UNIVERSIDADE DE LISBOA

Instituto Superior de Economia e Gestão


# SELECTED TALES FROM DECENTRALIZED FINANCE

Sandra Faustino

Orientadores: Prof. Doutor Daniel Seabra Lopes
Prof. Doutor Rogério Roque Amaro

Tese especialmente elaborada para obtenção do grau de Doutora em Sociologia Económica. Trabalho financiado pela Fundação para a Ciência e Tecnologia (FCT), no âmbito dos projectos PTDC/IVC-ANT/4520/2014 e UIDB/04521/2020.

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# 1. INTRODUCTION

## 1.1. THE GREAT HANGOVER

The financial crisis of 2008 is the departing moment for this research. Notwithstanding the relevance of other financial crises, their cyclic nature (Kindleberger and Aliber 2005), or the generalisation of 'crisis' as a never-ending atmosphere (Roitman 2012; Ortiz 2012; Ossewaarde 2018), this research engages with the 2008 crash as a chronologically-situated experience, which contributed to shaping and influencing the decade following it in a particular way. Hence, let us rise the curtain in 2008, when the credit crisis initiated the period referred to as 'The Great Recession' or 'The Great Hangover' (Carter 2010) – grand titles that attempt to make sense of the lived experience of the post-crash reality – as do the terms 'The Great Moderation' (designating the period from the mid-1980s until 2007) or the more recent 'Great Lockdown' (in the context of the Covid-19 pandemic) (Lopes et al. 2021).

At the moment of the 2008 crisis, the process known as financialisation had already imprinted its logic onto markets as well as onto other social spheres (Erturk et al. 2008), meaning that financial instruments and institutions had achieved a significant influence over economic processes and policies – think, for instance, of the massification of consumer credit (Ossandón 2017) or of the emergence of carbon markets (Dalsgaard 2013). Although financialisation can be traced back to the Atlantic slave trade (Baucom 2005), the 1980s marked a leap in the expansion of financial markets, supported by the premise that they can generate wealth that will then be injected into the 'real economy' (Abdelal 2007; Krippner 2011; see also Hart and Ortiz 2014), and partnered with a deregulatory approach from states (Zetzsche et al. 2017; Tsang 2019). At the turn of the millennium, financialisation was endorsing the creation of both new digital financial technologies (fintech) and new digital markets, announcing that "the future of finance was bound to become electronic" (Petry

2020).

After the crisis of 2008, however, what had been a generally optimistic atmosphere shifted to one of uncertainty (Beckert and Bronk 2018). It became clear that finance intersected with gambling cultures far more than had previously been conceded (Nicoll 2013), and a crisis of trust in states and financial institutions unfolded, leading to the urge to punish the "greedy bankers" who had been "set loose in an unregulated 'shadow' banking system, motivated increasingly by reckless speculation" (Lipuma and Lee 2012, p. 291). Because states stepped in to bail out the bankrupt financial institutions, and did so by reducing social expenditure, a regime of austerity led to high unemployment rates, to the precarisation of existing jobs, and to increased difficulties in accessing health, education or housing, which altogether further exacerbated the social need for accountability. The post-crisis scenario forcibly pushed public attention to finance and its 'culture of risk'; suddenly, terms like CDO (collateralised debt obligation) and CDS (credit default swap) were being explained in the popular media (De Cock 2008).

This exposure also highlighted the dissonance between the expected facticity of finance and the delivered sense of financial fiction. The level of abstraction attained in financial markets, illustrated by the ever more complex "exotic derivatives" created by "financial wizards" (Samman et al. 2015, p. 1), made them very difficult to grasp. If by the 2000s men in trading pits had been largely replaced by electronic trading (Zaloom 2006), in 2008 electronic trading was moving rapidly to full algorithmic automation, known as high-frequency trading. By 2015, a high-frequency trading system could complete a trade in just 740 nanoseconds. Considering that a blink of an eye takes around 250 milliseconds, this equates to over 330,000 trades in the literal blink of an eye (Srnicek and Williams 2014). The "technomorphing" of financial markets (Benjamin 2021) turned them into

a life form of their own and, by the time of the crash, everyone was puzzled – including Alan Greenspan, head of the U.S. Federal Reserve from 1987 to 2005, who said in a public hearing: "I still don't fully understand why it happened"[1]. The crisis laid bare a lack of intrinsic cognitive clarity regarding the derivatives market and, as the unfolding of the crisis demanded explanation, "no one knew what was truth and what was fiction" (Stiglitz 2010).

The technomorphing of financial markets has been widely explored by social scientists researching finance and technology. Authors in the field of the Social Studies of Finance (SSF) have demonstrated how technological devices growingly participate in the cognitive and calculative processes of finance, pushing them, very often, beyond human comprehension and control (MacKenzie 2009; Preda 2006; Knorr-Cetina and Bruegger 2002). In fact, the admitted lack of understanding about the functioning of high-frequency algorithms by the very experts who operate them has led to the popularisation, in scientific literature, of the metaphor of the 'black box' when referring to trading algorithms (MacKenzie 2009, p. 34). Although SSF scholars have rarely engaged critically with the wider implications of such phenomena (Fine 2005), their works clearly identify a disjunction between the human scale of experience and reasoning and the 'planetary' scope of computational infrastructures and big data, including the speed at which financial markets are set to function (Benjamin 2021).

Considering all this, the 2008 financial crisis is the opening scene of a problematic state of affairs that begs for resolution, as in Vladimir Propp's classic definition of the tale (Propp 1968 [1928]). It was in the immediate aftermath of the crisis, in January 2009, that the bitcoin cryptocurrency emerged, setting in motion one of the many plotlines to The Great Hangover. From its onset, the

[1] This particular excerpt of the hearing at Capitol Hill can be found online: https://www.youtube.com/watch?v=R5lZPWNFizQ&t=287s (last access 22/07/2021).

bitcoin project has positioned actors according to particular roles: bankers and governments as villains, deemed responsible for the financial crisis, and hackers and open source coders as heroes, setting the people free from financial intermediaries. This narrative follows a dualistic logic that is also present, though with a different script, in the villains' own institutional tales (for a discussion of this regarding the European Central Bank, for instance, see Lopes and Abreu 2021).

The analysis carried out through this research will identify different narratives that speak of financialisation and which were found circulating among different teams working with blockchain technology in the first decade after the 2008 crisis. In doing so, this research takes interest in the crypto-cultural economy – in the entanglement between economic and social phenomena (Granovetter 1985), as well as between socio-economic phenomena and cultural/narrative practices – to understand the changes to financialisation brought about by blockchain technologies. More specifically, and using the idea of the 'tale' as a central analytical tool, this research aims to highlight the consequential aspects of narrativity in shaping, guiding and making sense of blockchain technologies and decentralised finance (DeFi) in the decade following the crisis.

Based on ethnographic fieldwork, this research discusses four projects working 'in the wild'; that is, practice-oriented groups carrying out research on blockchain's open source software outside of institutional settings (Callon and Rabeharisoa 2003; Svetlova 2018): a cooperative, a start-up, a research-creation lab, and a social movement. More precisely, it illuminates the narratives produced and/or mobilised by the different project teams, and the ways in which such narratives are embedded in the very process of infrastructural design (Bijker et al. 1987; Knox 2017; Bowker and Star 2000; Star and Ruhleder 1996). Despite having different goals, they all pursue some form of monetary self-sufficiency, and oppose the centralisation of currencies by state money and financial

intermediaries (for more on infrastructural self-sufficiency more generally, see Cirolia and Rode 2019; Pieterse 2013; Silver 2014; Van de Sande 2013; Kulick 2014; Sancho 2014; Rozas et al. 2018).

A significant characteristic of all four case studies is that they were, at the time of research, at a very young stage of existence: two of them were still conceptualising their project and initiating software development, a third had been rolling slowly for four years, while the fourth was on hold due to software modifications, after roughly four years of implementation. Because of this, more than observing the growth (or decline) of a somewhat defined operation, I could observe how actors "prepare terrains, create habits and establish the boundaries required for infrastructure to work" (Pardo-Guerra 2019, p. 25). In these early stages, a persuasive narrative is pivotal for reaching out to collaborators and potential/actual users, as much as it is in business models and marketing strategies; it should address an existing problem and convincingly propose a viable concrete solution. When computers were first introduced on the stock exchange, Pardo-Guerra describes, the computers themselves were not the disruptors; change came rather from the new subjects associated with them – the new workers, technologists and computer scientists – who had to "convince" and "convert" other professionals that electronic order books were "the way of the future", by resorting to the "power of prophecy and charisma" (ibid., p. 23). Likewise, when it was first released in 2009, bitcoin and blockchain enthusiasts had to convince and convert others that cryptocurrencies would be the way of the future. From this perspective, this research maps the prophetic and charismatic narratives which sprout from DeFi projects working in the wild.

## 1.2. THE GENESIS BLOCK

Despite the uncertainty generated by the 2008 crisis, financialisation did not entirely lose its sense of enchantment. A sense of opportunism was lurking for those abiding by one of financial culture's main mottos: "never let a good crisis go to waste" (see Fuller 2012). Online, financial gurus had already become popular, helping people cope with the new indebted, securitised condition, while steering them towards self-entrepreneurship: "stop working for someone else, work from home and get rich quick" (Martin 2002, p. 46). The reprehensible culture of risk that had led to the crisis had found its way into everyday life. Bitcoin's emergence did not halt this trajectory, but came to mediate the financialisation process, for many subjects, in a historically specific and novel way.

Bitcoin has its own preliminary history, involving the work of cryptographers who had been attempting to create 'digital cash' since the 1990s; a group described as a mix of "radical libertarians, some anarcho-capitalists, and even a few socialists" (Swartz 2018). The works of Chaum (1985), May (1996), Szabo (1997) and Wei Dai (1998) were particularly important in terms of orienting software experiments towards safely encrypted, decentralised, private money. At the end of 2008, the bitcoin whitepaper was launched under the pseudonym Satoshi Nakamoto (Nakamoto 2008). It introduced a new type of computer protocol, the blockchain, which offered a decentralised and distributed digital ledger to record transactions, and which solved the security problems that previous experiments had not yet managed to solve: the records were now incorruptible and immune to the double-spending problem.[2] According to Nakamoto's white paper, the aim of bitcoin was to eliminate the need for centralised intermediaries vulnerable to fraud, namely banks and financial services providers. In the first bitcoin block, known as the 'genesis block', Nakamoto included a headline from The Times, published on 3rd January 2009, which read "Chancellor on brink of second bailout for banks". This piece of information turned the genesis

[2]A potential flaw in the digital record, which allows the same token to be spent more than once.

block into a discursive artefact: like an opening title, it instructed the reader about bitcoin's criticism of the mainstream financial system.

Bitcoin's first years were mostly marked by its circulation in the darkweb's illegal markets, like Silk Road (launched in 2011 and shut down by the Federal Bureau of Investigation in 2014). Despite the growing collection of potential scenarios attesting to bitcoin's revolutionary power, the network grew mostly out of interest in bitcoin's speculative nature. Many started to mine bitcoin – validating records on the network – out of an interest in collecting the bitcoin rewards for miners. Furthermore, as the network was slowly growing bigger, so was the belief that the value of bitcoin would continue to increase. Many of these early miners started investing in more powerful processing units; this was "the era of 'mining rigs', elaborate homebrew assemblages of computers, crunching away in the basements and dorm rooms of bitcoin enthusiasts" (Swartz 2018, p. 13).

The second great landmark in blockchain's history was the launch of the Ethereum platform in 2014 (Buterin 2014). From this moment on, public attention shifted from bitcoin as a currency to the blockchain technology and its other potential applications: as a reliable storage medium for sensitive information (identity, property or medical records), and as a way to automate actions according to predetermined triggers (like charging for the subscription of a service, managing a voting process, or tracking a supply chain) (Buterin 2014; Szabo 1997; Swan 2015). This enabled the technology to be understood, beyond bitcoin, as "an institutional or social technology for coordinating people" (see Davidson et al. 2016, p. 1; Sundararajan 2016). News coverage and interest in both bitcoin and Ethereum grew significantly, as thousands of new users entered the network and socialised in online forums (Swartz 2018). The post-Ethereum era thus witnessed an increase in 'radical blockchain dreams', voiced by cypherpunks, crypto-anarchists, hackers and

open software communities, as well as a process of professionalisation, which started to boost an ecosystem of bitcoin start-ups, bitcoin conferences, payment intermediaries, wallet providers, online exchanges and specialised news media (ibid).

Up until then, bitcoin had inspired little more than mistrust from governments, industries, financial institutions and regulators. However, with the appearance of Ethereum and with the shift in public attention from bitcoin to blockchain, the latter slowly but steadily started to be taken seriously in the industry, fuelling the "incorporative blockchain dream" (Swartz 2017). It became apparent that blockchain could deliver elegant solutions to speed up banking transactions or for trade clearing and settlement in the stock exchange, among other things. Blockchain was re-named by the fintech industry as distributed ledger technology (DLT) in an attempt to embrace the innovation without being associated with bitcoin's radicalist reputation. The industry did not approach the technology for its disruptive power, but rather, in a slow and risk-averse movement, for its ability to make the existing system more efficient (Swartz 2018; Faria 2021).

By 2017, with bitcoin's price hitting $3000 in June and $5000 in July, there were 2.9 to 5.8 million unique users using a cryptocurrency wallet (Rauchs and Hileman 2017). Perhaps more importantly, traditional funds started to invest in bitcoin as a speculative asset – these are known as the 'big whales', whose movements affect bitcoin's market behaviour. Bitcoin futures were introduced in the stock exchange, and in 2018, Jamie Dimon from JP Morgan Chase said he regretted calling bitcoin a fraud.[3] As bitcoin proved to work best as an asset rather than as a currency – if its price *can* increase, who will want to spend bitcoins for daily expenses? – this led to its exoneration in the fintech industry, and opened the way for big actors to consider entering into a new class of assets.

[3] For Bloomberg's selection of "Who's hot, who's not on crypto", see https://www.bloomberg.com/features/bitcoin-bulls-bears [Accessed 14/10/2021].

More recently, a third wave began to emerge: decentralised finance (DeFi). The term DeFi has been used to broadly designate financial markets – borrowing, trading, lending or investing – functioning peer-to-peer, on a blockchain, and thus dismissing the traditional intermediaries like brokers, exchanges or banks. DeFi is considered to be still in its infancy, especially due to the lack of consumer protection and consequential risk, though it promises to be the next big game-changer and there were 93 billion worth of DeFi assets as of June 2021[4]. This time, big players are joining at the very beginning of the hype, and DeFi seems to be expanding financial markets more than threatening them. In the U.S. alone, at the time of writing, several major banks – Morgan Stanley, Goldman Sachs, Citigroup and JP Morgan – are offering DeFi investment options to their clients, and the U.S. Securities and Exchange Commission is focusing on allowing crypto asset classes to interact with the traditional financial system.

Social science scholars have followed the trajectory of bitcoin and blockchain technologies since their emergence, covering a variety of angles, such as the relationship between bitcoin and traditional economic and state institutions (Karlstrøm 2014; Manksi and Manski 2018; Sundararajan 2016); bitcoin's monetary nature (Swartz 2018); blockchain's role in the historical evolution of ledgers, accounting and contracts (Dupont and Maurer 2015); blockchain's future in finance (Maurer 2015, 2016); blockchain's impact on governance and trust (Nelms et al. 2018; Davidson et al. 2016; De Filippi et al. 2013; Musiani 2013); the libertarianism associated with cryptocurrencies (Golumbia 2018); and blockchain's adoption by both radicals and corporations (Swartz 2017). Ethnographic research, in particular, has provided nuanced accounts, for instance, of blockchain's impact on the notion of *trust* (Faria 2019) and of governance experiences in an Ethereum-based

[4] As reported in 17/09/2021 by CNBC. See https://www.cnbc.com/2021/09/17/how-decentralized-finance-works-and-why-its-taking-on-wall-street.html [Accessed 14/10/2021].

community (DuPont 2017).

To situate this research within the social studies of blockchain, it is relevant to state that it does not inquire into bitcoin's monetary nature nor into its direct relationship to conventional finance. For the most part, this research does not address bitcoin at all, since all case studies were either developing/using their own cryptocurrency, or focusing on other financial operations. As with other socio-anthropological contributions to studying finance that also incorporate the importance of oral stories and narratives (Smart 1999; Zaloom 2006; Lopes and Marques 2011; Tuckett 2012; Chong and Tuckett 2014; Holmes 2014; Beckert 2016; Beckert and Bronk 2018; Goggin 2015), this research provides an ethnographic account of the digital engineering process undertaken by the selected case studies, with a focus on the tales of financialisation which circulate among them. In order to fully understand the relevance of such a perspective, I now turn to a discussion of the concept of the tale.

## 1.3. SOCIALISING WITH TALES

Following an interest in the contextual use of discourse (Wittgenstein 1953; Austin 1975; Rorty 1989), my colleagues and I elaborated on the concept of the tale in a recent special issue of the Journal of Cultural Economy entitled “Finance: Tales of Experiment and Defiance” (Lopes, Faria and Faustino 2021), to address storytelling around finance. A tale, we propose, consists of a narrative that begins with some loss or failure, proceeds with confrontation, and culminates in repair through an envisioned solution (Propp 1968 [1928]; Bremond 1966; Van Dijk 1972). We understand tales as having the social function of making sense of established situations, of stimulating action and even of prefiguring scenarios (Lopes et al. 2021; Bal 1997; Silva 2002). Because narrativity is socially ubiquitous, tales are indeed everywhere: there are tales for institutional reform and for the preservation of power structures, as there are tales of defiance for radical action and systemic change – the latter being closer to the tales presented here, although the boundary between radical transformation and reform is never completely stable.

By dismissing the notion of language as descriptive or representative of the world, the chapters in this dissertation highlight the social function of language in digital engineering contexts, and also explore particular vocabularies – just like medicine or law have their own lexicon, so do fintech communities. Any vocabulary, however subtly, encodes ideological patterns (Hodge and Kress 1993; Fowler 1979), reflecting an epoch: they are adopted and abandoned over time according to their social usefulness (Rorty 1989) – think of the International Classification of Diseases (ICD) and of its revision, over time, of categories such as homosexuality and hysteria. Furthermore, and as explored in more detail in chapter 2, vocabularies may refer to non-existing realities (like unicorns or mermaids), thus completely abandoning a descriptive or representative function. This is, in particular, the case with metaphors, which do not have a truth representation or literal nature, but

rather articulate new elements in unexpected ways to create new understandings of the world (Rorty 1989; Lakoff and Johnson 1980). When analysing tales, then, meaning is to be found in the vocabulary that composes them, as well as in the way in which they articulate and combine different elements to produce values and beliefs (Lévi Strauss 1955).

In the 1950s, important works about the social function of language led to a performative turn, which would also impact the social sciences. Wittgenstein published his “Philosophical Investigations” in 1953, wherein he suggested that language is a game and that meaning is use. In 1955, Austin published “How To Do Things With Words”, where he addressed the performative role of language, such as in the sentence “I welcome you”. Austin ignited a debate about how any sentence, depending on the context, may indeed have an effect in terms of altering a situation. In the same period, scholars were beginning to discuss how mundane conversations constitute a ritualised form of social interaction and identity creation (Goffman 1959), and how language has an important role in creating or maintaining social order in differentiated settings (Garfinkel 1967). The performative turn thus became central to the humanities and social sciences as a new focus on the effects of mundane discursive practices and everyday life communication, exceeding the sphere of linguistic studies (Bourdieu 1991 [1987]). Other approaches, such as the philosophy of language of Ricoeur (1983, 1984, 1985), go further in arguing that we experience life in a *narrative* fashion. Ricoeur suggests that we define our identity, experience events and create collective memory in a narrative fashion. Interpretation – the temporal perception of sequence and plot – would thus be constitutive of the human experience, from a phenomenological point of view.

