

Trust Machines: Cryptocurrencies, Blockchains, and Humans in Cultures of Mistrust

by

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Abstract

Network technologies allow individuals to participate in technological market systems that can mediate trust independently from traditional public institutions. This presents a novel idea of governance that is distinct to the one in liberal democracies. I explore the use of cryptocurrencies (digital currencies based on cryptography) in Argentina to shed light on the social dynamics underlying technological market systems that mediate trust. These social dynamics include ideas, perceptions, and emotions, as well as specific practices that determine different relations to traditional institutions. I study how cryptocurrencies and blockchain (decentralized records that rely on cryptography) technologies are understood by Argentine enthusiasts and developers, and how communities of enthusiasts generate adequate social environments for the transmission of information and for emotional support. I highlight the discursive and social aspects of the phenomenon. Based on these findings, I describe the imaginary of participatory institutions (a vision where individuals engage with public institutions providing limited information on a consensual basis) and I describe how a city government in Argentina is interpreting this imaginary.

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Introduction

In July of 2021, a friend sent me an image through WhatsApp: a photo of graffiti in Colegiales, a neighborhood in Buenos Aires, that read “~~los niños~~ las cripto son el futuro,” “~~children~~ cryptos are the future” (Figure 1). I had long been reading about blockchains and DAOs (decentralized autonomous organizations) and had been intellectually drawn to the hype surrounding this technology. The graffiti did pose something new to me, however. For the person who made the graffiti, cryptocurrencies were the future. I wondered what cryptocurrencies meant for them: certainly, more than just money.



Figure 1: A Graffiti in Colegiales

This thesis is about how people use technology to form new relations with each other, when establishing those specific relations has traditionally been the role of public institutions.

Cryptocurrencies are tokens of exchange, and creating currency is something that is usually associated with national governments. But cryptocurrencies are not just about the technical infrastructure that sustains them. They also provoke agonistic feelings and political visions, they involve decisions that are tied to these ideas, and they are sustained through bonds of communitarianism and affect. These sociopolitical aspects of cryptocurrencies are not trivial: they influence how cryptocurrencies become and remain popular. But more importantly, the values and practices of cryptocurrency users are shaping a new imaginary of what public institutions should be like, one that traditional public institutions like governments are paying special attention to. Focusing on Argentina, this thesis explores how collectives utilize and understand cryptocurrencies in a specific context and in contestation to local institutions.

In this introduction, I outline trust as the central category that guides my analysis. I then consider the dynamics of trust and mistrust in public institutions and pose questions about the role of market-based technological systems in cultures of mistrust. I then focus my analysis on cryptocurrencies in Argentina and outline the organization of this thesis.

Trust and institutions

Simmel (1964) defines confidence as the collective forecasting of possible action: “A hypothesis regarding future behavior, a hypothesis certain enough to serve as a basis for practical conduct, confidence is intermediate between knowledge and ignorance about a man. The person who knows completely need not trust; while the person who knows nothing can, on no rational grounds, afford even confidence” (318). This definition of confidence points to interpersonal trust. Interpersonal trust within a community is generally described as anchored in mechanisms of kinship, reciprocity, and duty towards the community. Giddens (1990) reworks this definition by adding that trust is not just reliability, but also blind faith: “Trust may be defined as

confidence in the reliability of a person or system, regarding a given set of outcomes or events, where that confidence expresses a faith in the probity or love of another, or in the correctness of abstract principles (technical knowledge)” (34). By this, Giddens means that trust can refer to interpersonal trust, but also to the belief that certain abstract principles are true: for example, when one is considering traveling by plane, one does not need to know how a plane works. Another important point that Giddens makes is that modern institutions rely heavily on people’s trust in abstract systems. They rely on people believing that some systems work, and that these systems will work because some things are true. For example, the financial system relies on individuals believing that when they exchange money, that money will be honored in other businesses. It does not require them to understand all that happens in the middle.

According to Fukuyama (1996), modern state institutions emerge in societies with historically low interpersonal trust. In other words, they facilitate interactions in societies where strangers would not otherwise trust each other. Through contracts, laws, and policies, the states provide individuals the reassurance that they can generally predict what will happen in the future. However, modern states are not just the functional aspects of their institutions. Anderson (2006) argues that national states are rooted in “imagined communities,” where media technologies like print books, maps and census contribute to diffusing the idea that strangers belong to a community of individuals that share a common identity. Imagined communities expand trust from close relationships to the general body governed by a public institution: Putnam (2000) argues that trust embedded in personal relations that are strong, frequent, and nested in wider networks refers to “thick trust,” while trust in individuals with some background of shared social networks and expectations of reciprocity are shared refers to “thin trust.”

But what happens when individuals or collectives do not trust public institutions? As Zuckerman (2021) argues, there are “institutionalists,” whose strategy is to make changes within the system, and “insurrectionists,” who aim to overthrow and upheave existing systems by changing the law, participating in markets, creating code, or making interventions in cultural norms. Zuckerman is not the first one to highlight the transformative power of code. Lessig (2006) argues that code plays a regulatory function, establishing what can and cannot be done, and creating new “sovereigns” beyond governments. Lessig refers to these as “merchant-sovereignties,” which operate based on markets, in contrast to “citizen-sovereignties” which operate based on collectively agreed-upon principles and authorities. Lessig generally regards these market-based systems negatively, as the loss of some democratic cohesion. But it is also possible to read them through Zuckerman’s “insurrectionist” lens: as reactions to institutions that are not perceived as desirable. When these market-based technological systems play roles that were traditionally relegated to public institutions, they can potentially act as “trust mediators,” tracing back to Fukuyama’s (1996) argument. They can facilitate interactions between strangers, without the political deliberation that defines modern liberal-democratic institutions.

