it is only consequent and logical to harness what he still sees as the essential quality of blockchain based technologies—being a trust-free, decentralised means to execute reliably specified processes—and to apply it both to questions of governance in general and the governance of blockchain based platforms specifically.

[28] Cf Harrysson et al "*Vlad and Gav.*"

[29] Cf Crain and Wood, "*#259 Gavin Wood.*"

Next to the belief that the technology can provide a much-needed reliability, transparency and security in the face of human imperfection, another basic building block for Wood's approach towards questions of governance is that he sees the platform primarily as an economic entity. Consequently, he argues that Ethereum should best be run by corporate principle, oriented towards economic efficiency.

He concludes that only people with a countable stake (for example coins or measurable reputation) should be considered when it comes to questions of governance in blockchain based technologies. If one wishes to take part in governance, Wood argues, one should have skin-in-the-game. Yet, if that skin is made of coin and can be He concludes that only people with a countable stake (for example coins or measurable reputation) should be considered when it comes to questions of governance in blockchain based technologies. If one wishes to take part in governance, Wood argues, one should have skin-in-the-game. Yet, if that skin is made of coin and can be measured, it is heavily contested by another influential actor, Vlad Zamfir, who seems to be determined to steer Ethereum into another direction.

Do's	Dont's
be inclusive of anyone who is affected by governance decisions	refuse to participate in politics
acknowledge that future blockchain governance outcomes aren't decided yet, and that existing governance norms and processes can change	act like your preferred governance outcomes are predetermined
understand that not every stakeholder will benefit from (or perceive they benefit from) every governance decision	act like your preferred governance outcome is best for everyone, or that you know what's best for everyone
legitimize governance decissions, processes, etc. in public and with the participation of as many stakeholders as possible	legitimize governance processes in closed-door or meetings between "insiders"
legitimize governance decissions, processes, etc. in conversations that empower as many stakeholders as possible	legitimize governance processes that disenfranchise existing or future stakeholders or participants. Especially don't do this to get rid of your political opponents (!!)
take personal responsibility for your intended governance outcomes	leverage a blockchain governance process to absolve yourself of personal responsibility for the governance outcomes you intended to bring about
acknowledge the limits of governance decisions, processes, etc (such as the cost of decisions and, limits on their effectiveness)	selectively invoke limits of governance to justify decisions and processes that align with your politically prefered outcome
represent the interests of people who are affected by decisions but cannot (for whatever reason) participate in governance	represent your own governance interests under the false pretense of representing the interests of others

Table from the blog post 'How to Participate in Blockchain Governance in Good Faith (and with Good Manners)' by Vlad Zamfir).

Crypto politics

Gavin Wood: "I prefer counting. I think counting is quite good. I think that... you know, we build these great machines that count, and that changed the world for the better in general. So, I think counting is in general a really good thing."

Vlad Zamfir: "Yeah, I mean, if you're counted..."[30]

In stark contrast to Gavin Wood, Vlad Zamfir, long time researcher for the Ethereum Foundation and leading figure within the Ethereum community, continues to use his influence to stress that blockchain based technologies are sociotechnical systems involving significant risks.[31] In order to mitigate those risks, Zamfir advocates for an approach towards governance (by and of) blockchain based technologies that keeps humans decisively in the loop. In a number of blog posts, tweets (@VladZamfir), interviews and panel discussions, Zamfir has made questions around the governance of blockchain based technologies one of his main concerns.[32]

[30] Cf Web3 Foundation, "*Web3 Summit Governance Panel.*"

[31] See Vlad Zamfir (2019), "*Against Szabo's Law, For A New Crypto Legal System,*" at medium.com/cryptolawreview/against-szabos-law-for-a-new-crypto-legal-system-d00d0f3d3827. Cf Harrysson et al, "*Vlad and Gav.*"