The concept of the tale, as we have proposed it, fits into these lines. A tale, in this sense, is a narrative device with a social function, affecting our perception of reality, governing our social

interactions, and shaping our individual and collective identities. This does not mean it is a stable, fixed artefact; it circulates in dispersed or distributed forms rather than as some isolated, self-contained text and, in this sense, no tale is immutable but rather becomes shaped by other tales, stories and conversations (Lopes et al. 2021). We may therefore assert that any tale exists within an ecology of tales (Holmes 2018, p. 181), wherein it may become temporarily hegemonic or it may fade away due to a lack of explanatory power. This research maps some of the tales circulating amidst fintech experiments in the wild, and explores their social function as ‘semantic engines’ in terms of making sense of existing conditions and of future social possibilities (Floridi 2014). Such narratives – in varying styles, from philosophical and aesthetic, to activist and quasi-religious – are thus relevant in guiding people’s socialisation with the concepts, ideas and theories through which they perceive and construct their world (Boje 2001).

## 1.4. SPECULATING WITH FINTECH

To some extent, we may say that tales are performative when they have explanatory power, offer a 'convincing' solution and circulate significantly, shaping a community where actions seek to fit the tale's script. This is a phenomenon explored by the performativity literature, at the junction between SSF and Science and Technology Studies (STS), particularly in regard to the power of economic theory – including mathematical models – to produce rather than merely reflect the market (Latour 1987; Callon 1998; MacKenzie 2006; MacKenzie, Muniesa and Siu 2007; Cochoy, Giraudeau and McFall 2010). Performativity theory has become a dominant tendency in studies of finance and technology (Samman et al. 2015; Cooper and Konings 2015) and has contributed largely to portraying economic and financial behaviour as anchored in predetermined assumptions.

However, because the performativity literature is mostly dedicated to 'high finance' and institutional contexts (such as investment funds or banks), its performances become somewhat inextricable from the power dynamics driving the adoption of certain assumptions and the refusal of others (Fine 2015; Graeber 2013, pp. 118-121). Thus, although one may look at 'low finance' and identify there as well a logical nexus between theories and performativities, to extend the performativity thesis beyond high finance, at this point, seems to strip the theory of its most relevant contribution: not just that a theory may be performed *per se*, but especially that the categories, techniques and technologies of (Western, late) finance embody the neoliberal politics and orthodox economics of the institutions producing and utilising them.

Hence, to expand on the performativity thesis, I want to evoke three other perspectives on the relationship between theory and world-making. The first is what Thrift (2001) calls the "performative politics of incarnation": when a 'new' or particular economy becomes incarnated by

interested groups. This provides a plausible interpretation, for instance, of the bitcoin economy and the constitutive role of traders, miners, speculators, Silicon Valley technologists, academics, investors and specialised media, all of which have created, promoted and performed the market. Like Pardo-Guerra (2019) when describing the arrival of electronic trading to the stock exchange, Thrift argues that a social group's engagement with a particular market requires it to enact that market's assumptions (2001, p. 418). These assumptions, of course, are not only derived from calculations and measurements, but also from political, cultural and affective dimensions. This perspective draws attention to the fact that interest groups may incarnate a particular economy driven by interest and/or belief rather than by the exercise of conventions, and may also be equated with the idea of self-fulfilling performativity (LiPuma 2016).

A second perspective on the relationship between theory and world-making is that of imagination and speculation. These dimensions play a role in pushing forward new representations of the world and forging new possibilities, and they may become perceivable through the "inventory of desires" expressed by people when performing an economy (Swartz 2017). Technological development, in particular, is "an opportunity to imagine a different world and imagine the mechanics of how that different world might be run" (ibid., p. 83). From this point of view, social research about finance and technology that does not overlook speculative discourses and practices might contribute to accounting for how the future is being conceptualised and enacted *through* fintech (Salazar et al. 2017; Sneath et al. 2009; Pink et al. 2018).

Lastly, I want to evoke the notion of political prefiguration, which I explore in more detail in chapter 3: putting into practice the desired future by enacting the social relations and institutions that appear as the final goal (Boggs 1977; Leach 2013). In other words, prefigurative politics refers

to practices which “rather than a cataclysmic seizure of power, (…) propose the continual creation and elaboration of new institutions” which may “gradually replace the existing social order” (Graeber 2009, p. 235). It is a classical sociological category, although somewhat limited to the studies of social movements, starting with 19th century anarchist and syndicalist modes of organising. What the category offers more broadly is a representation of performativity that is necessarily counter-hegemonic, and which mainly concerns the performance of a governance system more than the performance of a theory. From this perspective, the development of digital platforms with alternative governance structures for financial interactions may be understood in light of prefigurative politics, leading us to foreground the process through which new organisational architectures emerge and coexist with an existing social order.

These three notions – incarnation, speculation and prefiguration – offer complementary angles for accounting for performativity outside of high finance and its disciplining conventions, theories and models. And yet, despite their vulnerable status, some of the tales outside of high finance capture emerging debates, reflect new subjectivities, offer hope, and persuade, enchant and seduce in noteworthy ways.

## 1.5. SUBJECTIVE FINANCIALISATION: GAMBLERS, ALCHEMISTS AND CRYPTONAUTS

I have initially established a time frame for this research: the aftermath of the 2008 financial crisis and the launch of the bitcoin cryptocurrency. From this perspective, this study takes an epochalist approach to financialisation, evidencing a particular trajectory where the social relevance of finance is understood as undergoing significant changes. I now want to turn to the *subjects* of this research because, unlike the usual suspects in the 'making of the economy' – policymakers, regulators, economists and consultants (Brekke 2021) – this research foregrounds a different kind of actor.

As noted by Preda (2017), financialisation itself has been understood mostly as an institutional phenomenon, affecting corporations and developed economies, and less has been said about financialisation seen from below. Notable exceptions include Randy Martin's "Financialisation of Everyday Life" (2002), Preda's own "Noise" (2017) – an ethnography of amateur traders – and the body of studies on low finance, usually focused on financially excluded or low-income populations (Ossandón et al. 2021). These approaches tend to observe, more consistently, the subjective dimension of people's engagement with financial instruments. In this case, the role of DeFi in shaping new subjects in the post-crisis period is multiform: if, on the one hand, bitcoin has entered the buildings of Goldman Sachs and stock exchanges, it has, on the other hand, also produced many lay bitcoin investors, amateur miners and occasional traders.

In this sense, I want to briefly describe the subjects I encountered consistently throughout my fieldwork, as a specific kind of subject at work in fintech: academics and theorists, artists, philosophers, activists and hackers. For the most part, these were people with high levels of formal education and with an above-average financial literacy, socialised in an era of entrepreneurialism,

risk and calculation (Santos 2017; Langley 2008; Miller and Rose 2008; Hall 2011). While some of them displayed specialised knowledge about finance or fintech (finance theorists or computer scientists), they were certainly not 'professional' financiers, and their engagement with finance is better understood from the point of view of amateur or 'retail' finance (Preda 2017). It was evident, for instance, that people's engagement with these projects was not driven by the prospect of making money but by other motivations, and was generally more dependent on volunteerism than on paid work, notwithstanding common situations of debt or unemployment. Furthermore, the cases analysed in this research consist of teams rather than of lone subjects, and for that reason speak of collective militancy, along the lines of what Thompson (2014) calls "partisan finance", foregrounding the affects, temporalities, dissidences, emotions and contingencies influencing people's financial practices, which unfold side by side with the disciplining character of financial markets, typical of banks and trading rooms (Maurer et al. 2018; Konings 2015).

By paying attention to the financial practices unfolding on the margins of institutional high finance, this research thus intends to shed light on the subjective way in which individuals come to think about their movement towards finance (Martin 2002). In the case of cryptocurrencies, it has been argued, for instance, that small investments in cryptocurrencies by lay subjects are adopted as a strategy to face the generalised economic crisis and to claim a share of the economy, now that work has ceased to be a lifetime calling (Kim 2017). Indeed, the popularity of the blockchain infrastructure in the post-crisis period can be reasonably linked to the social emergency of claiming a share in the economy amidst a climate of austerity. And just like for amateur stock traders (Preda 2017), it is the machine itself which, once set up, is able to become a source of income (Williams and Srnicek 2014), and which indeed realises the desire to "reclaim the right to make money" (Bjerg 2014).

In this sense, DeFi does not completely oppose the nature of conventional financial markets - its abstract, gamified and ‘magic’ qualities, which offer the possibility of profit in ways that differ significantly from conventional work (Gell 1988, p. 9). It does, however, offer new territories for financial practices, and attracts new subjects who were not previously trading, investing or interacting with financial markets. In the chapters included in this thesis, I discuss cultural aspects of financialisation outside of high finance through ethnographic accounts of DeFi projects, identifying archetypal narratives mobilised by the projects’ teams: transhumanism, accelerationism, hacktivism and enchantment. These narratives – or, perhaps more rigorously, narrative motifs – constitute a sort of oracle onto a variety of moral and socio-political leanings, guiding and shaping fintech experiments. Amidst a continuous sense of uncertainty, these tales perform the social function of making sense of a situation, of stimulating action and of prefiguring future scenarios, while inspiring faith in a ‘happy ending’ (Lopes et al. 2021). I will discuss these tales in more detail in the main chapters, as well as in the concluding section.

## 1.6. CASE STUDIES AND METHODS

This research is grounded in qualitative methods, with an emphasis on participant and/or collaborative fieldwork. It included 29 semi-structured interviews, virtual ethnography and document analysis. Through virtual ethnography, I observed the working platforms used by my research subjects, such as Slack and Telegram, and I combined offline and online digital data collection with participant observation of computer-mediated interactions (Hine 2000, 2015; Kozinets 2010, 2015). This method, used for research on numerous online worlds – from the activist group Anonymous to the games World of Warcraft and Second Life (see Nardi 2010; Coleman 2014; Boellstorff 2015) – also allows for the exploration of digital cultures, with their own linguistic and aesthetic codes. Both in the virtual and fieldwork ethnographic periods, I became especially interested in how the projects were told – to me, to others and among the team members themselves. For this reason, this research is also my own "confession of a representation" (Maggio 2014, p. 41).

I began by mapping social movements engaging explicitly with finance in Europe. This led me to the Robin Hood Cooperative (RHC), based in Finland at the time and using a cooperative to pool together its members' investments, to invest in the stock exchange and to generate profits for the 'commons'. Created by Akseli Virtanen, a finance theorist at Aalto University, RHC soon began the transition from a web-based project to a semi-automated blockchain platform, whilst at the same time assembling a new team to start a new project: the Economic Space Agency (ECSA). ECSA would eventually set its base in Oakland, in the U.S., benefiting from the proximity to Silicon Valley and to the region's high concentration of technologists of all sorts.

At the end of 2016, I started following ECSA's online working sites: Slack (a conversational

platform), Google Drive (a storage platform that synchronises working documents across different users), Loomio (a voting platform), and Zoom (a video conferencing software). I also carried out interviews on Skype with ECSA members and collaborators, followed their daily chatroom-based discussions, and 'sat in' on their weekly video conference meetings. In April 2017, I travelled to Oakland for one month of ethnographic research. On the first day, I was issued the immediate challenge to get involved: "What better way is there to understand what we're doing?" I was told. In ECSA I found a group of philosophers, anthropologists, videogame developers, computer scientists, activists, coders and finance theorists, around half of whom had academic career backgrounds; they thus composed both an epistemic community and a community of practice (Callon 2004). I collaborated by producing recorded interviews, which they could use for their own communication purposes, and was treated as a member during meetings.

I carried out a total of 13 in-person interviews, as well as three online interviews and several recordings of working sessions, beyond maintaining a fieldwork diary. I was welcomed in both formal and informal encounters, and met several curious visitors, collaborators and other workers on the blockchain scene. As an academic among many academics, I hardly felt like an outsider and would occasionally find myself in conversations with the team about my research, my methods or my impressions. Likewise, their epistemological considerations about their own practice informed my conceptual framework, as described later on, as I deployed collaboration as a central tool in this fieldwork period (Holmes and Marcus 2008).

It was during my fieldwork in Oakland that I met a member of Senselab, a laboratory for philosophy, art and activism based in Montreal, Canada, in partnership with Concordia University. At the time, as I was told, half of Senselab's members were university affiliated, while the other half

were mostly independent artists and activists. The founder, Erin Manning, is an artist, philosopher and professor at Concordia University. In Senselab's charismatic leadership, she partners with Brian Massumi, a philosopher and professor at the University of Montreal, responsible for the English translation of Deleuze and Guattari's work "A Thousand Plateaus" (1987). In 2018, I participated in a four-day event organised by Senselab in Naples, Italy. This event was dedicated to the cryptoeconomy and provided the opportunity for members of Senselab to meet with various other organisations in the field, including RHC and ECSA, local activists and academics. I participated in the event's activities as any 'regular' participant would, and kept a fieldwork diary. After the event, I conducted one online interview with Brian Massumi.

One of the participants in Senselab's event was Enric Duran, the founder of Faircoop, a global cooperative movement launching its own cryptocurrency. As an anti-capitalist movement aiming to employ a 'fair' cryptocurrency in several places in Europe and beyond, Faircoop differed substantially from most of the projects I had come across in the blockchain ecosystem. In 2018, I did ethnographic fieldwork among the organisation's local groups in Milan (Italy) and Arbúcies (Spain), and at their annual summer camp in Novi Sad (Serbia). I conducted 11 in-person interviews, recorded working sessions and kept a fieldwork diary. Additionally, for some months, I followed their online discussions in chatrooms and online assemblies (on Telegram). I additionally installed my own faircoin wallet account, bought faircoins and was able to spend them during the summer camp.

Finally, in 2019, I had the opportunity to attend the annual technology conference Web Summit in Lisbon, Portugal. My observations of the event, together with the previously collected data, was used to compose the final chapter of this dissertation, in co-authorship with Inês Faria and Rafael

Marques.

During the drafting of the following chapters, I shared my writing with the various project teams and occasionally engaged with them in follow-up conversations for clarification purposes. Throughout the following chapters, I do not use pseudonyms and present all subjects using their real names, following their permission.

## 1.7. OVERVIEW

The chapters that follow were published or submitted as independent articles in international peer-reviewed journals. Some adaptations were made to avoid repetition, particularly in the sections that refer to methods and to technical overviews of the blockchain technology. **Chapter 2**, entitled "How Metaphors Matter: An Ethnography of Blockchain-Based Re-Descriptions of the World", was published in the Journal of Cultural Economy (Faustino 2019). It explores the role of a particular linguistic device, the metaphor, in the production of narratives that frame the technological design process. Drawing on a collaborative ethnography with ECSA, this chapter illustrates how the team's metaphorical language relates to a transhumanist narrative – as elaborated, for instance, by Katherine Hayles (1999) – and contributes to making sense of their own software proposal. Through an analysis of a 'collection' of ECSA's metaphors, this chapter sheds light on the work performed by specific vocabularies in fintech communities.

**Chapter 3** proceeds with an attention to particular vocabularies – this time, to the use of specific philosophical concepts. Entitled "Deleuze in the Wild: Making Philosophy Matter in Fintech", and published in the special issue "Finance: Tales of Experiment and Defiance" of the Journal of Cultural Economy (Faustino 2021), this chapter brings together data collected with ECSA and data collected during Senselab's event. It discusses the role of Deleuzian philosophy in the process of speculating towards an alternative financial economy composed of algorithms, blockchains, cryptocurrencies and crypto-assets. The Deleuzian theme is articulated by the project teams under the premises of an 'accelerationist' theory: a proposal to accelerate the capitalist process and to intensify the use of its technological infrastructure, with the aim of overturning its excessive powers. Accelerationism, as this chapter suggests, enables a re-interpretation of the process of financialisation of everyday life as a path of liberation instead of exploitation, an 'escapism' in

which the way out is through.

**Chapter 4** expands the focus on vocabularies to take a look at wider political repertoires, particularly the governance values that stem from hacktivist practices. This chapter is called “Will the Revolution Issue its Own Cryptocurrency? An Ethnography of Digital Infrastructures and Prefigurative Politics”, and is currently under review at the Journal of Material Culture, though I consider that the provisional version provided here is relevant for the overall discussion. Based on my ethnographic research with the global cooperative movement Faircoop, this chapter explores the movement’s values and the intimate relationship between governance methods and software design. I further propose the term ‘prefigurative infrastructure’ to account for the unfolding of the collective and horizontal production and maintenance of digital infrastructures for politics, in its more classical sociological sense. The adherence to particular values in the context of DeFi development, in this case, illustrates expected avenues of conciliation between automation and social oversight, compatible with the ideal of the ‘networked society’.

Finally, **chapter 5** includes data collected in different contexts, by myself and by my co-author/co-researcher Inês Faria, and expands on the scale of the ‘cryptocommunity’ by bringing together a wider variety of ethnographic and netnographic data. Entitled “The Myths and Legends of King Satoshi and the Knights of Blockchain”, it was published in the special issue “Finance: Tales of Experiment and Defiance” of the Journal of Cultural Economy, and is co-authored by Inês Faria and Rafael Marques (Faustino, Faria and Marques 2021). As the title suggests, this chapter presents the tale of the legendary creator of bitcoin, Satoshi Nakamoto, in a comparison with the tale of King Arthur. Expanding on Gell’s notion of the “enchantment of technology” (1999), it explores the cultural significance of phenomena such as myth, faith and ritual, without opposing them to

technological practices or to techno-scientific narratives, and highlights the quasi-religious and romantic dimensions we found in different moments of our fieldwork. In this chapter, our analysis engages with projects in the wild as well as with more institutional settings (albeit superficially), and suggests that blockchain technologies have had a symbolic impact in terms of re-invigorating enchantment and material romanticism towards fintech, which is perceived as a means to 'magically' solve various problems.

Finally, **chapter 6** discusses the implications of the findings in terms of understanding financialisation as it is being enabled by blockchain technologies, and suggests two propositions that may help to account for a particular subjectivity at play in the movement towards the financialisation of everyday life.

## 2. HOW METAPHORS MATTER: AN ETHNOGRAPHY OF BLOCKCHAIN-BASED RE-DESCRIPTIONS OF THE WORLD

This chapter discusses language and particular linguistic tools, such as metaphors, as significant creative instances for the production of meaningful re-descriptions of the world through technological design, determinant not only to the materialization of the very projects that may come into existence but also to their respective worlds (Wittgenstein 1953; Rorty 1989; Davidson 1978; Lakoff and Johnson 1980). Metaphorical language, while re-describing worlds, expresses socio-technical assemblages of human and non-human components and weaves them together in order to bridge different worlds (Callon 2005, 2009; Latour 2004; Bijker et al. 2012; MacKenzie and Wajcman 1999; Pinch and Swedberg 2008; Star 1990). More importantly, metaphors affect the coding process by framing the values and politics inscribed in technological artifacts. This chapter aims to contribute to the ethnographic understanding of preliminary processes of speculation and their importance in defining future financial/technological outcomes, thus ensuring a more sustained empirical basis to the suggestions that technological development mobilizes dreams, imagination, visions, narratives and, sometimes, some sort of counterpower (Swartz 2017; Nelms et al. 2017; DuPont 2017; Reijers and Coeckelbergh 2018; Swan 2015).

When considering metaphors as producers of meaning within larger socio-technical networks, one is able to trace connections between language and technological design, which oscillate between descriptive and instructive in nature. This problematizes the notion of socio-technical network and its attempt to grasp the location of agency. To consider the role of language and its speculative, constitutive and reality-building agency (thus refusing an interpretation of language as 'representative' of reality), is also to diffuse agency across wider cultural phenomena, revealed

through specific vocabularies (Austin 1970; Butler 1993; Licoppe 2010). In this case, the produced metaphors reveal the social and cultural embeddedness of financial technologies, and their aesthetics, in futuristic worldviews (Pilsch 2017). Adding to the idea of distributed cognition among ontologically different elements (Hutchins 1995; MacKenzie 2009; Zaloom 2006; Preda 2006; Cetina and Bruegger 2002), one could also explore the idea of distributed imaginaries, aesthetics and politics that stem from the interaction between humans and the otherness of computer protocols and algorithms (see Bridle 2018).

Metaphors, by linguistic definition, articulate existing signs in unfamiliar ways thereby creating new vocabularies (Davidson 1978, p. 43; Grady et al. 1999; Hutchins 2005; Rorty 1989). Even though they maintain referentiality, they introduce improvisation into language, and improvisation requires imagination (Duranti and Black 2011). In bringing together these heterogeneous elements, they *express* a new feature of the whole (Deleuze and Guattari 1987; Didier 2007; Latour 1999). This *new* feature under production, the re-description of the world in itself that the metaphor carries through the utterance of one speaker, must then be mutually and socially oriented by its interlocutors for the purpose of achieving  a collective intentionality and social order – metaphors thus work, through iteration, as a means of path-building, order-making and ideology-building (Latour 1996, p. 371; Rawls 2008; Kroskity 2004).