[32] In addition see: Vlad Zamfir (2008), "*My Intentions for Blockchain Governance,*" at medium.com/@Vlad_Zamfir/my-intentions-for-blockchain-governce-801d19d378e5. See also: Vlad Zamfir (2017), "*Against On-Chain Governance,*" at medium.com/@Vlad_Zamfir/against-on-chain-governance-a4ceacd040ca. See also: Vlad Zamfir (2017), "*Blockchains Considered (Potentially) Harmful,*" at medium.com/@Vlad_Zamfir/blockchains-considered-potentially-harm-d039888c3208. See also: Vlad Zamfir (2018), "*Blockchain Governance 101,*" at https://blog.goodaudience.com/blockchain-governce-101-eea5201d7992. See also: Vlad Zamfir (2018), "*Blockchain Governance with Vlad Zamfir,*" at www.youtube.com/watch?v=bk3sh-fEYWN4. See also: Vlad Zamfir (2018), "*Governance in Web2 vs. Governance in Web3,*" at www.youtube.com/watch?v=ILM-VkmSTwho.

Zamfir's position is based on the notion that governance processes are not, and probably never will be, fully automatable. This, he argues, is only in part due to the immaturity of the technology itself. Instead he believes governance is not just a technical issue. Given his assessment that unstoppable blockchains would inevitably be weaponised, Zamfir strongly advocates for the dismissal of the supposed immutability of blockchains—once a core promise of the technology. By doing so, he positions himself in direct opposition to core elements of the cypherpunk tradition that fed substantially into the early sociotechnical imaginaries of governance in blockchain based technologies. Packed with a handful of pathos ("I am prepared to die on this hill") Zamfir directly attacks Nick Szabo, a prominent advocate for the code-is-law paradigm, stating: "I am not going to go willingly into a future where sociopathic code is law."[33]

Besides what he calls 'autonomous blockchains', Zamfir describes four other examples of future modes of governance of blockchain based technologies he seeks to prevent: corporate capture, state capture, developer capture and cartel capture.[34] In order to avert these different forms of capture and in contrast to the automated corporate governance approach put forward by Wood, the basis for Zamfir's understanding of blockchain based technologies—such as Ethereum—is that he believes them to be a kind of commons. The governance of these commons, he argues, should be open to participation by everybody and not limited to coin holders of a given platform. Zamfir's vision for the technology is not one of dissident anarcho-capitalist rebellion as with some of the early cypherpunks, nor is it following a techno-deterministic code-is-law paradigm. Instead, Zamfir captures some of his positions towards questions of governance in a blog post 'do's-and-don'ts' table as follows:

Much of the rhetoric around his argument seems to promote the, arguably ill-defined and often implicit, current modes of governance in Ethereum. While often staying vague when it comes to concrete propositions, there are certain approaches Zamfir brings forward in the discussion that are critical for questions of governance; namely hard forking (the intended splitting of the network), rough consensus and his definition of the concept of legitimacy. Much like in the case of the infamous 'The DAO', Zamfir sees hard forks as an important protection from undesirable outcomes, and as a general tool of governance in blockchain based technologies.

[33] Cf Zamfir, "*My Intentions.*"

[34] Cf Zamfir, "*Blockchain Governance 101.*"

[35] Harrysson et al, "*Vlad and Gav.*"

[36] Zamfir, "*Against Szabo's Law.*"

[37] Scott Bradner (1998), "*IETF Working Group Guidelines and Procedures,*" at https://tools.ietf.org/html/rfc2418

[38] Harrysson et al, "*Vlad and Gav.*"

For Zamfir, the general possibility of forking the chain creates significant bargaining power in case of fundamental conflicts within the community, and thereby provides an element of checks and balances inherent to the technology itself. On the one hand, so the reasoning goes, a split of the network creates damage to the legacy system by detracting resources to the newly created dissident chain. On the other hand, putting into effect a successful hard fork is coupled to substantial effort, and thereby not an appropriate way to proceed over minor disagreements.[35] Much of what Zamfir says and writes on the topic of governance seems to be aimed at finding ways to reconcile the technology with existing modes of governance and legal structures outside the realm of blockchain based technologies, while trying to preserve the openness it supposedly now has.[36] Besides hard forking, Zamfir argues for so-called 'rough consensus' as a desirable part of the currently existing mode of governance in Ethereum. Rough consensus is a term coined by the Internet Engineering Task Force (IETF) to describe their mode of decision making, in which a chairperson tries to determine a dominant view within the working group on a given decision that needs to be made.[37] Similarly, Zamfir advocates for rough consensus as a way of capturing the various signals of coordination happening around the governance process of Ethereum. Yet the concrete form of the capturing entity or process is largely unclear and the ways in which one can take part in the coordination process in order to be heard is, to a large extent, undefined. Zamfir mentions some concrete ways to contribute to the coordination process by signaling opinions through various channels, such as blog posts, the public developer meetings, social media or the Ethereum Improvement Proposals; in short EIP's that describe standards for the Ethereum platform, including core protocol specifications, client APIs, and contract standards (eip.ethereum.org). Yet he falls short in defining how all of the voices he wants included in the process can become heard and included.

However, as Zamfir argues, this is not a bug, but a feature:
> "[J]ust because we are making collective decisions, doesn't mean that we agree on the criteria by which we are making those decisions. Like the whole rough consensus model in some way is that we don't agree, but we can tell when the discourse has kind of settled down."[38]

Following this definition, a crucial question is: who is it that can tell when the discourse is settled down and how? As the heated discussion between Wood and Zamfir suggests in the current structures within Ethereum, this role seems to fall largely to Hudson Jameson, who was unofficially chairing the bi-monthly core-developer meetings in November 2018.[39] Wood vehemently points towards problems that might arise from such informal power structures and while Zamfir agrees that this role should not fall only to one person, he insists that it can neither be fulfilled by a deterministically defined process that could be written into code. Instead he proposes legitimacy as a category for determining whether a governance process is, well, legitimate.

[39] Harrysson et al, "*Vlad and Gav.*"

Yet, since Zamfir states that he is not into counting; he dismisses voting, for example, as an adequate mechanism for the establishment of such legitimacy. Instead, he defines legitimacy along the lines of his interpretation of rough consensus:

"I use legitimacy to mean [...] this common knowledge that some people might have, that we're going to go with a decision. And, common knowledge is this type of shared information that we talk about, like in game theory, where people can act like something is a fact. And so, if we can act like it's a fact, that we can go with a governance decision, or a mechanism within [...] our group, then [...] within that group it's legitimate."[40]

This idea of legitimacy through lack of objection is highly compatible with Zamfir's approach towards rough consensus. It delegates the question of who it is that can decide over what is consensus, between whom and based on which information, to a self-fulfilling and self-reinforcing mechanism, that simply states that what is legitimate is what can be done without (too much) voiced opposition.

[40] Zamfir, "*Governance in Web2 vs. Governance in Web3.*"

When asked about his definition of legitimacy, Zamfir states that it might be imperfect, but that it fits quite nicely into the world of game theory that informs his thinking.

While relentlessly fighting against many of the core assumptions of the code-is-law paradigm that was, and still is, an important part of the sociotechnical imaginaries of governance in blockchain based technologies, ultimately Zamfir remains a game theoretician, approaching human interaction as a 'game'. In doing so, he inherits certain assumptions made within the field and subscribes to a

specific view on how to approach questions of governance that will be elaborated in the concluding paragraphs.

Radical liberalism

"[P]eople who think that the purpose of blockchains is to completely expunge soft mushy human intuitions and feelings in favour of completely algorithmic governance (emphasis on "completely") are absolutely crazy."(Vitalik Buterin)[41]

Once a definite advocate for the complete algorithmic automation of governance, Vitalik Buterin now argues explicitly against tightly coupled on-chain governance in which decisions are arrived at by coin voting, and automatically implemented through smart contracts on the blockchain. He promotes instead a process he calls 'multifactorial consensus' in which different mechanisms and groups produce multiplicity of signals, and the ultimate decision depends on the collective result of the various inputs. Examples for mechanisms that are incorporated in this process are the project's roadmap, the opinions of the core developers, coin holder votes, user votes, as well as the project's established norms, such as the 21 million coin limit.[42] While Wood is upholding the code-is-law paradigm in pursuit of fully automated algorithmic governance, and Zamfir is pushing strongly against autonomous, immutable blockchains, Buterin proposes a middle ground, in which multi-layered processes of (mostly) off-chain coordination lead to decisions that are implemented in accordance with the established norms of the project and deployed to a generally immutable blockchain. For him, the 'moderate immutabilist' position, in which retroactive changes to the blockchain are not a common tool but a rare exception, is still a basic norm and important virtue of blockchains that ultimately distinguishes them from other, more centralised technological approaches.[43]

His position tends to favor the status quo of informal governance in Ethereum, which Buterin describes as 'less bad than commonly thought' (and of which he clearly is a beneficiary).[44] However 'less bad than commonly thought' is not a good banner to rally around and get the community of Ethereum enthusiasts to become excited. In an effort to reconstruct the contested sociotechnical imaginaries of the Ethereum project, in mid 2018 Buterin introduced a new set of

[41] Buterin, "*Notes on Blockchain Governance.*"

[42] Buterin, Ibid.