When approaching communities of technological design where preliminary and prefigurative processes of linguistic speculation support the development of emerging technologies, one can see how language *matters*. It plays a significant role in defining potential future directions, which are then made convincing by embedding them into the ‘hard’, ‘material’ substance of the machine (Leach et al. 2009, p. 65). On the one hand, the machine is a 'technology of expression’ - the

resource through which an ideology of language is both rendered explicit and embodied (Lépinay 2007). Simultaneously, the machine itself inspires and precipitates the creation of an ideology – it is a 'technology of the imagination' (Sneath et al. 2009). Through an analysis of metaphors as particular instances for re-descriptions of the world, produced by technological development communities, we may grasp the larger implications of emerging futuristic worldviews where politics and technical infrastructures are growingly interdependent.

This chapter discusses the case of the Economic Space Agency (ECSA), a start-up dedicated to *re-engineering* economics and finance by developing post-blockchain technology. At the time of my fieldwork, there were roughly ten ECSA members based in Oakland, the United States. However, the ECSA team is spread out globally; in Canada, Finland, Brazil and Australia, and with new collaborators coming on-board regularly from any place with an Internet connection. A situated dynamic of conventional sociality among the Oakland-based members unfolded in parallel with a global dynamic of virtual sociality. All working documents and meetings, as well as a significant number of discussions, took place online, with the purpose of including all team members, irrespective of their location. As a community, ECSA could in itself be considered a socio-technical arrangement, mobilizing a series of digital environments for members to establish communications and to coordinate actions, bringing to life a new, non-pre-existing group (Callon 2004). As I demonstrate further on, ECSA mobilizes a series of metaphors both to collectively orient meaning and to establish connections between socio-economic practices and the material technologies under design.

For approximately five months, I undertook virtual ethnography of the ECSA team's online working sites: Slack (a conversational platform), Google Drive (a storage platform that

synchronizes working documents across different users), Loomio (a voting platform) and Zoom (a video-conference software). I also carried out interviews on Skype with ECSA members and collaborators, followed their daily chatroom-based discussions and 'sat in on' their weekly video-conference meetings. Virtual ethnography was particularly important to initially informing my research, not only about what ECSA was doing but also to better understand how the team members coordinated their actions, spatially and temporarily framed within digital platforms (Callon 2004).

In April 2017, I travelled to Oakland for one month of fieldwork research. At that time, the ECSA headquarters were in a garage, at the back of a house in a residential neighborhood. I was received and issued the immediate challenge to get involved: “what better way is there to understand what we’re doing?” - I was told. I found a group of philosophers, anthropologists, video-game developers, computer scientists, activists, coders and finance theorists, with around half having academic career backgrounds, thus composing both an epistemic community and a community of practice (Callon 2004). I participated in the production of videos and was treated as a member in meetings. I interviewed nine members of the core-team, one friend, one advisor and one collaborator, and maintained a fieldwork diary. I was welcomed into both formal and informal encounters, met several curious visitors, collaborators and other workers on the blockchain scene. As an academic among many academics, I hardly felt like an outsider and would occasionally have conversations with the team about my research, my methods or my impressions. Likewise, their epistemological considerations about their own practice informed my conceptual framework, as described further ahead, deploying collaboration as a central tool for this ethnographic research (Holmes and Marcus 2008). For this reason, I do not use pseudonyms and present all members of the ECSA team according to their real names. In the next sections I describe the ECSA project and present a ‘collection’ of ECSA’s metaphors, before closing with my final considerations.

**Economic Space Agency**

I first came across the team's work while mapping independent movements politicizing finance. I came across the Robin Hood Asset Management Cooperative (RHC), also dubbed as a "counter-investment cooperative of the precariat", with the slogan "hacking finance for the common good". RHC was founded in 2012 by a group of artists and academics at the Aalto University, in Finland. It adopted a hedge fund-like structure, while maintaining a cooperative-like governance model: every member can enter a common pool with a minimum of €60, which is then invested in the New York Stock Exchange (NYSE) according to the recommendations of a competence-ranking algorithm. The profits are proportionally redistributed among the members as well as invested in the independent projects selected by the members. In 2013, the RHC team studied bitcoin and blockchain technologies before concluding that working with this technology would be the next step in building decentralized forms of cooperation. They moved from Finland to Oakland, near Silicon Valley, expanding the team and recruiting new members from the Bay Area. Their legal form has been somewhat fluid: while RHC remains registered as cooperative, they registered the Economic Space Agency (ECSA) as a start-up in the U.S. and have more recently registered ECSA as a foundation in Switzerland.

ECSA's technology spans two layers, both in very initial phases of development at the time of my fieldwork. On the one hand, a protocol[5] low-level infrastructure using both blockchain and off-chain technology, which seeks to generate greater scalability for mass adoption. On the other hand, supported by that infrastructure, a user-friendly upper-level platform, i.e., the website through which users can access ECSA services. This platform is described by ECSA as a "cybersocial infrastructural tool for the autonomous emergence of organizational dynamics". In practice, and

[5] A protocol defines the rules according to which computers communicate with each other and is effectively neither software nor hardware.

according to ECSA, this means that users can virtually organize with one or more people, establish their own interaction/governance rules, automate procedures, issue their own cryptocurrency, and so forth. The kind of digital organizations envisioned by ECSA seem to respond to the desire for bottom-up, spontaneous and decentralized social interactions, enabled by digital connectivity. Even though there are strong critiques to capitalism and neo-liberalism being transported by ECSA's narrative, the ultimate goal is to install an infrastructure that may be at the service of an ideologically-plastic politics: when speaking of what this platform 'would make possible', the team mostly focused on the heterogeneity and multidimensionality of social interactions, highlighting how we “cannot yet predict many of them”. Indeed, ECSA's collaborations in projecting these futuristic digital organizations ranged from libertarian, anarco-capitalist views of blockchain as enabling a stateless and free market, to anarcho-communist and collectivist views of blockchain as enabling a stateless and horizontal community.

In our conversation about how ECSA came into existence, the founder Akseli Virtanen emphasized the years of research, intellectual investment and experimentation that he and a larger group of thinkers invested in studying and understanding the economy beyond mainstream economic and business theory[6]. The concepts and discourses of economics, sociology or political theory, he told me, were unable to help them understand what was going on; they had to establish their own concepts, 'new words'. In a more recent e-mail exchange, Aseli told me that “ECSA is a new concept”. Drawing on the works of Deleuze – a major influence on ECSA’s thinking –, he added

[6] In an interview with Pekka Piironen, Akseli Virtanen highlights the importance of theory for the emergence of RHC: *For example, the whole Polemos book series we did in early 2000 in Finland was created for building this understanding and organization. These are wonderful books (...) from the best economic and political thinkers at the moment. For example, Christian Marazzi’s* Language and Capital, *Maurizio Lazzarato’s* Revolutions of Capitalism, *Paolo Virno’s* Grammar of Multitude, *Franco Berardi’s* Info-Labour and Precarious States of Mind, *Bracha Ettinger’s* Co-Poiesis, *Félix Guattari’s* Three Ecologies, *also your* [Pekka Piironen] *book* Economy of Insecurity, *my book* Critique of Biopolitical Economy *(…). This is why we are now capable of coming up with new products too. I don’t know how I could emphasize this more (*Piironen and Virtanen, 2015 p. 97).

that “the task of philosophy is to create new concepts, new little machines. But how do you recognize that you are encountering a new concept or a new little machine? According to Deleuze, it is simple. You recognize a new concept from that it is a little odd and that it is necessary” (Akseli Virtanen, 6th February 2018).

**A collection of ECSA's metaphors**

In this section, I not only present a series of the metaphors mobilized by ECSA in various contexts but also simultaneously and gradually introduce some of the team members. All of the selected metaphors exhibited some continuity during my fieldwork – reappearing in separate moments and evoked by different team members. These metaphors illustrate the articulation of heterogeneous elements necessary to generating a meaningful re-description of the world among a group of people that must orient objects, words and *worlds* towards a common understanding. To convey the importance of mutually orienting *things*, I have included a passage depicting how such mutual orientation may fail. Finally, the last passage refers to the ‘posthuman’, an aesthetic and philosophic synthesis of the new world under re-description.

***The Cambrian explosion***

For (at least) one month, the expression 'Cambrian explosion' was written on ECSA's garage white board, alluding to an event that took place 541 million years ago: at first, most organisms were simple, but with the Cambrian explosion the rate of diversification accelerated, and simple organisms evolved and began to complexify and to resemble the diversity of today’s life-forms. For ECSA, this historical event serves to allude to the 'explosion in new organizational forms' enabled by blockchain. Allegedly, these new organizations will bring about a wide array of malleable governance models in which the specific settings are fluid and ephemeral: public/private functional

identities, assigned rights and roles, implementation of instruments or applications such as fund pools or contracts. What ECSA describes as “heterogeneous” modes of organizing would, in a techno-mediated historical explosion, come to substitute the one-dimensional structures of existing organizations – i.e., the existing legal templates, such as enterprises, foundations, cooperatives or trade unions.

These multidimensional organizations would then disrupt the current standard economic models and enable multiple points of individual agency in an economic system, an idea reflected, not by accident, in the name Economic Space Agency: “the next phase in technological and financial development must involve the possibility for everyone to gain concrete access to the design of their own economic agency”[7]. The Cambrian explosion is a metaphor for organizational heterogeneity and multidimensionality, two values that enter into dialogue both with blockchain's technical architecture and with Deleuzian politics (Deleuze and Guattari, 1987 p. 7, Virtanen 2015). Jorge Lopez, the lead programmer of the low-level infrastructure protocol, told me that blockchains will trigger “an explosion in organizational forms” and “bring with them the opportunity to create a wider variety of highly specialized organizational structures, including monetary ones”. Pekko Koskinen, the lead designer of the ECSA upper-level platform, described this as a paradigmatic change - from the legal corpus of predetermined organizations to “yet unthinkable” programmable organizations: “Let’s say, 10 people or 10,000 people, being able to form a union together of any kind, deciding the rules, designing how to decide things, (…), being able to form any kind of organization between each other, which many of them we cannot yet imagine” (Pekko Koskinen, Oakland, 21st April 2017).

[7] Erik Bordeleau, *Re-engineering finance as an expressive medium*, at https://medium.com/economic-spacing/re-engineering-finance-as-an-expressive-medium-221e09d7042e [Accessed 20 October 2021].

***Lego, Tamagotchi***

In my first day of fieldwork, the team was in the garage preparing for a public presentation that would take place the next day. Akseli  was drawing a diagram on the white board that would allow people to visualize ECSA's architecture. The low-level infrastructure protocol was represented by a 'network'; above it, there was a 'portal' and, immediately on top, standing for the upper-level interface of the ECSA Platform, a few floating Lego blocks. The following day, during the public session, Lego blocks were on display on the garage's book shelf, assembled to spell the word 'ECSA'. During my fieldwork, the image of the Lego blocks returned on a few occasions. One such time occurred when an organization from New York visited to learn more about ECSA and Akseli described the ECSA upper-platform as enabling users to use 'Lego blocks' to build economic structures however they pleased; this was necessary, he continued, because the underlying low-level technology would be inaccessible to most people. On a different occasion, Akseli described who the Lego blocks were for: "Our end-game is (…) a network of entrepreneurs, artists, creatives, political activists, culturally and socially oriented people who are afraid of tech and finance. They are the ones who will build the Lego." With the aim of materializing the Lego metaphor on the technical level, the team decided that their platform would include template libraries – similar to the templates you find in a Wordpress blog. These templates, just like Lego blocks, would offer granular characteristics – let us say, different functional identities, different models for decision making, differently designed tokens or algorithms – that the users may then assemble into an organization.

Gaming imagery seems to exert particular power in alluding to a user-centered environment. Vienna Looi came to the U.S. seeking political asylum from Malaysia after a period spent organizing civil movements for Malaysian electoral reform. After working for a bitcoin company in Silicon Valley,

she was happy to find a group of people – ECSA - applying blockchain to "improve the human condition". Vienna is passionate about the design of algorithms and their potential for deployment at the individual level – "so everyone can do their own calculations". She calls these algorithms *economic pets,* and compares them to Tamagotchi, the 1990's Japanese toy where you grew and cared for a virtual pet:

> *Facebook and Google's search rank, what they try to do for you is determining 'I think this is important'. But what if we don't necessarily agree with Google's value system? Could we say 'hey, I want to have my own algorithm with my own value system, that says* [that] *maybe what I want to look for in the market is fair trade, things that respect human rights and the environment', and then you would let the algorithm go out to the market that has a lot of noise and come back with certain results, be it products, information, articles…* (Vienna Looi, Oakland, 29th April 2017)

***The octopus***

Part of ECSA's work, at least during 2017, was to 'onboard' any groups bringing in proposals for digital organizations that could be launched through ECSA's platform. This process served both as a means of enrolling different collectives into ECSA's network and for informing the ongoing design process through use-cases. One of those proposals came from SenseLab, an art, philosophy and activist research group based in Montreal, Canada. Erik Bordeleau is a philosopher and anthropologist, part of both the ECSA and Senselab teams, working as "a sort of intercessor". The collaboration between these two groups began when SenseLab was seeking funding for a transdisciplinary university, a quest that proved unsuccessful[8]. As Erik described, "we met Akseli

[8] Senselab has recently launched a membership-based crowdfunding to support this project, that will kick-off

who just told us, what if you think of finance as an artistic medium?”

Distribution and anonymity are two of the main features of blockchain technology. They build a particular form of social organization into the ‘hard’ machine: peer-to-peer anonymous coordination, without any intermediators. For Erik, finance itself is “a way of coordinating people, in a very decentralized way”. He referred to the Invisible Committee’s writings about spontaneous organization as a pathway towards developing collective and self-organized life-forms (Invisible Committee 2009:42), and added that financial tools, such as those enabled by blockchain technology, might operationalize a vision of what it means “to be a form of life, a certain way of being that coordinates itself”. In other words, blockchain and its technical architecture, granting distribution and anonymity, is understood as the infrastructure that may foster spontaneous organization: a sort of self-organized life-form.

Curiously, the Invisible Committee is an anonymous group of authors engaged in authorial withdrawal. Following Foucault’s insights about the policing role of authorship, their anonymity works, among other things, as a way to destitute the formation of power relations between author, work and world (Bordeleau 2012, 2015). The creator of blockchain, under the pseudonym Satoshi Nakamoto, has also remained anonymous to this day, escaping the attention of the media, cryptocurrency community and regulators, and consequently allowing bitcoin to develop without leaders, according to the needs of its users.

Erik described Senselab’s organizational proposal to me, as one that explores the idea of 'spontaneous organization'. For that purpose, yet another concept is mobilized: the politics of the dividual (Deleuze 1992) as a cancellation of the individual in favor of a collective and fragmented

as a nonprofit.

form of life.

> *And, now, the last iteration of our economic space is around the figure of the cephalopod, the octopuses and these families, and how… it's a very decentralized, rhizomatic, mode of functioning. (...) And we're trying to think of ways so that we are not just in an economic exchange model, where you have clear contracts and transactions between parties, but how to mix, to make imperceptible, or to cancel the distinction between the emitter and the receiver, between the one that offers and the ones that receive, and to create this kind of magmatic pool that sometimes takes shape for an external offering, but that otherwise, within its own realm, remains as abstract and fluid as possible* (Erik Bordeleau, Oakland, 2nd April 2017).

Mobilizing the metaphor of an octopus whose tentacles mimic blockchain's distributed nature, Erik signals further connections. Inspired by the ideas of 'spontaneous organization' and of the 'dividual', he draws the image of anonymous emitters and receivers in an abstract magmatic pool as a symbol for spontaneous organization. Precipitated by various technologies – from objects to texts – SenseLab envisions an 'economic space' where decentralization and anonymity forge a structureless market.

***When metaphors don't bridge worlds***

ECSA's reach out work proves efficient when their interlocutors understand their metaphors, 'dream' through the same style of imagination and get excited about the projected future. I witnessed both how hours of conversation with a visitor seemed to produce little vibrancy, while more ephemerous encounters would result in an immediate and aligned collaboration. In a conversation with a

blockchain investor, ECSA's usage of the term 'social fabric' to describe their low-level technology induced some sort of confusion: "what do you mean by fabric?", the investor inquired, adding that he was having a hard time "wrapping his mind around" ECSA's work. ECSA seems fairly aware of this and takes this difficulty as an indicator of where to direct their efforts. On a different occasion, and referring to another investor, Akseli shared with the rest of the team: "I was talking with T., the biggest bitcoin investor, and he did not understand what we were doing. He's not our target audience. He did not understand the technological level we're at, and he's not interested in our end-game, more political and social…." Further ahead in the conversation, Zachary Larson, a computer scientist, was wondering how to communicate ECSA's message implicitly through "alternative signals" that spoke to people with similar mind frames: "can we find a secret handshake that says, 'we are re-engineering finance' without having to say so?"

Metaphors may work as bridges over the intersections of different communities of practice but only because conflicting vocabularies are encountered in the first place – while some bridges hold up, others do not (Star 1990, Davidson 1978). In this case, metaphors seem to be in use as 'alternative signs', mapping those interlocutors that 'understand' - charting the robustness of the bridges built. I now turn to the mobilization of a more encompassing metaphor, the 'posthuman' - a philosophical, political and aesthetic approach to the relationship between people and technology[9]. My treatment of the 'posthuman' as a metaphor follows Rorty's idea that metaphors bring with them unfamiliar uses of language through introducing new vocabulary that eventually dies through literalness. Today, the term 'posthuman' is in an in-between state, and the tensions between metaphorical and literal uses of the term reflect in the very process by which a world is re-described (Rorty 1989 p.

[9] It is important to highlight that the ECSA usage of the term 'posthuman' is in the transhumanist sense: as the stage in which humans might find themselves after they transform so radically so as to overcome their human condition. A different approach to 'the posthuman' as a philosophical reconfiguration of humanism can be found in a growing body of literature (see Haraway 1990, Braidotti 2006).

16). I therefore argue that 'the posthuman' is strategic for ECSA's endeavor of commanding connections and bridging worlds – perhaps that which Zach would call a ‘secret handshake’.

***The posthuman***

During my fieldwork, ECSA received an external communication and design team to assist with the contents and design of their new website. For three days, intensive working sessions unfolded in the garage. These working sessions were animated by brainstorming processes around vital questions, including 'who is our audience', 'what do we believe in' and 'what is our purpose'. Even while the aim was to achieve short sentences, the process was often long and somewhat difficult.

One afternoon, they explored other blockchain-based projects and analysed their aesthetics and corresponding message. The team consensually considered most to be very ‘business oriented’ and ‘safe’. After a few comments about videogame aesthetics, someone suggested: “there’s a sci-fi gaming feature in what ECSA is doing”. Shortly after this, Zach walked into the garage with a paper in his hands and said he would like to read a poem: 'All watched over by machines of loving grace', by Richard Brautigan.

> *I like to think (and*
> *the sooner the better!)*
> *of a cybernetic meadow*
> *where mammals and computers*
> *live together in mutually*
> *programming harmony*
> *like pure water*

*touching clear sky.*

*I like to think*

*(right now, please!)*

*of a cybernetic forest*

*filled with pines and electronics*

*where deer stroll peacefully*

*past computers*

*as if they were flowers*

*with spinning blossoms.*

*I like to think*

*(it has to be!)*

*of a cybernetic ecology*

*where we are free of our labors*

*and joined back to nature,*

*returned to our mammal*

*brothers and sisters,*

*and all watched over*

*by machines of loving grace.*

A few days later, on Slack – their conversational platform, Laura Lotti, a collaborator with a background in economics, philosophy and cybernetics, posted about that day's conversation and how it had made her think about a book called 'How we Became Posthuman: Virtual Bodies in

Cybernetics, Literature and Informatics', by Katherine Hayles (1999). She shared how the book argues that we have been posthuman since at least the 1950's due to cybernetics and that the team should leverage this dimension for their positioning as it provides a sound philosophical and conceptual basis to define their beliefs and purposes. She quoted the author:

> *(…) my dream is a version of the posthuman that embraces the possibilities of information technologies without being seduced by fantasies of unlimited power and disembodied immortality, (…) that understands human life is embedded in a material world of great complexity, one on which we depend for our continued survival* (Hayles 1999 p. 5).