[43] Vitalik Buterin (2018), "*Governance, Part 2: Plutocracy Is Still Bad,*" at vitalik.ca/general/2018/03/28/plutocracy.html

[44] Buterin, "*Notes on Blockchain Governance.*"

approaches towards questions of governance (potentially both of and by blockchains), inspired by the book *Radical Markets* by economists Glen Weyl and Eric Posner.[45] Buterin's enthusiasm for many of the approaches envisioned in the book led to an intensive cooperation with Glen Weyl. Apart from joint papers and blog posts, Weyl presented his ideas at the highly influential annual Ethereum conference Devcon in 2018. Buterin in return held a keynote at the radicalXchange conference, that sought to create a movement around the ideas of *Radical Markets*.[46]

The intersection of these ideas and the foundations of the sociotechnical imaginaries surrounding blockchain based technologies is considerably high. Both approaches rely heavily on markets and mechanism design—a variant of game theory—as their preferred instrument of social organisation on a large scale. In mechanism design the desired outcome of a 'game' is decided upon first and then the system is designed in order to fulfil this predefined goal— assuming,and this is crucial, that players pursue their individual self-interest.[47] This approach is essential to blockchain based technologies. Combined with applied cryptography and economic incentives and penalties, it forms the defining design paradigm of blockchain based technologies, called cryptoeconomics.[48]

Vitalik Buterin's vocal promotion of the ideas around the concept of *Radical Markets* can be read as a work towards a reconfiguration of the sociotechnical imaginaries of the Ethereum project by promoting the expansion of cryptoeconomic design principles to become what he calls 'a new social technology.'[49]

[45] Eric A. Posner and Glen E. Weyl (2018), *Radical Markets: Uprooting Capitalism and Democracy for a Just Society,* (Princeton: University Press).

[46] For Buterin's speech, see: Vitalik Buterin (2019), at youtube.com/watch?v=WIs8z-jLDZrQ For Weyl's speech,- see: Glen E. Weyl (2018), *"Decentralisation Against Isolation"* at www.youtube.com/watch?v=TMSAA_nMv_E For an e-mail exchange between Weyl and Buterin, see: Glen E. Weyl (2018), *"A Radicalx-Change between Vitalik Buterin and Glen Weyl,"* at medium.com/@glenweyl/a-radicalxchange-between-vitalik-buteweyl-328d8ad088cf For a joint blog article in which they elaborate on the intersections of their respective projects, as well as a future collaboration, see: Buterin and Weyl (2018), *"Liberation Through Radical Decentralisation."* For a review of *Radical Markets* by Buterin, see: Vitalik Buterin (2018), *"On Radical Markets,"* at vitalik.ca/general/2018/04/20/radical_markets.html

[47] It is important to note here that the concept of self-interest that is being applied within these models is a very narrow one and full of presumptions. The work of economist Gary Stanley Becker uses this economic approach to human behaviour in all its full consequence. For a description of this perspective see Gary Stanley Becker (1976), *The Economic Approach to Human Behaviour*, (Chicago: University of Chicago Press), 3–14.

[48] For a more detailed description of the concept of cryptoeconomics, see: Josh Stark (2017), *"Making Sense of "Cryptoeconomics,"* at medium.com/l4-media/making-sense-of-cryptoeconomics-5edea77e4e8d

[49] Cf Buterin, *"RadicalxChange."*

50 Buterin and Weyl (2018), "*Liberation Through Radical Decentralisation*"; Vitalik Buterin, Zoë Hitzig, and Glen E. Weyl (2018), *"Liberal Radicalism: Formal Rules for a Society Neutral among Communities,"* http://arxiv.org/abs/1809.06421

51 It is no coincidence that their joint paper with Zoe Hitzig describes the radical liberal approach by using examples on how to be most efficiently philanthropic. Cf Buterin et al, *"Liberal Radicalism."*

52 Cf Buterin, *"On Radical Markets."*

The ideas described in *Radical Markets*—such as markets for immigration, personal data, and even votes—while not all embraced by Buterin, still serve as a fitting carrier for this reconstruction of imaginaries surrounding the Ethereum project. Buterin and Weyl term their approach 'radical liberalism' and, with it, imagine manifold ways in which one could be governed through markets, developing what they see as a possible liberal political economy of the future.[50] This future-to-come is described as much more efficient and egalitarian at the same time. Since in stark contrast to the anarcho-capitalist hyper-individualism of early cypherpunk, the radical liberals foster a rhetoric that strives for a marriage between hyper-capitalism and socialist ideals of equality.[51] Yet in this staying true to their principles, there seems to be no doubt that we all will need to be engineered into this bright future by the force of carrots and sticks and the use of game-theoretic principles "to make mathematically optimised versions of existing social institutions."[52]

Conclusion

As I have described, the three approaches towards governance, represented by Wood, Zamfir and Buterin, are in disagreement about the specifics of how to govern a given blockchain based platform like Ethereum. However, even though the crisis around the 'The DAO' hack has brought about a process of reflection regarding, for example, the prospect of fully automated governance processes including diverging conclusions, the three approaches presented here are nonetheless unified in their belief in what Buterin has termed a 'new social technology'. This means at the very least, the use of deliberately engineered economic incentives/penalties and mechanism design to align human behaviour in various social contexts. In doing so they subscribe to specific rationales that are being assumed as evident or even as a natural precondition and that inform the way in which the question of governance is looked upon in the first place.

One of these specific rationales is the assumption of selfish, profit-maximising behaviour in humans that is informing non-cooperative game theory. Games such as the prisoner's dilemma are frequently being used to explain the crypto-economic design approach within blockchain based technologies as

if the assumptions of rational choice theory were an empirical given or a natural precondition of human interaction. Yet this ignores that the context is co-producing the observed phenomenon and is creating self-fulfilling prophecies by naturalising certain behaviours over others.[53]

At the heart of non-cooperative game theory in the fashion of the prisoner's dilemma lies a paranoid perception of the human condition as a permanent mutual siege with everyone stabbing each other in the back if there might be something to gain from it.[54] Yet not only has game theory been proven to be empirically incorrect about this notion of the world, but by redesigning the social sphere along those assumptions, other logics of societal organisation—such as cooperation and care without a profit motive—are being pushed to the side. Instead, the pursuit of gain at the expense of others is being normalised.[55] The framing of governance as a question of regulation and control in a hostile environment of selfish, profit maximising *homines oeconomici* is inscribed in non-cooperative game theoretical modelling and a cornerstone of cryptoeconomic modelling as it is practiced today. And while, for example, Vlad Zamfir does indeed point towards the inherently social and political aspects of technology, the toolkit he proposes to address these questions of the social and political frequently falls back onto a rationale of cryptoeconomic system design and game theoretic modelling. Insofar as they are approaching the topic of governance primarily through this lens of cryptoeconomic systems design, all of the three approaches examined in this chapter represent a continuity in the 'art of government' as it is practiced in most blockchain based technologies. Yet a critical reflection of the ground upon which this 'art of government' is built is urgently needed. Such a critical reflection would not only question the assumptions of game theory and rational choice modelling, but furthermore recognize how the dominant sociotechnical imaginaries of governance in blockchain-based technologies are fundamentally rooted in a 'cybernetic dispositif' as well as an economic rationale as a mechanism of power, both of which are cornerstones of the already dominant paradigm that is cybernetic capitalism.[56]

[53] Robert H. Frank, Thomas Gilovich, and Dennis T. Regan (1993), "*Does Studying Economics Inhibit Cooperation?,*" in *Journal of Economic Perspectives* 7, no. 2, 159–71.

[54] See: Sonja M. Amadae (2016), *Prisoners of Reason: Game Theory and Neoliberal Political Economy,* (Cambridge: Cambridge University Press), and specifically 41–48. On the neoliberal subject and game theory in relation to Cold War paranoia see 65–138.