Laura continued by stating that she rejected the binary of the 'authentic' human versus the cold machine, and appealed that their work should support "this version" of the posthuman; "after all", she continued, "what is autonomy through automation but a posthuman project?" After this, it became common for team members to deploy the posthuman vision as a workplace philosophy and aesthetic reference in support of internal debates about their organizational identity. Soon after, for example, in a Skype meeting dedicated to discussing their proposed new website, ECSA highlighted how it should appeal to a 'posthuman community'. Applying the term to synthesize a set of values capable of being expressed both at the content and the aesthetic level, the team made further references to a 'futuristic economy' and to transhumanism – [that is] "what we mean when we say relations or communities: seeing how technology and humans can play together in a symbiotic way, in the future". Through a sequence of interactions, both in person and computer-mediated, the team uncovered a shared object, seen suddenly in common - a *specific version* of the posthuman that was evoked to allow for collective sense making.

As digital technologies become ubiquitous in all dimensions of human life, concepts such as ‘the posthuman’ conquer absolute literalness and seem to be (re)captivating the collective imagination (Cetina 2006, p. 240). As a consequence, posthuman visions of the future, embedded in communities of technological practice, seem to leave their mark on the social shaping of technology, even when those marks are classified as the passing fantasies of techno-enthusiasts and futuristic eccentrics (Bijker 2012; MacKenzie and Wajcman 1999). They are significant in the sense that they constitute an 'inventory of desire' projected onto these technologies, informing the design process and thus exhibiting their own materiality (Swartz 2017 p. 83). Such desires and values, mobilized to 'manufacture an evolutionary future', are pushed forward through what Nick Land calls 'hyperstition' – a term that refers to the insertion of certain ideas in the cultural, political and aesthetic circuitry (Pilsch 2017, p. 201), ensuring future positive feedback loops.

**Final Considerations**

The ECSA metaphors propose a particular scenario: blockchain triggering a post-Cambrian world in which people organize and participate through complex digital organizations that flourish and thrive; in which financial, economic and organizational structures become plastic and composable, as if made of ‘Lego’; where everyone domesticates their own personalized ‘Tamagotchi’ algorithms and in which markets become an ‘octopus’ of fluid and anonymous digital movements. Finally, human autonomy is achieved through technological automation in a stage we may term posthuman. Some of these metaphors, like the cambrian explosion or the octopus, are biomimetic -, that is, they mobilize elements of nature to explain, describe or instruct solutions to complex human phenomena. This has been a common approach to recent technological developments (like robotics) and it is also, from what I learned during my stay with ECSA, something very present in Silicon

Valley culture. At the same time, the mobilization of things, like Lego or the Tamagotchi, points to an object-oriented referentiality, which links with a growing field within empirical philosophy that foregrounds objects: everything exists equally – bacteria, humans, rocks or computers – and no entity has a special status. This might be relevant here since object-oriented ontology is very much at the basis of a new aesthetic movement obsessed with technological objects and digital imagery (Bridle 2018; Pilsch 2017; Bogost 2012).

The necessity of mutually orienting discourses is not exclusive to the workplace but takes place as well among a wider community – in particular, the community of users, investors or coders, but also among a global audience. When the metaphors 'work', that means its interlocutors agree on a ‘passing theory’ (Davidson 1986). When they do not, that means those words are inappropriate for dealing with one’s world. This is one way in which metaphors matter: through processes of speculation, they propose a re-description of the world that claims to be more useful for the purpose of dealing with the new socio-economic paradigm accelerated by blockchain technologies. In doing so, they work as a membrane – a 'secret handshake' - creating an invisible and malleable divide between co-existing understandings of the world, and, consequently, different ethos of practice around technological developments (Rorty 1989, p. 4). Another way in which metaphors matter is in how they instruct the design of the governance architecture of a given digital platform, that must be materialized through code – the software architecture. The politics of specific socio-economic values seem more plausible because they can be made to be an extension of the very materiality of computer code (Leach 2009). The conditions of felicity of these proposals thus arise both from the successful resonance among a large-enough community of a new world and its respective vocabulary, and from its technological materialization.

Through an analysis of metaphors I have sought to demonstrate how they establish the values that must be coded into the 'hard machine', while being, simultaneously, precipitated by material practices (Lépinay 2007; Sneath et al. 2009). This loop may presuppose larger implications when analysed at large, even if just speculatively, given that such particular vocabularies are embedded in a wider and relatively emergent discourse about the symbiotic future of humans and digital technologies. Such discourses carry an ideology of language that must be understood as a culturally contexted speech and as a locus of economic and political interest of a specific group of speakers, rather than as a structural category (Kroskrity 2004). In that sense, the discourses portrayed in this chapter point to a significant technological imprint in the design the organizational landscapes of the future. The politics that stem from the blockchain community are impregnated with the toponymics of decentralization, distribution, anonymity, modularity, etc. These are general characteristics found in many digital environments but, in particular, found all together in blockchain technologies. Blockchain itself then becomes a metaphor for a particular kind of socio-political organization, one that seems to prefigure a new world where human communities and digital platforms display similar architectures for governing interaction. On the other hand, and inverting the loop, these new forms of human organization, and their respective politics, depend in absolute on their material counterparts. The futuristic worldview according to which a user can shape her organization's governance architecture in a modular way, launch her own currency and exert full control over her own personalized algorithms cannot be attained without the technical infrastructures that support it. Blockchain technologies, but not exclusively, constitute a prefigurative technology, in the sense that they inspire and configure modes of social interaction that cannot exist without their own technical means. A posthuman worldview then refers as much to a symbiotic relationship between humans and technology, as it refers to a symbiotic relationship between human politics and material culture.

## 3. DELEUZE IN THE WILD: MAKING PHILOSOPHY MATTER IN FINTECH

This chapter discusses the role played by narratives in projects coding and implementing financial technologies (fintech). I present three empirical cases that apply Deleuze's philosophical theory to create epistemological tales about their technological endeavours and where such tales work to solve moral and political issues raised by those same technologies. The focus of this chapter encircles the two defining aspects of the three case studies selected: all are projects led by academics outside university settings, and a significant number of these academics are philosophers. These organizations work “in the wild” (Callon and Rabeharisoa 2003), away from universities, to speculate around an alternative financial economy using technologies such as blockchain, cryptocurrencies and algorithms. Through the idea of tale, I analyze how the narratives of these organizations around their techno-financial experiments work as a device to solve contradictions, envision solutions and demand repairs from the deceptive conventional economic and financial system (Propp 1968 [1928]) – more precisely, the tales dissociate these experiences from others similar by dressing them in a different story (Zelizer 1997).

The tales told here are not provided in a literary form but primarily formulated through the practice of empirical philosophy, employed by actors in the context of technological development. Through the lens of particular philosophical concepts or theories, pragmatic issues become symbolically resolved, not by leading to any material changes but by pushing forward with a new reading of, broadly speaking, the same material configuration. This is not a classical example of theory application through institutional settings and conventions: the cases addressed here are what can be called open, temptative, uncertain (Lopes et al. 2021). They are «cases of defiance» that confront the mainstream system and attempt to withdraw from it through practices, theories and rationales

that break with previous conventions or arrangements and thus point to how social facts can be created anew (Boldyrev and Svetlova 2016; Butler 2010; Wilkie et al. 2017).

From this point of view, the literature of performativity studies has remained somewhat peripheral to this line of thought due to its focus on how theory shapes the material world (Butler 1990; Callon 1998; Knorr-Cetina 1981; Latour 1987; MacKenzie 2006). Although some performativity authors have explored the perlocutionary and constitutive power of descriptions and of the «utterance» itself (Roscoe 2016; Muniesa 2016), this chapter focuses not so much on how Deleuzian tales shape the material world but on how they mark one particular operation and distinguish it from another. To put this simply, tales do not necessarily interfere with the techniques through which an algorithm, for instance, is designed and deployed; but they may communicate a differing narrative about one's own algorithm that dissociates it from other algorithms, even while the deployment techniques remain the same. Indeed, tales, in this case – just as Deleuzian concepts – are more speculative than performative.

I have chosen the term 'in the wild' because it refers both to the creation of new concepts in pragmatic contexts (Deleuze 2004), and to practice-oriented groups researching outside institutional settings (Callon and Rabeharisoa 2003; Svetlova 2018). In the cases I describe here, the subjects leave the university setting to pursue their projects independently but still retain the epistemic practices that are common in laboratorial contexts. Contrasting with both Callon's and Svetlova's more rigid distinctions, these cases extend epistemic practices into a realm where knowledge may be conciliated with decision making processes. I suggest, therefore, that the 'wild' may be taken more literally as an undomesticated context with relative freedom from social conventions.

Materially speaking, the empirical cases involve the development and utilisation of blockchain

technologies, algorithms and cryptocurrencies. These technologies are deployed as a means to operationalize an escape from the conventional financial and economic system even while raising political issues of their own that require addressing - after all, they are also one part of the conventional system and of the rising fintech industry. For such purpose, particular narratives guide the social navigation that these communities engage in through these material and technical landscapes – the Deleuzian philosophy returns new symbolic depictions for each operation, slightly shifting their gravitational centre from an 'objective' and 'rigid' interpretation to a more metaphorical view (Eco 1986; Faustino 2019; Rorty 1989; see also Ertürk et al. 2021).

Praised by some as a technology that dispenses with social coordination (Goertzel et al. 2016; Kurzweil 2005; Tapscott and Tapscott 2016), blockchain technologies, as with any other, require social and political negotiation about their contextual relevance inducing a variety of appropriation techniques that turn them into situated experiences. Despite introducing encryption and anonymity as the basis for non-discursive interactions, the many decisions that affect the political economy of blockchain platforms involve political negotiation among their developers. Thus, signalling the functions of tales in 'interpreting' and situating technologies dismisses the general idea that technology is somehow opposed to the “noise and irrationality of political conflict” or a technique to “evade and circumscribe politics” (Barry 2001, p. 7). In this sense, this chapter puts forward an account of the political negotiations that do take place in situated techno-experiments.

So how do tales matter? In the cases discussed here, tales perform the function of earmarking particular financial operations. Not just of earmarking money, in Zelizerian terms – the process of classifying and using money according to different social relations, such as donating allowance money to church but not money stolen in a robbery (Zelizer 1997). They equally earmark

transactions, financial instruments and the numbers themselves. The apparent objectivity and rigidity of these operations is overcome through the creation of qualitative distinctions, not just about the origin or destination of money, for instance, but also about its fundamental meaning or nature – Zelizer herself does briefly point to the importance of special vocabularies to convey the qualitative distinctions of money (1997, p. 24). The qualitative distinctions of financial operations, described in the ethnographic passages of this chapter, are crafted through philosophical tales that ritualize, re-describe and attach a particular moral discourse to the otherwise «dark sides» of monetary operations - bringing symbolic order through philosophical classification and categorization (Bowker and Star 2000).

In the next section, I begin by explaining the link between the three empirical cases and universities. In the following three sections, I present ethnographic data about the process of earmarking financial operations through philosophical tales: the first concerning the conceptualization of stock market investments as a form of protest and political action; the second approaches the conceptualization of numbers as a qualitative expression instead of a quantitative expression, while the third case deals with the creation of new concepts to categorize financial operations. The final section concludes by discussing the larger implications of the ethnographic data presented.

**From the university into the wild**

The Robin Hood Asset Management Cooperative (RHC) was founded in 2012 by a group of artists and academics from the Aalto University School of Arts, in Finland. It is registered as a cooperative, accepting members from anywhere in the globe, with the aim of investing member funds in the New York Stock Exchange (NYSE) and then distributing the profits among the members and selected projects. The fact that an artistic project was generating profits on the NYSE

led to the cancellation of the project's funding as “Robin Hood was seen as potentially dangerous to the reputation of the university” (Piironen & Virtanen 2015, p. 99). The project's coordinator, Akseli Virtanen, who would also be fired from his teaching position at the university, is a Finnish theorist whose work stands at the intersection between political economy, radical finance and philosophy. In our conversations about the emergence of his work 'in the wild' he emphasized the years of research invested by him and a larger group of thinkers to studying and understanding the economy beyond mainstream economic and business theory. To this end, they approached philosophers such as Foucault, Deleuze and Guattari, Derrida and the Italian post-workerists, such as Christian Marazzi and Franco Berardi.

During the RHC project, Virtanen and the rest of the team started exploring cryptocurrencies and decided to create the Economic Space Agency (ECSA). In 2016, Virtanen and other Finnish ECSA members moved to Oakland, in the U.S., near the vibratory epicenter of Silicon Valley, gathering a team of philosophers, anthropologists, video-game developers, computer scientists, activists, coders and finance theorists – half of them academics. Their list of consultants includes still other theorists, and with ECSA formally defined as a 'research and development collective', throwing a significant spotlight onto its theoretical production. Some of its members maintain formal teaching jobs in university settings and, curiously, the final appeal for collaboration I received on my last day of fieldwork was to look into collaborating with Lisbon University over launching a cryptoeconomics curriculum – something I did not pursue as I was then too absorbed in my PhD research to fit such a massive task into my agenda.

It was during my fieldwork in Oakland that I learned about Senselab, one of ECSA's closest collaborations. Senselab is a laboratory for philosophy, art and activism based in Montreal, Canada,

connected to Concordia University. Half of Senselab's members are university affiliated, while the other half are mostly independent artists and activists. The founder, Erin Manning, is an artist, philosopher and professor at Concordia University. Brian Massumi, who partners with Manning in a sort of charismatic leadership, is a philosopher and professor at the University of Montreal, responsible for the English translation of the Deleuze and Guattari work 'A Thousand Plateaus'. According to Manning, the university constitutes an important milieu and, in their strategic relationship with the university, Senselab advocates what they term “strategic duplicity” – working with the system “while nurturing an alien logic that moves in very different directions”. Their collaboration with ECSA set them on the challenge of learning about cryptoeconomics, options and derivatives “in childlike steps, towards the unknown”. While blockchain seemed like a convincing way out of unwanted forms of work and legal structures, some effort was needed to convince Senselab's left-wing collaborators, resistant to the libertarian tendencies of cryptocurrencies, that this was something worth considering – and, just like the case of Virtanen and his Finnish group of thinkers, this would have to be done through Deleuze and Guattari, William James, Alfred Whitehead, Spinoza, Simondon, Fred Moten, among others.

**Earmarking investments in the New York Stock Exchange**

When I first heard about RHC, I became a member myself. I made the minimum investment of €60 through their website – though I might have bought more cooperative shares to enlarge my investment and my possible return. At the time of registering, there were three profit-sharing options available: 100% of profits in return, 100% of profits for the common pool – with the goal of funding projects – or a 50%/50% split of the profits between the investor and the common pool – I chose the latter. An algorithm would recommend investments in the NYSE to the fund's manager and all I had to do as a member was to await the profits.

As there are no major investors involved, RHC describes itself as a “minor asset management” cooperative, deploying the Deleuze and Guattari concept of «minor» (1987)*:* minor because there are “a lot of small assets working together” and because it is “the management of the assets of minorities”. Its most exotic hedge-fund trait is the recourse to an algorithm called Parasite to administer the fund. Tére Vaden, a philosopher, RHC coordinator and teacher at Aarhus University described the Parasite as a 'competence ranking' algorithm: it tracks the consensus among successful NYSE traders and recommends what it considers the best trading options - the fund's manager is then responsible for making the final decisions. During the fiscal year of 2013-2014, based on the Parasite’s recommendations, there was an average of 4.2 transactions a day and, although the algorithm began displaying strange behavior in 2015 that led to a financial loss, RHC allocated €15,000.00 to fund commons-building projects based on the profits donated between 2012-2014, which was deemed a satisfying result in member assemblies.

However, the RHC position towards the conventional financial system raises problems of its own. As a friend of the team told me in Oakland:

> [RHC] *is not subversive because it does not hold morals against the capitalist system. So, if a German producer of small weapons, for example, does really well as they do on the stock market (…), Robin Hood will take part in that share. And they will support the income and the value of that company because there’s no moral boundary saying «you shouldn’t do that»*. (RHC Interviewee A, Oakland, 11th April 2017)

To this end, RHC responds with a philosophic interpretation of the political validity behind parasiting the financial system. Their algorithm is named after Michel Serre's concept of the Parasite (1982). As Vaden explained, the algorithm follows what competent players do but does not try to analyze or understand any fundamental information about the stocks: it just collects “information about the immaterial work” of NYSE players. Ana Fradique, an artist and RHC team member, further commented that the Parasite “occupies Wall Street from within” without demanding the huge amounts of physical and emotional energy that a street-protest movement like Occupy Wall Street, for instance, demands. Vaden put it in yet another way: regular citizens only get the downside from financial speculation, and RHC’s goal is to provide some of the upside to what happens, in the Deleuze and Guattari spirit of taking capitalism further as a revolutionary path (Deleuze and Guattari 1972, p. 285). The idea of protesting without incurring the exhaustion of the conventional protest culture is even expressed by the theoretical outputs of team members as 'affective rest': “that the members do not need to put all their abilities and skills and relationships to work, to bond, to create a community, etc. – with still a possibility of income” (Piironen and Virtanen 2015, p. 101).

By partially automating investments and providing the possibility to parasite the NYSE, RHC generates profits while granting the protester affective rest. Many members, as Vaden confirmed to me, described the RHC ethics as the act of “transferring money from the dark side to the commons side”. This boundary separating the 'dark side' from the 'commons side', created through philosophical re-categorization, earmarks RHC's stock market operations – a typical capitalist hobby of investing blindly in stock markets - as a form of protest and political action aimed at redistributing profits for the commons.

**Expressing the qualitative dimension of numbers**

In 2018, I had the opportunity to participate in a workshop organized by Senselab in Naples, Italy. The workshop was entitled 'Finance at the limit: towards the REvaluation of Value'. The participants were mainly philosophers, activists and researchers, and the workshop included two days of readings and discussions, usually distributed in small groups, after an opening conference held at the L'Orientale University of Naples. In the opening conference, Senselab explained that they were working with a group of blockchain developers to create a cryptocurrency that would capture qualitative value: inspired by Massumi's own concept of «event derivative» (Massumi 2018), the new cryptocurrency would represent the value produced by a particular event that only has its quantifiable effects in its own aftermath.

On the second day of the workshop, held at a nearby squatted convent with a functioning social centre, we played a game which depicted what exactly it meant to use philosophic concepts to reframe technical rationales. The game was called 'conceptual speed-dating' and consisted of joining people together in pairs that would then break up and regroup differently every five minutes. The task set for these pairs was to discuss a two to three page excerpt of Deleuze and Guattari's 'War machine' (1987). After about four or five rounds, the game came to an end and the group gathered together in a large assembly to discuss one particular concept sourced from that excerpt: 'the numbering number'. Senselab deemed this an important concept because, as Manning explained, when Senselab began thinking about cryptocurrencies, there was an enormous panic around quantification, “of the numeric”, the same dimensions that Senselab had for a long time rejected. Comfort came in the words of one Senselab member: “you don't have to be afraid; a number does not need to be a counting number”, he proposed. Of course, even counting numbers do not have to be viewed exclusively in quantitative terms as some authors close to Deleuze have pointed out

(Latour and Lépinay 2009; Quattrone 2009). However, in this case, Senselab intentionally moved away from numbers intended to count and quantify and turned to the numbering number as “no longer a means of counting or measuring but of moving: this is the number itself that moves through space” (Deleuze and Guattari 1987, p. 389). This reframed their approach to numbers in a qualitative manner – for instance, numbers as code, from measuring scales to computational languages.

Re-interpreting something that was already there made it possible to express something new (Didier 2007). As Massumi told me, Senselab wanted to get away from the existing financial vocabulary, because “language is powerful: this is not just knowing different things, it's knowing differently”. Once again, through philosophic re-categorization, objective numbers or technical features are dressed according to a particular theory, through a sort of conceptual socialization that renders them more familiar (Lopes 2011).

**A new glossary for a new economy**

Following the ethos set out by RHC, the ECSA aim is also to parasite finance from within – not from within the existing financial realms, such as the NYSE, but rather by seizing the stock market's financial instruments and taking them into new and 'lawless' financial realms. For that purpose, their tale is one about the very emergence of new economic narratives and highlights the central role of language in that process – a sort of meta-tale. ECSA's project, still under development, aims to launch a blockchain-based platform where users may program their own cryptoeconomies by applying pre-made templates for differently architectured digital organizations, cryptocurrencies and algorithmic financial instruments, such as derivatives. Above all, ECSA seems interested in pushing forward a posthumanist view of humans and technologies interplaying

symbiotically to produce new financial economies, free from previous conventions (for a more detailed ethnography of ECSA, see Faustino 2019).

During my fieldwork, I witnessed a meeting with a young Singaporean investor, who had become wealthy after investing in bitcoin in its early days. He commented that ECSA's goals were too ambitious and required “the best thinkers”, to which Virtanen responded:

> *We have them all. We have the best financial theorists working in the world, we have political economists (…), the best philosophers alive at the moment. This is our strength, we are very strong in that region. Also in technology.* (Akseli Virtanen, Oakland, 10th April 2017)

Producing 'the new' was an endeavour that ECSA took just as seriously as the technical development of their platform. While the coding process was slowly taking place, led by a small team of developers, a larger group was primarily committed to crafting the specific vocabulary that would adequately communicate their project in their professional encounters, online presence, technical white paper, conference interventions and similar other events. They were devoted to the creation of new concepts and, as Virtanen told me, “according to Deleuze, it is simple: you recognise a new concept in that it is a little odd and that it is necessary”. I quickly realized that Deleuze played a significant role in their 'glossary' - and, indeed, their office library contained dozens of publications by Deleuze and Guattari, both together and solo. ECSA would commonly refer to their work as “nomadic” and as a “deterritorialization” of finance; as the “minor” work of parasiting finance from within; as a mode of setting the social “attractors” for their own “becomings”, of distributing “flows of desire” and of rendering liquid the inherent value of

“heterogeneity”.

While such “odd concepts” became naturalized within the ECSA team, they would sometimes become lost in translation when communicated externally. For instance, I had myself become quite acquainted to the fact that ECSA referred regularly to their protocol code as “computer fabric” until I witnessed a Skype meeting with an investor who replied in confusion: “what do you mean by computer fabric?”. The investor further added that he was “troubled” and could not get his “head around” the ECSA project even though he was “a sophisticated investor”.

Some time after I returned from my fieldwork in Oakland, another blockchain investor and entrepreneur posted on Twitter that ECSA was a “parody” given its usage of odd vocabulary such as “to warp economic spacetime”. ECSA replied to this[10] acknowledging their use of “ambitious language” and arguing that a reconfiguration of technological landscape is also a creative act that requires a fruitful use of “creative” and “metaphoric” language. They posited that any new world requires new terminology. Soon after this, ECSA published a glossary on their webpage explaining their most daunting concepts.

Ana Fradique, a member of both the RHC and ECSA teams, told me that Deleuze provided a “set of tools” for ECSA to operate with. On a different occasion, Laura Lotti, a cybernetics and blockchain researcher, mentioned how important it was to “craft a language able to communicate in the most simple and straightforward but also most evocative way”. At ECSA, naming and describing was obviously not a mere representational process but rather a fundamental re-negotiation of existing conceptual economic categories. This is, in itself, a tribute to the Deleuze and Guattari view of

[10] For the full response, see https://medium.com/economic-spacing/glossary-for-gravity-and-space-a8d62f6a2111 [Accessed 20 October 2021].

philosophy as a field whose purpose should be the “creation of concepts in the wild” (Deleuze 2004, p. 141). Thus, ECSA's odd concepts are not purely descriptive representations but rather self-posit and gain an autonomous existence as emerging philosophical categories that may or may not hold (Deleuze and Guattari 1994).

**Final considerations**

The ethnographic passages in the previous sections identify three ways in which tales earmark fintech operations. Firstly, a tale may serve the purpose of classifying an operation's moral framework. In the RHC case, where the techniques employed to invest in the stock exchange present no relevant material difference from other investment settings, the philosophical tale of parasiting (Serres 1982) as a form of taking capitalism further as a revolutionary path (Deleuze and Guattari 1972) establishes a boundary between the 'dark side' and 'the commons side'. Secondly, in Senselab's case, it is not so much a matter of creating moral boundaries but rather deploying a tale as an invitation to classify the same operation differently: away from the rigidity and austerity of quantification, numbers may suddenly appear as qualitative attributions of meaning, paving the way for a cryptocurrency of affect, consistent with Senselab's own philosophical production. Thirdly, categorizing something differently may also be attained by the creation of new categories or “concepts in the wild” (Deleuze 2004). In the ECSA case, the sort of financial operations that have become popular in many blockchain projects associated with capitalist and libertarian politics, riding the speculative and abstract affordances of financial instruments, are attributed a new terminology in an attempt to dissociate them from conventional elitist practices. Such new categories may “hold up” (Deleuze and Guattari 1994) or may fail to get properly communicated as reflected in some reactions to ECSA's vocabulary.

Just as numbers, whether applied in institutional or market settings, require a socialization that renders them decipherable and familiar (Lopes 2011), these empirical passages convey how these technological endeavours in the wild require a sort of conceptual socialization that situates them in a narrative and correspondingly create a subjective experience while drawing boundaries against other similar operations. In this sense, tales earmark these fintech experiments - just as, and in an identical way, categories mark the 'multiple symbolizations' of money: 'cash-allowance', 'pin money', 'pocket money' or 'dole' (Zelizer 1997). By earmarking particular financial operations with Deleuzian concepts, these projects attain a philosophical tale which provides symbolic solutions to both external and internal contradictions, creates new categories and separates what was once reprehensible from that now presented as revolutionary – one may be anti-capitalist and still invest in Wall Street. What these examples illustrate is that tales have the power to turn our perception of material reality into something else. Indeed, we are surrounded by such a phenomenon in popular culture - such was the case with the illegal though honourable actions of whistle blowers like Edward Snowden (National Security Agency) or Christopher Wylie (Cambridge Analytica).

My focus on the role played by philosophical tales does not dismiss the importance of the larger socio-technical assemblages fostering them. There are other factors, both human and non-human, that harbour the circulation of such narratives and enable the production of a particular political and situated experience of technology. While tales do not work alone, their role is not irrelevant and, as the present chapter has sought to convey, they matter in the sense that they create the symbolic categories that may fundamentally separate the social meaning of one socio-technical arrangement from another, in cases where any 'rigid' and 'objective' reading might render them similar. Indeed, as Deleuze argued (Deleuze and Foucault 1977), theory and practice are bound together by a set of relays that are socially coupled, experimented with and transformed across the many checkpoints

where they meet. The boundary between exclusively epistemological or exclusively pragmatic practices, as suggested by Callon's 'in the wild', or by Svetlova's distinction between epistemic and decision-making contexts, is perhaps too rigid: the mobilization of one particular concept at one checkpoint may alter the ways through which we come to perceive and know a certain material reality at the next. The plasticity of this boundary may be more visible in 'minor' collectives and projects, less domesticated and less bound to the institutional and social conventions of 'major' players in fintech, such as investment funds or banks (cf. Arjaliès et al. 2017; MacKenzie 2014; Svetlova 2018). The ethnographic examples set out here hopefully encapsulate how this relationship between theory and practice, tale and technology, may be produced by situated practices of speculative story-telling and how fintech, despite its lifeless and unexcitable nature, may indeed constitute a fertile ground for empirical philosophy.

## 4. WILL THE REVOLUTION ISSUE ITS OWN CRYPTOCURRENCY? AN ETHNOGRAPHY OF DIGITAL INFRASTRUCTURES AND PREFIGURATIVE POLITICS

This chapter explores the politics driving the development of a cryptocurrency and the actual contingencies of its implementation. Based on ethnographic research developed with a social movement called Faircoop, I attempt to set out the ways through which a possible techno-economic future is being conceptualized and enacted through observable dimensions (Salazar et al. 2017; Sneath et al. 2009), focusing on a process of customizing digital infrastructure, framed by a set of political values, and illustrating particular modes of technological development and their orientation towards a specific kind of future (Pink et al. 2018). I do not discuss alternative monetary systems or the meaning of multiple monies (Zelizer 1997) but rather the contingent material and social configurations brought about by the implementation of a financial infrastructure, highlighting its relational and situated character (Bijker et al. 1987; Knox 2017; Bowker and Star 2000; Star and Ruhleder 1996).

Organizational change occasioned through infrastructure has been widely documented – from the increase in geopolitical power resulting from the production of navigation maps, the shaping of scientific practices by laboratory machinery, to the subordination of financial markets to high-frequency trading algorithms (Latour 1987; Knorr Cetina 1999; MacKenzie 2014). However, instead of historically unpacking the steps leading to the existence of infrastructures through what Bowker and Star call “infrastructural inversion” (2000), this chapter seeks to analyse an infrastructure “in the making” and, through this approach, to analyse contingent aspects of its emergence, such as the political and material relations bundled together in the process of technological development (Collier 2011; Karasti 2014); the elements subject to political

negotiation and contestation (Barry 2013; Law and Mol 2008), the human activities controlling the infrastructure (Erturk et al. 2013); people’s affective engagement with it (Knox 2017), and the extended systems that frame infrastructure as an amalgam of sometimes taken-for-granted technological, administrative and financial techniques (Bowker and Star 2000; Larkin 2013).

By observing the infrastructure's implementation, this chapter also analyses its pragmatics - although intentions matter, they do not account for the full politics of an artefact. For instance, Winner's discussion of the Long Island bridges (1980) has become iconic among scholars, where he argues that the bridges were built low enough to prevent buses from getting through, thus keeping the poor, who usually depend on public transportation, from accessing the beach. The “real” intentions of the bridge's designer have been further discussed elsewhere (Joerges 1999) but the Long Island bridges case remains full of explanatory power. Just like Winner's bridges, artefacts are ambivalent and we must distinguish between explanation and politics (Woolgar and Cooper 1999). Similarly, the intentions embedded in cryptocurrency software by its designers do not account for the full politics at play within the contexts of its situated usage.

Cryptocurrencies function as applications running on top of the blockchain protocol, a technology released in 2008 together with bitcoin, the first ever cryptocurrency (Nakamoto 2008). Their attractiveness stems mostly from their automated character – instead of requiring institutions (such as banks) to manage transactions, taxing them and eventually censuring them (as was the case with donations to WikiLeaks in 2010), blockchain transactions are performed by the network itself that automatically validates, confirms and routes transactions (Swan and Filippi 2017). The general characteristics of the standard blockchain protocol, such as anonymity and decentralization, constitute an immutable common technical denominator for all cryptocurrencies just as the SMTTP

protocol provides the common denominator for different e-mail providers, such as Yahoo, Hotmail, Gmail and so on. Thus, blockchain, both customizable and rigid, has entered different sectors while maintaining continuity, effectively becoming a general purpose technology: supporting a diversified set of collaborative and distributed networks, while simultaneously attracting the attention of corporations, governments and regulatory institutions (Davidson et al. 2016; Maurer 2016; Swartz 2017, 2018; Campbell-Verduyn and Goguen 2018; Herian 2018; Faria 2019; Faustino 2019). Its origin in a marginal cryptographic mailing-list in 2008 and its current diffusion across industries signals a common trajectory among technological infrastructures, as identified by Pardo-Guerra in his historical analysis of the automation of the stock exchange, that describes how computers entered “the house” through the basement and carrying the many fragmented projects of bureaucrats and technologists with their correspondingly fragile and disjointed politics (2019, p. 4). Blockchain is in itself an ambivalent artefact in which the politics cannot be reduced to intentions: despite Satoshi Nakamoto's critique of banks and of the crashing financial system of 2008, the banking sector is nowadays one of the industries successfully implementing blockchain networks.

However, the trajectory of infrastructures, notwithstanding the most successful marriages, inevitably also includes disputes and the explicit political actions these harbour (King and Pearce 2010; Marres and Lezaun 2011; Kostakis and Bauwens 2014; Sancho 2014; Knox 2017; DuPont 2017). Such is the case, for instance, of urban dwellers reworking the physical connections to electricity flows through their communities, articulating a political vindication for their right to access the energy system (Silver 2014), or of DIY communities assembling their own laser-cutting machines and three-dimensional printers to manufacture their own wind turbines (Kostakis et al. 2018). Previous work on infrastructural self-sufficiency suggests that those who are sceptical of centralised and state-led systems and who opt for the development of alternative systems do not

necessarily oppose the imposed ideal of a networked society that fuels the emergence of centralized systems in the first place (Cirolia and Rode 2019), and thereby contribute in equally meaningful ways to the rehearsal of networked futures. The politics of artefacts, in such cases of defiance, sheds light on the fields of possibility left behind the linear narratives of infrastructural innovation, and on the choices and efforts played out contingently by the participants themselves in processes usually termed “community design” or “participatory design” (Bowker and Star 2000; Karasti 2014).

Faircoop, as a social movement, engages in partisan finance (Thompson 2014) building on the values of political prefiguration: putting into practice the desired future by enacting the social relations and institutions that appear as the final goal (Boggs 1977; Leach 2013). Prefigurative politics represents a classic sociological category which refers to practices that “rather than a cataclysmic seizure of power, (…) propose the continual creation and elaboration of new institutions” which may “gradually replace the existing social order” (Graeber 2009, p. 235), historically embodied by the anarchist movement (Kropotkin 2009 [1898]). Social science accounts of prefigurative politics usually interlink them to values and methods of self-governance, decentralization and decision-making through consensus as well as to establishing the “material conditions” for opting out of the old system (Leach 2013, p. 2), further highlighting their tendency to improvise and to work towards the institutionalization of improvisational practices in the sense of attaining protected spaces where counter futures can be further developed (Jeffrey and Dyson 2021).

In this sense, a type of oppositional prefigurative politics becomes distinguished from anticipatory politics with the latter constituting the ways through which governments, corporations and institutions increasingly mobilize discourses of “future threats” to justify present interventions (ibid

2020). Adopting oppositional prefigurative politics, Faircoop's main goal involves providing the material conditions – the cryptocurrency and additional software - to opt out of the euro-based economy. To refer to the communal production of infrastructure subordinated to the enactment of prefigurative politics, I suggest, and later discuss, the idea of prefigurative infrastructure, which is mentioned in the grey literature within social movements but scarcely theorized about in scholarly research, although hinted at by scholars addressing the intersection between politics and material infrastructures, such as studies on radical incrementalism (Pieterse, 2013; Silver, 2014) and activist digital networks (Van De Sande, 2013; Kulick, 2014; Sancho, 2014; Rozas et al., 2018). Building on these contributions, the prefigurative infrastructure concept encompasses the kind of infrastructure produced at the community level, dependent on participatory processes for its management and maintenance, and bearing the essential aim of enabling prefigurative political practices, in their classical sense, to unfold.

In the next section, I describe Faircoop, both as a social movement and its integration into oppositional prefigurative politics. In the following ethnographic sections, I respectively describe the cryptocurrency's customization and its governance model; the hybrid services of Bank of the Commons; the implementation of a faircoin-based market in two different contexts, and Faircoop's efforts to launch digital infrastructures for financial collaboration with distant communities. My final considerations build on the empirical data to explore the techno-economic futures being rehearsed by oppositional politics through financial digital infrastructures for everyday economic life.

**An economy for the 99%**

In 2008, in the immediate aftermath of the financial crisis, Enric Durán, a young Spanish activist who had hitherto been mostly active in the solidarity economy field, borrowed half a million euros from 59 different banks and distributed all the money to organizations involved in the Catalan Degrowth Network before finally publicly declaring he would not be paying his debts. He left Spain in 2013, where he still faces an arrest warrant at the time of my writing, and started investigating cryptocurrencies. Together with some geographically dispersed allies, he began promoting Faircoop as an informal movement.

Faircoop's first action was to launch the faircoin cryptocurrency in support of an “alternative solidarity economy” anchored on an alternative currency (Enric Durán, 10 June 2018). Its initial members were mostly connected to the International Degrowth Network and to the Catalan Integral Cooperative before other small user groups began emerging and promoting the use of faircoin, mostly in the southern European countries most affected by post-crisis austerity, such as Spain, Italy and Greece. A Faircoop member I met in Milan, an artist and active participant in Milan's local group, described cryptocurrencies as the vindication of the generations most impacted by the financial crisis: “it is about claiming back the abstraction of finance”, she told me, “but according to an ethic on our own terms” (Ana Shametaj, 13 June 2018).

Faircoop's global nature responds to a global crisis, providing continuity to demands that can be traced back to the Zapatistas and their prefigurative revolution during the 1990's in the state of Chiapas, Mexico. Although branded by the media as the catalyser of the “anti-globalization” movement, the Zapatista demands aimed at a democratic form of globalization that would abolish international borders and allow the free movement of people, and actually relied on communication

technologies to mobilize international networks (Graeber 2009). The Chiapas “anti-globalization” revolution contaminated social struggles over the following years, from the 1999 protests against the World Trade Organization meetings in Seattle to the Occupy movement of 2011 - perhaps the most iconic movement of the post-crisis period, preceded by the Arab Spring, the Indignados in Spain and a global wave of anti-austerity protests, particularly in southern European countries. All of these movements engage with the ethos of prefigurative politics: even in the case of temporary occupations, such as Occupy, the focus was placed on direct action rather than on demonstrations or making demands (Graeber 2013; Sancho 2014). Openly engaging with the legacy of these movements, Faircoop emerged to rewrite the Occupy motto as an “economy for the 99%”, intimately bound to digital networks: “an open global cooperative that organizes itself through the Internet outside the boundaries and controls of nation-states”[11], furthermore advocating for the values of peer-to-peer collaboration, hacker ethics, economic disobedience, open cooperativism and stateless democracy.

At the time of my fieldwork, Faircoop contained approximately 20 active local groups, in countries like Switzerland, Belgium, Greece, Spain, Italy, Germany, Serbia, Mexico, Guatemala, Brazil and the Gambia. In some cases, the first contact took place online as I had the chance to witness: someone sending an e-mail saying they had heard about faircoin and wishing to start a group in their city. In practice, those wanting to start a local Faircoop group would first have to undertake a local founding assembly and make it official by sharing that information with a global online assembly. Then, they would work within their communities to introduce producers and consumers to using faircoin for their mutual transactions while respecting the principles of fair trade, ethical labor, circular economy, solidarity economy, and so forth. In some cases, the local groups would open a shop or organize regular markets at which consumers could access local products sold by

[11] Further information available at https://fair.coop/en.

faircoin.

The different groups communicated and organized collectively through the Internet, essentially through regular online assemblies on the encrypted Telegram software. The majority of the members I met and/or chatted online with were relatively young and at ease with these digital routines: even among non-coders, many were fairly savvy about open-source software and alternative encrypted applications, whether for chatting or for collaborative work. Faircoop global assemblies represented the decision-making body, in which one person equals one vote, and with decisions ideally reached by consensus. This method imprinted a very specific and time consuming form of participation on the project, with affinities with anarchist, cooperative and activist practices. In addition, faircoin did not, up to the time of my writing, attain a significant volume of transactions and has maintained a very low price on online exchange markets. It is thus understandable that faircoin has not attracted much attention from other crypto-related projects, financial institutions or regulators, and has maintained a trajectory of collaboration mostly with other social movements and activist groups.

**Techniques for the “unbanked”**

As mentioned previously, Faircoop's first step was to take over the faircoin cryptocurrency, left abandoned at a very low price after a “pump-and-dump” scheme[12], and initially designed in a similar way to bitcoin. A team of developers collaborated to re-program faircoin's open-source code in a more ecological fashion, and also developed an original algorithm (Proof-of-Cooperation) based on cooperation between a limited number of network connected computers rather than on competition between an unlimited number of computers (Proof-of-Work, as in the case of bitcoin).

[12] A 'pump-and-dump' scheme consists of cheaply purchasing large quantities of a cryptocurrency, artificially inflating its value, only to swiftly sell them later for an overvalued price.