[55] On the question of game theory as an 'economic fable' rather than an empirical description of real human behaviour, see the work of game theorist Ariel Rubinstein (2012), *Economic Fables,* (Cambridge: Open Book). On empiricism in economics and what he calls the "7 Traps," see 185–215. See also: Shaun Hargreaves Heap and Yanis Varoufakis (2004), *Game Theory: A Critical Introduction,* (London: Routledge), especially 146–66 and 236–58, prisoner's dilemma and the empirical evidence, respectively.

[56] On cybernetics as a dispositif, see the excellent work by Benjamin Seibel (2016), "*Cybernetic Government: Informationstechnologie und Regierungsrationalität von 1943–1970,*" in the journal *Frankfurter Beiträge zur Soziologie und Sozialpsychologie,* (Wiesbaden: Springer VS), 65–110. For a biting critique of cybernetic capitalism, see the short polemic by Tiqqun (2020 [2001]), *The Cybernetic Hypothesis*, translated by Robert Hurley, (South Pasadena: Semiotext(e)). On the term 'dispositif,' see: Michel Foucault (1980 [1977]), "*The Confessions of the Flesh,*" in Colin Gordon (ed.), *Power/Knowledge: Selected Interviews and other writings (1972–1977)*, 194–228.

57 Norbert Wiener (1961), *Cybernetics or Control and Communication in the Animal and the Machine,* (Cambridge, MA: MIT Press), 169–80. For this as well as a perspective on political cybernetics, see: Karl W. Deutsch (1963), *The Nerves of Government,* (New York: The Free Press), 80–84 and 146–49

58 Claude Elwood Shannon (1948), "*A Mathematical Theory of Communication,*" in *Bell System Technical Journal 27,* (New York: AT&T) no. 3, 379–423. For the influence of Shannon's model of communication on cybernetics, see also Chapter 3.1 in: Seibel (1943), "*Cybernetic Government: Informationstechnologie und Regierungsrationalität von 1943–1970,*" 75–82.

59 Wiener, "*Cybernetics.*"

Contrary to a still prevalent self-image of dissident rebellion, the main propositions of blockchain governance are not subversive to these already dominant logics of control. Instead they are very much a part of it. In order to acknowledge this fully, it is important to keep in mind that the nucleus of cybernetic governance is the constant production and flow of information in order to ensure a continuous adaptation and self-regulation of a given system through feedback loops, may it be an organic organism or a machine, a human, a company, a market or a society as a whole.[57]

Consequently, it is the omnipresent imperative to produce machine readable information by an ever expanding range of organic and inorganic actors (think of the internet of things [IoT]) that is the clearest indicator of the immense success in the proliferation of technologies of cybernetic governance. The phrase 'on the blockchain nobody knows that you're a fridge,' which is frequently used humorously to point at the supposedly subversive potential of privacy in blockchain technologies, captures quite nicely a common misreading of the exertion of power through cybernetics. Going back as far as the information theory of Claude Shannon, cybernetics is based upon the premise that it is not the content of the information that is the basis for regulation and control of a cybernetic system, but the continuous flow of information itself.[58] Or, to put it differently: not knowing that you're a fridge does not interfere with the overall functioning of a cybernetic system. On the contrary, as the title of Norbert Wieners famous book suggests, the field is built upon the methodological equalisation of "control and communication in the animal and the machine."[59] Cybernetic governance does not care if you encrypt your communication; it does not care whether or not you are a human, a toaster or a car, as long as you keep generating information. Conversely, however, it is of the utmost interest for a cybernetic rationale of governance to have communicating fridges in the first place.