This means, whatever the volume of transactions involved, that faircoin's blockchain can be verified with a much lower energy investment whereas bitcoin transactions, for instance, currently require the computational power of a small country[13]. The computers validating transactions and maintaining the faircoin's network are, just like in bitcoin, digitally anonymous but, in practice, are owned by identified Faircoop members. Anyone wanting to perform the role of validating transactions must join an online assembly, be vouched for by some other member and assure everyone – especially the technical team – that s/he has a good enough Internet connection given the need to keep the computer running at all times.

The “official” faircoin price, applied by Faircoop when performing exchanges for its members, is also decided upon in online assemblies and maintained at a stable equivalence with the euro. This is deemed necessary to ensure participants do not suffer financial losses should the faircoin price drop, for instance, after they sell a product and before they convert their earnings to fiat. However, this also poses a steady threat to the project as it opens up an arbitrage opportunity (one may buy faircoin on exchange markets at a lower price and spend them in the Faircoop ecosystem at a higher valuation). This governance structure, collectively defining the cryptocurrency's price against market oscillations, or limiting the eligibility of the people validating transactions on the blockchain, greatly undermines what many consider the main affordances of bitcoin. This dissonance reveals a “fringe” (Star, 2002) of decentralization: the decentralized free interactions among agents without mediating institutions becomes subverted in favour of a strategic decentralization of algorithmic power to horizontal bodies of decision-making.

In around 2017, Faircoop felt the need, as Enric told me, to create a “banking bridge” to facilitate

[13]For further information about bitcoin's energy consumption, see https://digiconomist.net/bitcoin-energy-consumption.

the financial autonomy of those who “don't want to be controlled by the state” (Enric Durán, 10 June 2018). The Bank of the Commons (BoC) was registered as a European Cooperative in 2018, and I met the team in Milan on this occasion. For two days, team members coming mostly from Italy, Switzerland and Spain met and discussed the project in MACAO, a squatted slaughterhouse that also housed the local Milanese Faircoop group. Under the central covered cloister, with all participants sitting in a circle, Enric started his intervention by stating that “other social or ethical banks spend many years trying to gather enough capital to open a bank and get a license. In our case, we don't want a license, but a methodology that dismisses a licence” (Enric Durán, 9 June 2018).

The methodology mentioned by Enric may be described as a process of innovation through bricolage (Engelen et al. 2010), which brings together different digital and legal structures. In “creative compliance” with the cooperative law (Thiemann and Lepoutre 2017), BoC avoids the need for a conventional banking licence, registering “deposits” as members shares. Each member gets a cryptocurrency wallet on a blockchain, accessed by logging into the BoC's platform on a smartphone or computer. This wallet, originally designed by Faircoop members, is a multicurrency wallet, which simultaneously holds multiple cryptocurrencies, such as faircoins, bitcoins or ethers. The member's fiat deposits are held in two different bank accounts provided by ethical banks. When a BoC member makes a fiat deposit or orders a fiat transaction on their account, this is performed conventionally through the banking system and registered on BoC's database. When members transact cryptocurrencies, these transactions are processed automatically on the blockchain. Despite the existence of two different infrastructures to manage transactions – the blockchain and the banking system - the user's accounts displays all transactions, both crypto and fiat, in one single interface. This represents most of BoC's appeal as an alternative banking institution, but such

bricolage demands a considerable amount of human work: the person doing most of the administrative work, at the time of my fieldwork, had quite a handful to handle: answering e-mails of all sorts, approving new members, ordering bank transactions, registering balances, and so forth. This continuous practice of bricolage across differentiated infrastructure – essentially the banking system, the blockchain system and the cooperative legal framework -, brings to life a hybrid tool which both relies on and increments conventional banking institutions.

**Oppositional practices for a cashless society**

Later that week, I stopped by a Fairmarket in MACAO - a small market, organized once a week by the Milanese group, with local and ethically-curated products available in exchange for faircoin. This was taking place in a small room at the top of the main MACAO staircase entranceway, and on display were cabbages, zucchinis, cucumbers, peas, spinach, olive oil, wine, jams, chorizo and books. It started at 9pm and I would have seen around 20 people walking in and out. Transactions were made with nothing other than smartphones: I observed a young female girl paying for wine and jam by using software on her smartphone that resembled a typical banking website. After ordering her transaction, she exhibited her screen as proof of payment, picked up her products and departed. Most people arriving there were already acquainted with the market – they did not ask for context about faircoin or about the products, already owned faircoin, and knew how to use the software. On that day, the only exception was an almond producer who was being introduced to Faircoop for the first time by one of the local group's members. The producer had brought a considerable amount of almonds with him and was willing to accept faircoin in exchange for them. The Faircoop member installed the wallet on the producer's smartphone before briefly explaining how it worked, and immediately paid for the almonds with his own smartphone. Instantly, the producer's wallet was exhibiting a positive balance on the screen. Now, he was told, he could use

those faircoins to buy whatever he wanted from the fairmarket. During the few hours I spent at the Milan fairmarket, the faircoin infrastructure seemed unproblematic, almost invisible and not qualitatively different from or more complicated than other platforms currently enabling smartphone-based financial transactions, such as Uber, Venmo or MB Way.

A different scenario unfolded when I visited Sébastian, a Faircoop member and software developer in Arbúcies, a small village in the northern mountains of Catalonia. Besides collaborating with Faircoop as a (self-taught) coder, he ran a Fairspot in Arbúcies – a small shop where you could buy products with faircoin as well as exchange your faircoins for euros. He told me that, in the past, a few places in Arbúcies had accepted faircoin – a local, independently-run school; a bar, and a photocopy shop. Two independent workers, a mechanic and a bio-constructor, had also been accepting faircoin for their services. However, at the time I visited the village, the only local outlet accepting faircoin was Sebástian's Fairspot.

The setback had happened due to “technical problems”: two users, the bar owner and the copyist, had lost access to their phone and had correspondingly lost their entire access to their faircoin accounts. This meant they could no longer access the sums they had stored in faircoin and this had obviously shaken their trust in the system, posing a challenge to Sebástian to try and attract them back. As a solution, he was committed to promoting usage of the Fairpay card in the village – a complementary tool developed by Faircoop. The Fairpay card is of a standard credit card size, with a built in NFC[14] chip that enables a contactless payment system - readable by most recent smartphones when held in close physical proximity. The Fairpay card automatically links to the user's online account just as with any regular debit card. In this scenario, users require nothing other

[14] NFC stands for Near-field Communication, and consists of a set of communication protocols between two devices, very similar to Bluetooth.

than a card to make payments, and may recharge them in Sebástian's Fairspot without ever needing to rely on a smartphone or computer. However, the Fairpay card's underlying software was then experiencing certain problems and Sebástian was waiting for another developer to solve them. At the same time, Faircoop's liquidity was very low during that period in terms of meeting user demands to exchange faircoins for euros. My conversations with Sébastian made his affective engagement with the infrastructure visible: he was committed to finding solutions which meant adapting the infrastructure to his particular context, and he took this on as a personal responsibility as he alone represented the movement in his local community.

Despite these difficulties, Arbúcies had recently been involved in a pioneering experiment: during the summer of 2018, the local municipality had partnered with Faircoop for a three month pilot project, accepting faircoin in public swimming pools. Around 8% of pool users paid in faircoin, corresponding to roughly €1,400. My conversation with the mayor revealed how the municipality's intentions behind this pilot were openly politicized. Arbúcies has maintained a significant history of self-organization ever since the Spanish Republic. It was the home of the first trade unions in the region and for the same reason suffered greatly from fascist repression in the wake of the civil war. At the time of my fieldwork, the municipality was run by an independent party, critical of the state (especially as regards the Spanish state's lack of recognition of the Catalonian separatist movement) and providing continuity to a focus on the social economy, cooperativism and decentralization. Some of its municipal services had been turned into cooperatives, and the municipality was working with the Government of Catalonia to set up the first Spanish "public cooperative", a form of legal structure that did not yet exist. As the mayor told me, it was the municipality's political affinity with Faircoop that made them trust the project and embark on the cryptocurrency project in order to raise awareness on how it was no "sacrilege" to work with currencies other than the euro (Jaume

Salmeron, 20 November 2018).

**Oppositional alliances for a cashless society**

In 2018, Faircoop organized a summer camp, both to bring together members of the movement and to present Faircoop to newcomers, in the Novi Sad region of Serbia. The meeting lasted for approximately one month and took place in a mountaineering hut on the mountain of Strazilovo: a large forest-surrounded house providing around 20 beds. During my stay, in the last week of the camp, the majority of participants were active Faircoop members mostly from Spain, Italy, Greece, the U.K., Switzerland and Serbia. As most members attending the camp were also among the most invested, with some holding responsibilities for coordination tasks, the “organization chart” of the movement then became more visible to me. There were several working-groups represented in the camp, such as Common Management, the Circular Economy or Technology and Communication – each with their own sets of tasks and their own regular assemblies. I learned that, at that point in time, between 30 and 40 people in different parts of the world were paid for their work by Faircoop, 10 on a regular basis – paid mostly in faircoin but also partially in other fiat currencies. To manage this geographically dispersed team, Faircoop had adopted open-source software in which workers would log the hours they worked before being validated by at least two other members, after which their payments would get processed.

During the camp, I also realized most of Faircoop's technical developers, just like Sébastian, were self-taught. Ivan Minutillo, a developer who I had previously met in Milan and seemed particularly active in Faircoop's technical developments, told me that instead of thinking about themselves as developers, it was more accurate to think of them as “activists who do code”. After all, he pointed out, the “technological development in Faircoop is politically driven” (Ivan Minutillo, 19 August

2018). He told me about other digital infrastructures popular among “hacktivist” communities that resonate with Faircoop's work, such as federated protocols (a decentralized form of online interacting, publishing and communicating, without any centralized platform or server) or scuttlebutt (a form of networking through a simple network protocol, TCP, that does not even require an Internet connection). Such protocols are popular within open-source movements and pose an opportunity for like-minded communities to connect through independent but compatible digital infrastructures.

At the time, Ivan was working on Fairchain, an “implement-it-yourself” version of faircoin's blockchain able to support other communities seeking to launch and manage their own independent monetary systems while benefiting from some of the characteristics of faircoin's design: the less energy-intensive algorithm and the maintenance of the network by a cooperative rather than a competitive consortium of participants. Part of this effort included designing complementary software to enable exchangeability between crypto and non-crypto social currencies – for instance, opening the possibility to directly fund each other's projects or to simply store value in a currency one wishes to support. Such an infrastructure is imagined as facilitating the material conditions for dispersed movements and groups to collaborate financially on a global scale, and within the scope of a larger set of initiatives stemming from open-source activist communities[15].

**Final Considerations**

Through the data presented in this chapter, I have set out to glimpse into how people may conceptualize their economic and financial futures (Salazar et al. 2017; Pink et al. 2018; Sneath et al. 2009), and it is in this spirit that I wish to steer this final discussion: as an exploration of the

[15] For other examples, see projects such as http://creditcommons.net/ and https://www.robinhoodcoop.org/, and development communities such as https://blockades.org/ or https://magmacollective.org/.
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possibilities rehearsed by oppositional politics through recourse to financial digital infrastructures for everyday economic life. While it is true that the ethnographic particularism presented here is far from the mainstream trends that have unfolded in recent years within the field of fintech development (Maurer 2016; Faria 2019; Swartz 2017, 2018; Campbell-Verduyn and Goguen 2018; Herian 2018), it does enable an account of the emerging forms of infrastructuring and market making on the margins of industry-led innovation, and to inquire to what extent they oppose or align with the structural trends of digitization.

We may discuss several aspects within this framework. While classical accounts of prefigurative politics have traditionally engaged with digital infrastructures mostly for purposes of achieving broader communication and diffusion (Boggs 1977; Leach 2013; Graeber 2009), the case under discussion introduces a digital infrastructure which attempts to replace existing institutions and to provide a safe space for the improvisation of new social, financial and economic interactions across regional and national boundaries, illustrating a wider trend of digital-based political activism which reclaims “globalisation”. In this sense, I propose the idea of a prefigurative infrastructure: enabling the material conditions for prefigurative politics to unfold while undergoing autonomous production by the community, and incorporating participatory processes in its management and maintenance, meaning that social oversight still remains prioritised over full automation. If prefigurative infrastructures introduce advantages for territorially dispersed social movements to organize and to coalesce into global movements, nurturing the development of counter futures (Jeffrey and Dyson 2021), they also present challenges to classic prefigurative political strategies: the need for significant digital literacy; the taken-for-granted equipment (like electricity, Internet and smartphones), and the differentiated regulation prevailing on cryptocurrencies across different jurisdictions, just to name a few.

Secondly, while technical development in communities involved in oppositional prefigurative politics tend to firmly express intentions – for various reasons but especially because this ensures participants are bound together by the political project -, such intention may become a problematic aspect of the infrastructure when, over time, its adoption expands. Bitcoin itself started out by voicing a critique of the financial mainstream system only to later provide the rails for rapid innovation in the financial industry. Thus, if we are to distinguish between explanation and politics (Woolgar and Cooper 1999), and particularly in the case of prefigurative infrastructures, we must attend to the ways in which they simultaneously enable potentiality and constraint. This means paying attention to the software governance architecture (Davidson et al. 2016) as well as to the organizational mechanisms put in place to govern the software's implementation, such as Faircoop's regular assemblies for horizontal decision-making about the specifics of their cryptocurrency. Thus, and contrary to the trend followed by most blockhain-related projects, Faircoop's effort to build digital architectures that enforce collective ownership, horizontal participation and economic justice does not take the path of full automation, but rather seeks to conciliate automation with more "conventional" forms of social governance, suggesting that the adoption of decentralized and automated technologies does not necessarily imply choosing between one or the other (an idea which is inclusively popular among technologically enthusiastic leftist imaginaries; for one such example, see Srnicek and Williams, 2015).

Variegated forms of market making mirror social attempts at dealing with ethical and moral issues (Pardo-Guerra 2019). Blockchain-based market experiments host a variety of different narratives and fragmented ideological projects, with a majority tending towards the full automation of interactions - financial, contractual, and so on; after all, that is the distinctive innovation which has made blockchain technologies thrive. In the case discussed here, however, the enactment of

prefigurative politics through a digital infrastructure attempts to bring together the global scope of decentralized and encrypted technologies with a “democratic” social oversight - not in the form of regulatory frameworks carved jointly by governments and corporations, but instead in the form of autonomous bodies representing participants themselves. This attempt, whatever its outcome, conceptualizes an economic future which is both compatible with the ideal of the networked society and provocative towards the dominant techno-economic narratives of smart cities and cashless societies.

## 5. THE MYTHS AND LEGENDS OF KING SATOSHI AND THE KNIGHTS OF BLOCKCHAIN

By carefully scrutinising blockchain technology it is possible to disentangle a mythical narrative that starts out with its founding event - the creation of the bitcoin open-source software and the release of its white paper under the mysterious pseudonym of Satoshi Nakamoto (Nakamoto 2008). The first bitcoin transaction ever, made on the 3rd of January, 2009, was registered in the blockchain containing a headline from The Times: “Chancellor on brink of second bailout for banks”. This block, with an explicit reference to the crash of the European financial system, became known as the “genesis block”, which established the creation of what was soon to become a crypto-community, composed of bitcoin evangelists, entrepreneurs, enthusiasts, and a myriad of projects originating from various backgrounds, all of whom congregated around the reformative or revolutionary power of this technology. The aim of this chapter is to contribute to the understanding of the symbolic impact of blockchain on society, starting with an ethnographic account of the pivotal role of the crypto-community on the rise of fintech and on (re)energising a quasi-religious romanticism towards finance and technology.

Money itself has always been intertwined with acts of faith (Simmel 1978; Humayun and Belk 2017). Benjamin (1996 [1921]) wrote that capitalism is a religion, considering that capitalism is not only conditioned by religion, but that it is essentially a religious phenomenon, where money is equivalent to God (Löwy 2009). It is in line with this perspective that authors have explored the historical bond between religion and capitalism (Weber 2002 [1905]; Konings 2015), religion and debt (Graeber 2014, see also Dalsgaard 2021), or the mystification of financial markets through intelligible phenomena such as 'the invisible hand' of the market (Vogl 2010). In western

contemporary society, the romance with the capitalist adventure lives on through the myths of lone entrepreneurs, who sleep in the office and eventually become billionaires (Thrift 2001) and of businessmen who are dedicated to furthering the success of their corporations in a cult-like deprivation of their personal lives (Mooney 2005), or of "moral entrepreneurs", whose obscene wealth is pardoned by philanthropic acts (Fuller 2012). As Thrift points out, in the new market culture "it's the romance, not the finance, that makes the business worth pursuing" (2001).

Social scientists have always encountered miscellaneous forms of demanding explanations, creating social order or seeking comfort (Boyer 2001). However, the category of religion in western scholarship is shaped by a rationalist system of thought which confines religiousness to the great "corporative" monotheisms, which historically excludes magic or sorcery, amongst others (Goody 2010, p. 19; see also Durkheim 1962 [1912]). In this sense, the category of religion tends to offer a rigid differentiation between the sacred and the profane. In rejecting this duality, our use of the term religiousness aims to consider "what people actually do when they occupy themselves with religious matters" (Piette 2003), and how those actions respond to a society's "ultimate concerns" (Tillich 1959), "ultimate values" (Durkheim 1962 [1912]), or "ultimate ends" (Weber 2009a [1919]). Such actions can be ritualised, stylised, formalised, and repetitive (Nadel 1954) – whether they are direct religious acts or secular rituals, such as social practices governing birth and marriage, political meetings, or sports events (Goody 2010; Moore and Meyerhoff 1977). Finally, such actions are framed by tales which have a critical function and reveal latent political and societal implications (Propp 1968 [1928]; Barthes 1972 [1957]). Here, we understand myth, tale or legend to be conceptual resources which aim to domesticate and symbolically explain a particular state of affairs which is often treated as taboo. In our approach and attempt to understand the role of storytelling, we are just as concerned with the act of telling a narrative as with the narrative itself

(Bal 1997).

Intersections between religious tales and finance have been explored in the literature, for instance, in revisiting the supernatural character of the zombie in Haiti, where it emerged as a reference to the coloniser – the predator of enslaved labour who was able to carry out the "new magic" of creating speculative wealth (Nelms 2012). The advent of the "zombie bank" as a metaphor after the financial crisis, which alludes to the banks' exploitation of government bailouts to assure their survival – as Nelm states – highlights how the metaphor still conveys its original meaning. Similarly, Taussig (1980) links the metaphor of the devil in South American plantations and mines to the colonisers who were expropriating the workers' souls in exchange for money/commodities. De Goede further shows how discussions surrounding the emergence of credit in 17th century England involved the production of the metaphor of Lady Credit, who, resembling the ancient goddess Fortuna, would embody the ethical spirit of speculative practices, whilst punishing the greedy and rewarding the virtuous, and thus positively influenced the moral acceptance of speculative practices during that moment in history (De Goede 2000). Such narratives are powerful and give rise to the cultural nuances of the emergence and maintenance of financial practices. In the post-crisis scenario, the growing digitalisation of finance and the sensation that money can be created from nothing (Dodd 2018) still call upon the need for explanatory narratives which are driven by the quasi-religious authority of economists and accountants (Nelson 2014; Maurer 2003), and, more recently, programmers and coders (Introna 2016, Dupont 2018).

Cryptocurrencies, which bring together the abstraction of finance with the abstraction of code, become a material infrastructure which is subject to understandings based on the "rare intersection of technology, ideology, and religiosity" (Humayun and Belk 2017). However, an insignificant part

of the literature explores these aspects in the particular case of blockchain technologies (see Humayun and Belk 2017; Golumbia 2018; Caradonna 2020; Cui 2019). Such a reading finds resistance in the form of opposition between the religious understanding of the world and the techno-scientific understanding of the world: which Weber called ‘disenchantment’ (2009b [1919]) and which Latour (1993) named ‘the modern settlement’. The western constitution of technology as an institutional, scientific, and rationalist realm often dissuades from engaging with its mythical/conceptual theory of the world, in which the human and the technical do not act in opposition (Haraway 2013; Latour 1993; Hayles 1999; Ingold 2000; Coeckelbergh 2010; Szerszynski 2005; Hefner 2002). In this regard, it has been significantly discussed how the disenchantment of western society has historically undermined its understanding of the entanglements between science and spirituality in both its own and other cultures (Goody 2010; Nadel 1954; De Castro 2015; Narby and Cronin 1998).

Considering the example of the Trobrianders’ canoes, Gell (1992) speaks of the enchantment of technology as being the pragmatic effect which results from mastering of technology – in particular cosmologic configurations. The canoes exhibited technically-impressive bowsprits, which were so impressive that from afar these were perceived to be supernatural and magical, provoking wariness in the hearts of the majority of observers, and forcing them to offer more valuable items in ceremonial exchange (for more, see Gell 1992; also Malinowski 1922). Gell is interested in highlighting the commonly underestimated and enchanting power of technical virtuosity, which we tend to construe as being somewhat magical, as it transcends our understanding (see also Piette 2014). The same phenomenon was observed later on in the form of the “cargo cults” which emerged in Melanesia during the Second World War. When confronted with military technology which they could not fully understand, Melanesians started to enact rituals where they would simulate certain

conditions – an airplane landing on an airstrip, for example – in the hope of being rewarded with an abundance of goods from the coloniser. Just as the mock airstrips in this example failed to produce airplanes, western techno-scientific marketing similarly fails to produce the announced results sometimes, in what has been named ‘cargo cult science’ (Feynman 1974).

Cryptocurrencies and blockchain technologies emerged during the experience of a crisis – that of the mainstream financial system in 2008. Just as the case of war for the Melanesians, or slavery for the Haitians, the financial crisis gave rise to the design of particular symbolic representations and narratives to help come to terms with uncertainty – as Stiglitz (2009) put it, “no one knew what was truth and what was fiction”. One decade after the release of the bitcoin software, it is yet to be understood whether it will produce the results announced by the techno-futurist industry (Tapscott and Tapscott 2016; Kurzweil 2005) and how much of its hype has been derived from the enchantment of a highly encrypted and black-boxed technology which has created money, with the promise to deliver new forms of social organisation (Gell 1992; Davidson et al. 2016).

Rather than discussing the “moneyness” of bitcoin, we aim to explore the pragmatic implications of the monetary narratives surrounding the financial potential of cryptocurrencies as a core topic regarding the reputation of this technology. In this sense, we wish to go beyond current debates with regards the nature of money and explore the wider implications of existing expectations regarding future monetary systems (Pink and Salazar 2017). We go about this by disentangling and analysing the myths and rituals of particular crypto-communities, in an attempt to ascertain the wider economic and societal impacts that such narratives are capable of bringing about for the consolidation and expansion of fintech. Throughout the empirical section we discuss the observations made during our fieldwork, which are considered to be manifestations of faith in a

technologically-improved society, which involves the search for explanation, social order, and comfort, as well as for ceremonies and preachers – all of which is indisputably disconnected from official religious doctrines as it embodies quasi-religious practices and tales (Boyer 2001; Goody 2010).

This chapter draws on our own ethnographical studies in the world of blockchain, which were conducted from 2017 to 2019, and which were complemented by the documental analysis of indirect sources. Adding to the data collection described in more detail in the introductory section (p. 25), this chapter includes ethnographic research carried out in the Netherlands, both in crypto-related events and with members of the Bitnation project. In the next section we analyse the legend of Satoshi Nakamoto – the creator of bitcoin. Drawing on a comparison with the legend of King Arthur, we examine Satoshi's legend as an expression of contemporary concerns about the financial system, as well as of the faith deposited in technology being able to resolve almost everything (Propp (1968 [1928]). The section that follows on after examines white papers: key documents which govern the disclosure of technical innovation – such as the bitcoin white paper. As proposals of a techno-mediated social order, white papers persuasively address ethical issues stemming from scenarios of decentralised finance and automated governance. In the subsequent section we examine secular rituals – such as celebrations, assemblies, and ceremonies, where the crypto-community reaffirms itself around the charismatic guidance of preachers and specialists (Hansen and Verkaaik 2009; Boyer 2001). We then close with our final considerations regarding blockchain's symbolic impact on (re)invigorating a quasi-religious romanticism towards finance and technology.

**The legend of King Satoshi and the knights of blockchain**

The legend of King Arthur and the Knights of the Round Table occurred to us to be an enticing metaphor to start our exploration of the tale of Satoshi Nakamoto, bitcoin's creator. There is no scientific consensus about whether or not King Arthur actually existed, despite the several links made to historical "Arthurs" of Romano-British origin who lived during the 6th century (Williams 1962). In an epic and heroic manner, King Arthur is praised for being an exemplary leader and warrior and for having done what no one else had managed to do – to pull the magical sword of Excalibur out of the stone during a moment of national crisis (Simpson 1986; Monaghan 2008). There is also no actual proof that the round table ever existed; it was introduced as a metaphorical symbol of the equality between the King and his knights, in contrast to the conventional monarchy of the time (Williams 1962, p. 78). For these reasons, the romantic tales that were propagated about King Arthur are more mythical than historical (Monaghan 2008).

The horizontality and distribution of power that the metaphor of the Round Table represents in King Arthur's legend evoked in our imagination the decentralisation proposed by Satoshi's software to the developers, who maintain equal authority among themselves over the technology when working with blockchain's open-source code and when proposing new software. Furthermore, similar to King Arthur's persona, while there is no doubt about Satoshi Nakamoto's existence *per se*, there is little certainty about his historical identity and he remains anonymous to this day. It is not known whether he is a man, a woman, or a group of people; as Satoshi is a Japanese masculine name and is very commonly referenced through masculine pronouns, we also adopt this approach in this chapter for the sake of simplification. We shall return to the legend of King Arthur below, however for now, let us focus on the legend of Satoshi Nakamoto.

After releasing the bitcoin white paper in 2008, Satoshi continued to work actively on writing the software's code up until mid-2010. He then handed over control of the software repository to Gavin Andresen (who would later create the Bitcoin Foundation) and ceased to be involved in regular communications, leaving the decentralised technology in the hands of a “leaderless” organisation (Golumbia 2018). Ever since then, Satoshi has been absent from the relevant discussions and plot twist developments in the crypto-scene, despite the number of candidates, self-appointed or appointed by others, who have claimed Satoshi's identity, in what has fed speculation for over a decade now. In late 2018, for instance, Satoshi's online profile posted the single and mysterious word “nour” in an online forum, leaving the entire crypto-community speculating about the meaning of the post – with no consensus. Every time Satoshi speaks, or is suspected of speaking, all the community focus their gaze on him. The massive amount of unspent bitcoins in his account (visible in the public bitcoin blockchain) endow Satoshi with the appearance of a “wholly ascetic, Buddha-like” figure in the “cryptocurrency theology” (Golumbia 2018). His refusal to assume leadership in a decentralised community, together with the preservation of anonymity and its political functions (Bordeleau 2015; Foucault 1979), constitute symbols for the modern hacker culture.

Not knowing exactly who Satoshi is makes it impossible to forge a charismatic relationship with the leader – such as Steve Jobs achieved – and stimulates the perception that the followers are not solely users, but also members of a community of equals – who are able to freely experiment with the code without incurring judgement from its creator (Humayun and Belk 2018; Nelms et al. 2018). And yet, despite such a nuanced reputation, Satoshi’s only legacy is the initial software and the original text in the form of the bitcoin white paper, e-mails, and forum posts[16]. These are mostly emotionally-dry technical descriptions and relate discussions between Satoshi and other developers

[16] For a collection of the complete writings of Satoshi Nakamoto, see https://satoshi.nakamotoinstitute.org/.

working on the bitcoin protocol. We sustain that Satoshi's legend stems not from the charismatic performance of the subject himself, but rather from the technical complexity of his creation. Even though bitcoin was the result of decades of cryptographic research following previous experiments with digital money (Chaum 1985; May 1996; Szabo 1997; Wei Dai 1998), Satoshi was able to solve the famous double-spending problem that prevented previous experiments from succeeding, showing an indisputable mastery of code. Despite the collective work involved in the history of cryptography, the interest in unmasking the mysterious Satoshi Nakamoto seems to us to be key to understanding the value system behind bitcoin (Swartz 2018). Initially praised by "goldbugs, hippies, anarchists, cyberpunks, cryptographers, payment systems experts, currency activists, commodity traders, and the curious" (Maurer, Nelms and Swartz 2013, p. 2), Bitcoin introduced the possibility of being able to disrupt the monopoly of central banks and governments over money, in an unprecedented manner. Furthermore, the "genesis block" – with its inscription of a headline referring to the bailout of banks – has been widely understood to be a symbolic proof of Satoshi's hostility towards states, banks, and the wider status quo.

Technical virtuosity soon turned into strategic power. Bitcoin was launched immediately after the triggering of the 2008 financial crisis, and the technical advances that blockchain contributed to in that historical moment enhanced its seemingly revolutionary powers, influencing discussions about both the refusal and reform of the mainstream financial system (Swan 2015; Dodd 2018). This technology was gradually and steadily taken into consideration by different societal spheres, and as a minimum was portrayed as a remarkable technical achievement – what Bill Gates termed "a technological tour-de-force"[17]. Blockchain's efficacy has now caught the attention of banks, governments, and regulatory bodies, all of which are increasingly investing in the development of their own blockchains (Maurer 2016; Faria 2019; Swartz 2017, 2018; Campbell-Verduyn and

[17] Taken from https://www.ccn.com/bill-gates-bitcoin-technology-key/.

Goguen 2018; Herian 2018).

We believe that Satoshi's tale, by fomenting the image of an anti-establishment coder who frees society from centralised power, represents an explanatory function with regards to the symbolic impact of technology on society. It discloses contemporary anxieties regarding the centralisation of money, and, more generally, about the centralisation of power. Just as the tale of King Arthur discloses the disquiet of the Roman Britain empire over its own sovereignty in the face of invasions (Monaghan 2004) and renews faith in a better future, Satoshi responds to a fairly widely-shared social concern about zombie banks and ruthless financiers (Nelms 2012), deemed to be responsible for the financial crisis.

It is thus possible to reason why the emergence of bitcoin has also developed a legendary aura around Satoshi – as a historical recitation based on the achievements of just one human actor. The metaphor of King Arthur has its limitations and it is not our intention to insist that it has symbolic relevance throughout our whole analysis. Rather we propose to analyse the emergence of bitcoin through the lens of the tale of Satoshi Nakamoto as one of the many cultural phenomena prompted by bitcoin. In this sense, Nakamoto embodies the reputation of a noble altruist in the crypto-community, offering salvation from a crisis by introducing decentralisation as a new ruling power: a round table of equals rather than of a despotic sovereign. Furthermore, Nakamoto's reputation illustrates the growing status of the modern hacker, who, when competing with the modern financier, possesses special skills which are sometimes perceived as being magical.

We next examine bitcoin's white paper, alongside other white papers which we discovered during the carrying out of our fieldwork. These are texts that bring together technical innovations with

increasingly complex forms of social order, which reveals how the mastery of decentralised money appears to represent proof of the capacity to be able to technically master other processes – such as the production of social relations (Gell 1992, Davidson et al. 2016).

**“If it doesn’t have a white paper, it doesn’t exist”**

Bitcoin’s inaugural moment was the publication of its white paper in the Cryptography Mailing List. White papers are formal documents where a new or improved technology is presented to the public (Malone and Wright 2018). The production of this type of document has become a convention for every project in the crypto-community: as we heard someone say, “if it doesn’t have a white paper, it doesn’t exist”. Bitcoin’s white paper was a nine page document, written in a fairly technical language which solves the previous limitations of digital cash experiments. In the white paper core issues at stake within the mainstream monetary systems are addressed in computational terms, such as incorruptibility: Satoshi mentions “banks” only once and usually prefers to use technical terminology, such as “third parties”. A few dry and assertive comments regarding the financial system appear mostly in the introductory first paragraphs, such as: “while the system works well enough for most transactions, it still suffers from the inherent weaknesses of the trust-based model”; “financial institutions cannot avoid mediating disputes”, or; “what is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party” (Nakamoto 2008, p. 1).

Throughout the 12 sections of the white paper, Satoshi demonstrates the robustness of his invention, including the solution for the double-spending problem – which at that point represented the computational challenge that no other developer had been able to solve[18]. Before concluding, he

[18] The Byzantine Generals problem: a metaphor of two generals from two different armies who need to agree

presents mathematical equations, probability calculations, and lines of code to corroborate his claims. The bitcoin white paper can be considered to be a founding "sacred text", which later inspires the production of new versions as the material and visible ramifications of a growing community of peers increase (Nelms et al. 2018). In this sense, and despite the non-acknowledgement of the collective work behind Nakamoto's discourse, Humayun and Belk (2018) propose that Satoshi is a "founder of discursivity", with his work setting out the scope and rules for other texts, allowing for difference, while remaining embedded throughout the later versions (Foucault 1979).

While bitcoin introduces decentralised money, later projects have attempted to decentralise other socio-economic relationships. The second most relevant white paper in the history of blockchain was published in 2013 to present the Ethereum platform, which was written by Vitalik Buterin, the 18 year old "prodigious child" (Caradonna 2020) who referred to Ethereum as being "a magic computer"[19]. While bitcoin's white paper presented the first cryptocurrency, Ethereum presented the novel possibility of programming other things using the same protocol, such as self-executing contracts. Ethereum's 36 page long white paper, which is written in a more marketable language, affirms "vastly more power than that offered by bitcoin scripting, because of the added powers of Turing-completeness" (Buterin 2014, p. 13). This innovation introduced a significant schism with previous developments, as now, as well as currency, one could program any sort of socio-economic coordination. For this reason, the emergence of Ethereum steered scholarly research from discussions about cryptocurrencies to discussions regarding blockchain-based organisational forms of governance (Davidson et al 2016; Swan 2015; Swartz 2017, 2018). Such endeavours invariably express their own moral rationale towards just what exactly socio-economic relationships should be

on the exact moment of when to attack, but can only communicate by sending messengers – who could be prevented from delivering the message in question.

[19]Taken from https://blog.ethereum.org/2015/04/13/visions-part-1-the-value-of-blockchain-technology/.

like, i.e., cooperative and anarchist inspired projects (see Lopes 2021) coexist with market-centric, anarcho-capitalist ventures (see Faria 2021). While bitcoin's white paper stands out for its dry and technical language, most of the white papers that followed include persuasive language and blatant ethical considerations. In doing so, they crystallise a particular expectation towards the digitalisation of society, which then regulates the adherence of the community to the proposed software.

During our fieldwork, we followed a start-up called the Economic Space Agency (ECSA), which is based in Oakland, U.S. Its proximity to Silicon Valley encouraged close contact with other members of the crypto-community, such as talented code developers and wealthy investors. As ECSA was working on its own white paper, it received a visit from a former Ethereum team member who mentioned how the Ethereum white paper had been a "visionary document" and that it had played an important role in the project's stability:

> *Even after the trust broke down and the team fell apart, the white paper functioned as a decentralized coordination mechanism. For me, that's the only reason Ethereum succeeded. (…) My advice definitely is to make sure that the vision is articulated as much as possible.* (ECSA visitor A, Oakland, April 11, 2017)

According to the ECSA team, their own platform introduces new technical affordances that overcome Ethereum's centralised "magic computer" and introduce further decentralisation, as well as the scope for deploying a series of pre-made algorithmic financial instruments, such as derivatives. The convention of producing a white paper was not taken lightly by ECSA, an organization mainly composed of academics. For ECSA was all too aware of the importance of

language and was committed to the political translation of what the technical really *is*. Endless versions of ECSA's white paper were created, commented on, and revised collectively in search of the most persuasive and flawless narrative. Indeed, as we write, ECSA has announced the release of a three-volume white paper: Economic, Technical, and Political. By means of this atypical format, ECSA's white paper is bestowed with a trait of its own which reveals a new schism, both in terms of content and shape. Furthermore, contrary to Satoshi's 9 page-long white paper introducing bitcoin, ECSA's paper communicates a more elaborate tale.

We analysed an anarcho-capitalist project in the Netherlands called Bitnation, whose 42 page-long white paper was released in 2017 to introduce Decentralised Borderless Voluntary Nations (DBVN). As the name implies, the innovation at stake here is derived from the technical ability to program a decentralised jurisdiction. Bitnation's white paper states that in "the current world order, citizens are forced to compete with one another to receive their desired governance outcomes", and it goes on to introduce a "global free market for governance services" (Tempelhof 2017, p. 4). Bitnation's white paper swiftly outpaces Ethereum's marketable language with a more sophisticated aesthetic approach, whilst introducing infographics and providing famous quotes for each section. All the software functions are described, sometimes in very technical terms, but always without displaying the code or mathematical models used. Through persuasive language, this white paper introduces Pangea – a global market for governance services. Pangea is the first ever digitally-constituted nation that represents both a reputation system which is managed by an algorithm named Lucy, and a monetary system which rewards participants according to their virtuous behaviour (for more detail, see Faria 2019).

Bitnation's charismatic founder and leader told us her story during a meeting. She spoke of how she

had become disillusioned with nation states and violence following her experience working as a defence contractor in conflict areas. She firmly expressed her belief that a blockchain-based system is the only way to provide peace and to end government violence, adding that democracy had failed. She went on to state that she decided to create Bitnation as she was driven by a quest to end state-based genocide. Her personal story acts as an illustration of the project's values, and other Bitnation collaborators with whom we spoke also invoked her life story to better explain the project. One of them told us:

> *During her time there (...) she was exposed to bitcoin for the first time. (…) She wrote the whitepaper about (...) decentralised governance service providers. This is the very very original edition, before she started Bitnation.* (Michael, Lisbon, November 7, 2016)

The founder's personal story plays a relevant role in Bitnation's tale. It recalls unhappiness regarding an initial state of affairs – the experience of a crisis – before proposing a solution based on universalising the founder's beliefs (Propp (1968 [1928]). The technical advances that occurred, such as the development of the Lucy algorithm, are expected to automatically regulate and enforce virtuous social interactions in the absence of mediating institutions. In a far more ambitious way than bitcoin, projects such as Ethereum, ECSA, or Bitnation all forcibly advocate a particular technologically-mediated social order, which is appealing to the concerns of contemporary individuals and accordingly nurtures cohesion among their followers (Boyer 2001, Durkheim 1962 [1912]). In the next section we now explore the role of secular rituals as vehicles for maintaining a collective memory and for reinforcing a sense of community through moments of guidance.

**Secular rituals: “happy bitcoin halving #3”**

Similar to the calendar-bound celebrations that reaffirm certain forms of belief systems or social institutions, such as the celebration of the 4th July in the United States (Goody 2010), the crypto-community has also installed non-spatial, calendar-bound celebrations of key events enacted in cyberspace. For instance, the second bitcoin transaction – the purchase of two pizzas for 10,000 bitcoins in 2010 – is celebrated on every 22nd May as ‘Bitcoin Pizza Day’. ‘Bitcoin Halving’ is another festivity, even though it is celebrated only every four years, or, more precisely, every 210,000 blocks. In the cases of halving, the bitcoin reward for miners (users who are responsible for validating new blocks in the network) is divided by two. As of 12th May, 2020, halving lowered the bitcoin reward to miners from 12.5BTC to 6.25BTC. This occasion was followed closely by the crypto-community in a festive spirit – with websites hosting live countdowns to the Halving and, in 2020, wishing users a “Happy Bitcoin Halving #3”. These cyclical celebrations – the first marking the birth of bitcoin, and the second commemorating the passage to a new economic configuration at every 210,000 blocks – perform an important role in retaining a collective memory about the technology’s achievements.

In October 2016, we participated in a “Bitcoin Wednesday”, which was organised at the Eye Film Museum in Amsterdam. In the crypto-community, this kind of gathering is a common, spatially-situated event, which is easy to come across in many cosmopolitan cities around the world, whether it be on an occasional or a regular basis. These events constitute the temporary expression of a group gathering in physical proximity as a means of significantly binding people together. The charismatic figure Andreas Antonopoulos was billed to attend that “Bitcoin Wednesday” and the excitement was palpable. Programmers, investors, amateur users, and speculators were among the audience, as well as the merely curious. Attendees spoke about Antonopoulos with reverence, citing

him as: “a star in the bitcoin universe”, and “one of the special people, at the top, bridging different worlds within the industry”. When he finally walked on to the stage, having already experienced the presentation of various other projects, the audience was finally able to hear about the potential of B bitcoin and blockchain in captivating words in alternation with detailed descriptions of technical features which only half of the audience seemed to understand. In his message, Antonopoulos spoke of the inevitability of the disappearance of fiat money and the perils of its control by state and financial intermediaries. These claims were made attractive by him invoking situations of debt-related confiscated goods and other emotionally appealing stories. Money represents not only a form of power, he said, but also a form of trust, freedom, and democracy. According to Antonopoulos, bitcoin represents absolute freedom: “Banking as an institution”, he finalised, “is obsolete”.