With blockchains being heralded as the new backbone of the IoT, it seems that many within the blockchain community are turning a blind eye when it comes to blockchains being a technology of governance in this regard. Instead they focus heavily on an (arguably outdated) analysis of power, based solely on, for example, State-sovereignty. Furthermore, it is precisely the notion of the separated, autonomous,

self-sovereign individual and specifically the notion of the entrepre-
neurial self, promoted by many within the blockchain sphere, that is
the anchor point through which many of the (biopolitical) imperatives
of contemporary governmentality are brought forward.[60] Be there
fridges left and right, if the human subject position for which privacy
is claimed is modelled in this quasi-reactionary way, then the fact that
the opponent is an equally non-desirable massive surveillance
apparatus only leads to a case of two wrongs do not make it right.
Similarly, if blockchain enthusiasts want to disrupt the status quo of
how it is that we are being governed, then the unquestioned belief
in economic rationality and the for-profit motive is very much one of
the foundational pillars that should be demolished, not reproduced
and carried to its extremes. As Foucault's analysis of contemporary
governmentality illustrates, economic rationality and the idea of the
market as a place for the production of truth have formed the
dominant 'art of government' from the end of the 18th century
onwards.[61] It is a mode of calculative and economic reasoning that
every action is measured against and that stretches from the
evaluation of the individual by the individual itself to the evaluation of
'good' and 'bad' State governance by international financial markets.[62]
It is important to note, though, that the argument is not that there is
no such thing as coercion through States (there is plenty), but that
one of the main anchor points for the rationale of governance under
which States also assess their actions is that of economic rationality.
The sociotechnical imaginaries of governance that can be found
within the realm of blockchain based technologies rightly question
current modes of governance and try to develop alternative
approaches to the status quo. However, the proposed solutions fall
short when it comes to questioning the (ideological) grounds upon
which they themselves are being build and therefore tend to repro-
duce more of the same.
A critique of current modes of governance has to start by challenging
the rationales that are being brought forward in order to legitimize
the ways in which we are being governed.[63] Every critique of current
modes of governance that falls short of that runs the risk of simply
reproducing already dominant logics of control. In order to pave the
way that allows one to challeng these categories, it is important to
highlight the continuities of power as 'a conduct of conduct' that are

[60] For this central point see: Ulrich Bröckling(2016), *The Entrepreneurial Self: Fabricating a New Type of Subject,* (LA: SAGE).

[61] Michel Foucault (2007),*Security, territory, population, lectures at the Collège de France in the years 1978–79* (New York: St Martin's Press), 87–114.

[62] For a genealogy of the relation between State and finance, see: Joseph Vogl (2017), *The Ascendancy of Finance*, translated by Simon Garnett (Cambridge: Polity Press), 12–39.

[63] Michel Foucault (1997), "*What is Critique?,*" in Sylvère Lotringer (Ed.), *The Politics of Truth*, translated by Lysa Hochroch and Catherine Porter, (New York: Semiotext(e)), 41–82.

inherent to the way in which questions of governance are predominantly being framed within the field of blockchain based technologies. By highlighting cybernetics and economic rationality, the very categories / central building blocks of the sociotechnical imaginaries of governance described in this chapter can be approached from a perspective alternative to the dominant narratives surrounding blockchain based 'visions of desirable futures.' A truly disruptive approach towards the use of blockchain based technologies would include a critical reflection of the very grounds upon which the field is being built, in order then to think about where it might make sense to approach things differently and where it does not. What could grow out of this is what one might call *heterodox cryptoeconomics*.

In this chapter I have described how sociotechnical imaginaries of governance in blockchain based technologies have changed over time and are constantly evolving. However, I have also argued that a closer examination of the Ethereum project shows how certain building blocks of the sociotechnical imaginaries of governance are yet left untouched by this process of self-reflection. I proposed two perspectives of analysis to be incorporated into the discourse, the cybernetic dispositif and the analysis of economic rationality as a mechanism of power. My hope is that including these perspectives of analysis might foster a better understanding of the crucial, yet untouched, aspects of current sociotechnical imaginaries of governance in blockchain based technologies.

The architects of blockchain based technologies are currently building an attainable new technological infrastructure, thereby setting the foundation for what they see as desirable futures. It is of vital importance to include a wide range of actors and positions in this process, in order to nurture a discourse about whether these 'visions of desirable futures' are indeed desirable or not. This chapter hopes to contribute to that effort.in this process, in order to nurture a discourse about whether these 'visions of desirable futures' are indeed desirable or not. This chapter hopes to contribute to this effort.

dummy [ˈdʌmi]
english version: a rubber nipple attached to a plastic guard enabling the pleasures of the suck. rest of the world's version: stupid, lifeless, perhaps also: a mannequin. go figure.