Antonopoulos is described by the crypto-community as a “bitcoin evangelist” and as a “bitcoin Jesus”. Similar to the Hansen and Verkaaik’s notion of the charismatic preacher (2009), which they put forward by elaborating on Weber's idea of charisma (1978) and on Bourdieu's idea of the mystery of ministry (1991), Antonopoulos personifies the social fiction of a group. Indeed, the mystery of his ministry is further illustrated by another particular historical event: a disagreement took place among the bitcoin community regarding a change in its original code in 2017. A split was thus made: the original bitcoin (BTC) continues to this day, however, as of 1st August 2017, when bitcoin block number 478,558 was processed at around midnight by a Chinese mining pool employing the new protocol, bitcoin cash (BCH) came to be and followed its own separate path. A citcoin investor named Roger Ver held the title of “bitcoin Jesus” at the time, on the grounds of his early endorsement of the cryptocurrency, however, when he supported bitcoin cash, the community remaining faithful to the original bitcoin elected a new Jesus in the form of Andreas Antonopoulos.

In Golumbia's words:

> [Antonopoulos] *had only recently climbed out of debt, and survived mostly on five-dollar donations from Patreon supporters. Antonopoulos's modesty, not to mention his emergence from the desert of penury, more than satisfied those angered by Ver's support for BCH. Suddenly, Antonopoulos was ordained the new "bitcoin Jesus" by a flank of supporters, some of whom banded together to donate around fifty BTC to him—making him a millionaire overnight*. (2018)

Charismatic preachers such as Antonopoulos maintain a lay relationship with technology, as they are not writers of code, but rather investors, promoters, or entrepreneurs, whose oratory powers turn them into competent translators and moral strategists (Alberoni 1984; Hansen and Verkaaik 2009). As a personification of the group, they can also perform the key role of steering a direction through the unknown (Hansen and Verkaaik 2009), as illustrated by the schism between bitcoin and bitcoin cash.

Three years later, in 2019, we attended the Web Summit held in Lisbon, Portugal, which is a pivotal ceremonial event in contemporary technological culture. In itself, the event was a demonstration of the faith in technology's achievements for whoever was searching for proof, which was manifested by robots circulating among the audience and the opportunity for participants to experiment with virtual-reality headsets. In addition, there was a chance to hear successive short talks delivered from dozens of different stages which either affirmed technological solutions for existing problems, or discoursed about futuristic themes: such as humans living on Mars, or awarding robots civil rights. This event represents a type of periodical assembly which serves to bring together tech creators and

enthusiasts from all over the world in one particular place for a limited period of time. Such an event represents more than just enabling the temporary expression of an assembled group, as it is characterised by the explicit ceremonial dimension which is embedded in its formal, stylised, and ritualised format.

The Web Summit represents a unique opportunity for the crypto-community to gather around revered characters who are in effect charismatic preachers, or as Boyer calls them – specialists. Similar to pastors, priests, rabbis and monks, these persons are reputed to hold special abilities and thus accrue additional benefits on the basis of such a reputation (Boyer 2001, p. 272). The programme of the Web Summit is mostly marketed as being a unique opportunity to see and hear those whose special abilities are commonly linked to technical mastery, such as robot designers, app inventors, data scientists, or artificial intelligence developers. One such specialist who was present at the 2019 Web Summit was David Chaum, a cryptography pioneer who is considered to be the inventor of digital cash (eCash) in the 1980s. eCash maintained a tremendous influence on subsequent experiences with digital currencies, as well as on the cypherpunk movement which emerged in the late 1980s (Swartz 2018).

In a talk entitled “The evolution of currency”, Chaum presented his latest project, a platform called Elixxir, to a packed audience which was both sitting and standing. He focussed on privacy issues, singling out state surveillance by saying “Snowden has proved that we have no privacy”. To conclude his perfectly-rehearsed 20-minute presentation, he labelled his platform as being a technology which is “in the original spirit of blockchain”, attesting to his own adherence to the perceived original values of the bitcoin code. In effect, Chaum’s narrative thus relates crypto-technologies with the ability to circumvent governments and to Nakamoto’s tale – which is a

significant statement, bearing in mind that blockchain was being presented as the ideal technology for governmental systems on other stages at the Web Summit.

Celebrations, assemblies, and ceremonies such as those described above constitute secular rituals which comprise a pilgrimage to the temporarily configured spaces that bring together members of a perceived community (Lopes 2021). Such events often exhibit stylised, formalised, and performative behaviours (Goody 2010, Moore and Meyerhoff 1977), and they reinforce a sense of community through moments of guidance and live interactions regarding issues which are conveyed as being systems of belief. Additionally, such events communicate tales, mark calendar celebrations, allow participants to vent their militancy, and convince those who are in search of proof (Boyer 2001, Piette 2014). During these processes, charismatic preachers and specialists guide both physical and virtual movements for networking and community building in their role as evangelists bearing the news of blockchain's revolutionary powers.

**Final considerations: "do you really need a blockchain for that?"**

Throughout this chapter, we have explored the quasi-religious behaviour of the blockchain evangelists, entrepreneurs, and enthusiasts who exhibit faith in the technology's reformative or revolutionary power. We commenced by discussing the legend of Satoshi Nakamoto as a tale whose primary aim is to translate contemporary anxieties about the financial crisis and present blockchain's potential to save society from the centralisation of money and power (Bal 1997; Barthes 1957). By means of the analysis of white papers, we traced the proliferation of persuasive narratives which propose the advent of techno-mediated social order, which is anchored in ethical and moral discourses. Finally, we ended our analysis by describing secular rituals and events which bring together members of a perceived community, reinforce their cohesion and networking, and

produce comfort during moments which are often guided by charismatic preachers and specialists (Hansen and Verkaaik 2009). This approach served the purpose of empirically illustrating a larger sense of religiousness which is seldom evoked in sociological and anthropological accounts of blockchain technology – which Dodd (2018, p. 49) describes as a "quasi-religious zeal" towards a "godlike technology". For this reason, our analysis also sought to explore the secular without entirely refuting the dimension of enchantment and religiosity that the wider community itself construes and feeds into its narrative and behaviour towards the financial-technological realm.

As observed in the doctrines of economics (Nelson 2014), we sustain that the tales regarding algorithmic governance and decentralised finance have been conquering ground by building upon already-existent myths of quantification and calculus, while extending them to the realm of computer code and granting increasing authority to software developers (Maurer 2003; Introna 2016; Dupont 2018). Similar to other tales, their persuasive efficacy is seemingly proportional to the intelligibility of their inner-workings, which induces a certain type of enchantment (Gell 1992) and favours the presentation of these technologies as representing black-boxed "magical" solutions for wider challenges. In recent years, as different sectors became acquainted with blockchain, online literature has proliferated under titles such as "do you really need a blockchain for that?"[20]. It now aspires that many companies that were wishing to keep up with innovation wanted to implement a blockchain, whereas, in reality, what they needed was just a conventional database. This curiosity, which was manifested by not only the financial sector, but also the health and logistics sectors, for instance, illustrates a generalised faith in technological innovations as being qualitatively better and more financially rewarding. Furthemore, as we saw in the case of the Netherlands, such curiosity also thrives on the lobbying carried out by enthusiastic entrepreneurs near regulators and

[20]For one example, see https://www.coincenter.org/education/crypto-regulation-faq/do-you-really-need-a-blockchain-for-that/.

supervisors, as well as in the workplace (Faria 2021). Amongst other factors, the consolidation and expansion of blockchain technologies has thus benefited from the cohesion and growth of the social group which emerged from an online cryptographic forum, and which has now reached as far as banks' digital innovation task forces and the stages of the Web Summit.

This is partly a revelation of the process by which the financial mainstream sector appropriated decentralised technologies to strategically overcome the mistrust generated by the financial crisis, and it actually takes quantification doctrines further. Nakamoto's legend – which portrays the hacker as the hero, and the banker as the villain – conveniently supports the idea that this technology has been created in accordance with differing ethics. Justifiably, we can thus reason with regards to how the introduction of blockchain technologies in the banking and financial sector appeals to the renewal of public faith, framed by tales of higher scrutiny, safety, and oversight to enable this sector to get back to business as usual (Maurer 2016). Our analysis thus suggests that crypto-financial tales narrow the possibilities for the democratisation and de-mystification of finance with respect to the need to reform the mainstream financial system, by somehow re-creating and updating the fictional and engaging nature of mainstream practices.

Overall, the quasi-religious romanticism of fintech has been translated into the wider society through the overarching narratives of the "cashless society" and of "the digital economy" – which positively support the hypothesis of the emergence of fintech solutions to install digital payment systems and digital governance (see Ertürk et al. 2021). Although these wider narratives give rise to a variety of uncertainties regarding fundamental social issues, they are met with the industry's persuasive tales about a better future, and with ritualised "performative politics of incarnation" within formed communities (Thrift 2001, p. 418; Mooney 2005; Fuller 2012). Such compelling

tales are fundamental for addressing the growing opaqueness of fintech, together with other areas of development, such as machine learning, artificial intelligence, and robotics. These tales (re)invigorate the phenomena of re-enchantment (Gell 1992) and material romanticism (Coeckelbergh 2017), both of which enable “leaps of faith” when it comes to transforming society by technological means.

## 6. CONCLUSION: THE ROMANCE AND THE PARASITE

The previous chapters all cover the common ground of DeFi experiments, focusing on how the teams involved in the various case study projects interpret decentralised technologies and grant them a specific role in addressing the current financial context and forecasting a desirable financialised future. By foregrounding – more often than not – the discursive and narrative dimensions of technological development, I have inquired more into the romance than the finance (Thrift 2001). That is, without seeking to assess whether these projects 'work' or 'succeed', I have attempted to unpack the values and expectations that the teams and their close collaborators express about DeFi, in order to illuminate an emerging culture of financialisation. To do so, I have identified particular motifs and main themes in the teams' work, in order to illuminate the different interpretations that subjects make of blockchain technologies at this particular historical time, as they move into new logics of techno-mediated financialisation (Martin 2002).

This research has, however, some limitations. Firstly, the tales discussed here are certainly not the only tales to be found when analysing financial practices. For that reason, it is not my intention to account for *one* single culture emerging from the crypto space. More could be said, for instance, if we were to follow Morgan Stanley's wealth management division, currently offering access to bitcoin funds to its most 'risk-tolerant' clients, or to follow the maintenance staff of a mining warehouse in China. The particularism of this research, if unable to provide a general overview of blockchain's role in various social sectors, may nevertheless hopefully contribute to adding heterogeneous detail and nuance to a larger body of work in the social studies of finance.

Methodologically, it should also be noted that the *in situ* fieldwork periods were shorter than what would have been ideal, and that longer periods of ethnographic research would have enriched the analysis. Nevertheless, the ethnographic method proved effective in grasping various cultural

aspects of technological development, and, through the conciliation between traditional ethnography and virtual ethnography, enabled the observations to follow the *action* as it took place in both chatrooms and actual rooms.

**The four tales in perspective**

In synthesis, I have outlined four wide narratives. The first, presented in chapter 2, is that of transhumanism – a proposal of human enhancement through a symbiotic relationship between humans and technology, as well as an appeal to the notion that humans are inherently technological beings and are already 'posthuman', in the sense of relying on variegated technologies to act upon the world in daily life. In what concerns financial practices in particular, transhumanism does not entail a refusal of the 'technomorphing' of finance, but rather shifts the debate towards a consideration of the necessary and desirable conditions for integrating fintech into everyday life.

Chapter 3 introduces accelerationism: a debate about the hypothesis of overthrowing capitalism through its own intensification. In this case, it is suggested that an increase in the scale and speed of financial markets may offer the only way out of financial capitalism. More broadly, accelerationism has been conquering ground as a sort of faith in catastrophism. It is present, for instance, in the controversial argument that supporting Trump's election was a way to provide a new chance for the radical left (Žižek 2019).

Chapter 4 describes what I term hacktivism: an engagement with fintech from the standpoint of contemporary forms of global activism, encompassing the values of free software and open knowledge, cooperativism and collaboration, horizontality and anti-authoritarianism, fair trade and economic degrowth. Hacktivism, as articulated famously by the Occupy movement, entails a refusal of the financial markets of the 1%, while nevertheless seeking forms of financial and economic well-being for the 99% that rely on open source, collaborative and non-corporative digital

technologies.

Finally, chapter 5 presents the tale of Satoshi Nakamoto and discusses the idea of technological enchantment, addressing an engagement with fintech that relies on a generalised faith in technological innovation, and addressing the effects of technical complexity in perceiving emerging technologies as a magical solution for existing problems.

These syntheses do not suggest that these narratives are socially stable, homogeneous and delimited. The concept of the tale, as we propose it (Lopes et al. 2021), is a circulating and situated device that cannot be reduced to its stabilisation as text or object. Its social function is better understood as a semantic engine that assigns meaning to events within an ongoing plot and thus guides social interactions according to an expected plot development, albeit one that is always vulnerable to refiguration and reinterpretation (Ricoeur 1983, 1984, 1985). That being said, narratives convey generalised social anxieties and inclinations towards future possibilities. It is in this sense that the tales discussed here offer a repertoire of moves towards decentralised financialisation.

Following an interest in how people conceptualise their techno-economic future (Salazar et al. 2017; Sneath et al. 2009; Pink et al. 2018), I have observed, for instance, the use of metaphors (chapter 2) and philosophical concepts (chapter 4) to convey new interpretations of financial practices. I have observed as well how specific financial practices may be rehearsed by creating experimental and alternative spaces for improvisation (chapter 3) (Jeffrey and Dyson 2021). All of the case studies approached in the previous chapters, and perhaps a large portion of blockchain-based projects, seem to be drawn to the idea of thinking finance anew and of breaking with previous conventions. In this sense, the performances of discourse, speculation and persuasion gain particular relevance, as demonstrated by the proliferation of charismatic leaders and ‘preachers’ in the blockchain space (chapter 5) who possess the communicative skills to ‘convince’ and ‘convert’

others (Pardo-Guerra 2019).

I do not mean to suggest that the tales presented in this research reveal the whole *politics* of decentralised finance; narrative interpretation is always subjective and may produce a variety of practices and outcomes. Although narratives play a significant role in delimiting a community, they do not create a community free of dispute. In the case of the tales discussed here, their openness to interpretation varies: while Faircoop (chapter 3) engages with an explicit set of pragmatic principles which appear to narrow the field of possible experiences, transhumanism (chapter 2) or accelerationism (chapter 4) are known to have left-wing and right-wing strands, which have sprouted from the same theme into contrasting pragmatic proposals. In order to distinguish between explanation and politics (Joerges 1999), I wish to proceed by highlighting two central motifs, the 'romance' and the 'parasite', which appear to be transversal to the previous chapters, and which may illustrate the subjective dimension of financialisation through DeFi.

1. *The romance*. This research has considered the agency of things – software, metaphors, white papers – alongside the agency of subjects. I cannot assert whether this inclination preceded or came as a consequence of being confronted with the relevance of objects in the discourse of the subjects I encountered in my fieldwork, whose narratives consistently positioned digital technologies as unprecedented protagonists in making a deviation from austerity towards some form of liberation. While the influence of infrastructure in finance is far from being a new phenomenon (MacKenzie 2009; Preda 2006; Knorr-Cetina and Bruegger 2002), I have argued that the trajectory towards the complexification and abstraction of financial infrastructures strengthens its enchanting effect over subjects (Gell 1999). We have ceased to find magic in printing notes, but we do find ourselves amazed with high-frequency trading, or even just with the possibility of moving money around instantly via our phones. The plasticity and playfulness of software, alongside its promise of

autonomy and velocity, reinvigorates material romanticism towards ‘the digital’, namely towards blockchain technologies as a novel and highly-praised mediator of financial possibilities.

In the realm of decentralised finance, and despite the tendency to articulate a critique of dominant financial models, the romance with automation, with individualised practices of risk management and with calculative regimes does not appear to lose its traction; instead, it extends the logic of ‘casino capitalism’ into domestic, personal and militant spheres. In other words, what stands out from the critique of the mainstream financial system, as it is played through DeFi, is not its desire to de-scale the speculative and abstract tendencies of money, but to ‘democratise’ the access to money as a speculatory medium.

2. *The parasite*. Even though DeFi provides continuity to the gambling romance of casinos and stock exchanges alike, it does so while undoubtedly introducing a new set of moves in the game. The metaphor of the parasite is expressed clearly in RHC’s ‘assault’ on the New York Stock Exchange with the help of an algorithm named ‘the parasite’ (chapter 4), but it is also present in other chapters: for instance, in Senselab’s need to convince their left-wing collaborators to explore the potential of volatile and speculative currencies (chapter 4); in Faircoop’s use of cooperative law and conventional bank accounts to set up their Bank of the Commons, as well as in their use of the euro to stabilise the value of faircoin (chapter 3); or in ECSA’s proposal to turn monetary speculation and financial derivatives into an accessible organisational tool.

I do not follow the metaphor of the parasite in a moral sense, as some kind of incoherence or hypocrisy, but as a particular type of social action that may be useful from the point of view of organisational theory (Serres 1982; Brown 2013). In short, we might characterise the parasite as a mechanism which upsets an equilibrium and makes a deviation; which interrupts one set of moves and makes a new set of moves possible (Brown 2013).

Now, the metaphor of the parasite might feel somewhat inconclusive when addressing finance: aren't financial institutions and banks parasiting blockchain technology as well, as they move part of their investments into cryptoassets? Aren't financial markets themselves popularly labelled 'parasites' of the economy and of society? And couldn't we speak of the very technological infrastructure itself as a parasite, in the sense of the quasi-object? (Latour 1993). One conceptual delimitation of the parasite might be made by arguing that institutions are tied to interests and conventions that are stabilised by a larger conjuncture, while the parasite is a 'non-institution', as it does not compromise in favour of particular interests or conventions, but rather navigates them as is deemed fit for its survival. In other words, the parasite is not merely defined by an action; it is a specific kind of actor, like a joker (Serres 1982).

But what the metaphor of the parasite more conclusively suggests is that parasiting, as a socio-organisational phenomenon, can never dismantle a host completely, since it depends on it for survival. Instead of killing the host, the parasite adds information and complexity to it; it expands the repertoire of possible moves in a movement that is at once a disturbance and a continuity. The financialisation process I have looked into throughout this research, then, can be understood as a repositioning – an update with new features – of financialisation as it was previously unfolding.

Tales of posthumanism, accelerationism, hacktivism and enchantment around DeFi respond to the multifaceted crises of the 21st century and guide subjects into decentralised financialisation. As suggested by other authors, calculative regimes and risk management practices find their way into individualised financial practices as a strategy to 'claim a share' and to leverage against the failure of the financial and economic system in generating abundance for all (Kim 2017; Martin 2002). Although this research is limited to DeFi projects 'in the wild', which experiment outside the boundaries of institutional conventions, it has become apparent that blockchain technologies have

moved from a niche technology to a central infrastructure for innovation in the technological and financial industries. Further research may take up the task of inquiring into the role of blockchain technologies in reinforcing the disciplining character of financial markets, as well as in supporting the evasive character of financial markets – as in the case of shadow banking and off-shore banking – which are still, nevertheless, institutionally stabilised phenomena.

On the other hand, and following the hypothesis of the parasite as being detached from institutional interests and market-making strategies, a different line of research may investigate the emotional and affective logic of finance in everyday life. At the very beginning of my fieldwork, I was told about a metaphor, whose origin could not be recalled, about the difference between wage money and capital: wage money is bread – you eat it until the last piece – while capital money is play-dough – you get to play with it. Following this metaphor, this research suggests that new financial mediums such as DeFi allow subjects to claim access to play-dough money and to the enchanting affordances of capital such as assetisation and speculation, borrowing, trading, lending and investing. Leveraging on the culture of high finance, DeFi brings thus forth risk as a foundational feature of contemporary financialisation.

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