Whether technologies themselves are sufficient to mediate trust is an open question for scholars. For example, looking at online platforms, Bodó (2021) argues that technologies face structural issues in establishing trust, since they cannot guarantee competence, ability, benevolence, and integrity comprehensively. But market-based technological systems are not just about the technical infrastructure that supports them. I propose looking at market-based technological systems as “trust machines.” By trust machines, I mean the assemblage (Müller 2015) of human and non-human actors involved in mediating trust relations among strangers.

Beyond the technological infrastructure, my goal is to explore the different artifacts, institutions, and humans involved in this system.

In that sense, this thesis explores the following research questions. How is the use of cryptocurrencies in Argentina linked to mistrust in public institutions? What are the individual and collective practices involved there? What is the role of affect and emotion? And lastly, how are traditional public institutions transforming in response to this new vision of institutions? I pursue these questions by focusing on a specific case study: the use of cryptocurrencies in Argentina. In the following sections, I will expand on the rationale for this focus.

Money

This thesis focuses on a specific, long-dated competence of the state: currency. Billig (1995) refers to currency as one of the means through which nations traditionally stated their hegemony: control of the economy was both operative and symbolic. Likewise, Penrose (2011) argues that currency produces “state effects,” as she focuses on the case of Bank of Scotland where, even in absence of an actual state, the symbolic work behind currency’s image is key to the situation of the nation. The monopoly over producing national currency is a traditional attribution of the national state and, due to efficiency purposes, one that characterized the earliest of national states.

This is not to say that currency does not frequently escape the boundaries intended by the state. Individuals often create tokens, exchange goods, use currency for purposes that challenge the state’s originally designated functions, or decide to use other monies than the one regulated by the state. Complementary currencies, like community currencies, are an example of these practices. Numerous authors have explored the cultural aspect of complementary currencies. For example, Gómez and de Wit (2015) argue that the barter networks that emerged in Argentina in

the nineties are an example of monetary contestation, where individuals flexibly organized outside the state with diverse goals: one group aimed to advance utopian ideas, another one aimed to survive economically, and another one tried to informally broker relations with politicians and the state. Likewise, Frances Negrón-Muntaner's (2020) account of her co-created "Valor y Cambio" project in Puerto Rico highlights decolonial joy as an emotional response from the community. "Valor y Cambio" was an artistic community currency project where bills that included imagery valued by Puerto Ricans, presented as an alternative to the U.S. dollar. Her analysis of the project highlights decolonial joy as capable of spurring imagination and visions among community members.

Understanding these insights through a communications lens, it can be posited that currency is not only a transmission of information and tokens, but also a ritual (Carey 1992). In fact, money has long been a topic of interest for media scholars. In "The Poor Man's Credit Card," McLuhan (1994) accurately points at the communicative role of money:

"Money talks" because money is a metaphor, a transfer, and a bridge. Like words and language, money is a storehouse of communally achieved work, skill, and experience. Money, however, is also a specialist technology like writing; and as writing intensifies the visual aspect of speech and order, and as the clock visually separates time from space, so money separates work from the other social functions. Even today money is a language for translating the work of the farmer into the work of the barber, doctor, engineer, or plumber. As a vast social metaphor, bridge, or translator, money — like writing — speeds up exchange and tightens the bonds of interdependence in any community. It gives great spatial extension and control to political organizations, just as writing does, or the calendar. It is action at a distance, both in space and in time. In a highly literate, fragmented society, "Time is money," and money is the store of other people's time and effort. (136)

In his essay, McLuhan makes the link between money and exchange of any good, while noting the specificity of money as a medium. In a similar fashion, Graeber (2010) looks at the "media of value." He notes two main themes that are crucial for a study of media:

The first is the tendency for media of exchange, and of value more generally, to take on lives of their own—and ultimately, to come to see the origin of the very powers they appear to represent. “Primitive currencies” that initially represent powers of creation—the power to create human life and human relations—end up invested with creative power in their own right. (...) The second theme is the intimate relations between media of exchange, and visual media. These can be remarkably subtle and complex. (...) Both phenomena—the display of wealth and money as hidden power—are obviously very much still with us. Despite all the tendency for media of exchange to break free and take on autonomous lives of their own, it would seem they cannot completely detach themselves from their origins as aspects of human being. (230)

These two perspectives can inform a study of money as media. Money must be looked at through its communicative functions: what “achieved work, skill, and experience,” quoting McLuhan, does it carry? If money “translates,” when we look at monies beyond the national currency, what work of “translation” is being done? And referring to Graeber, what are the “creative power” of money? A small set of recent works have partially tried to answer these questions. Swartz’s 2020 book *New Money* situates payment within contemporary communication studies. She argues that money is used not only to transmit value but to negotiate rituals, and that different money technologies produce transactional communities, “networks of relations united by a common payment method, and therefore common sense of identity, geography, and values” (49). A similar point is made in an earlier article by Baym, Swartz, and Alarcon (2019) where they argue that blockchain technology (decentralized ledgers sustained by cryptocurrencies) acted in the music industry as a “convening technology.” In a historical vein, Brunton’s 2019 *Digital Cash* traces a media history of digital cash, where he aims to problematize cash as a problem of knowledge: “How do you know that a given currency token is valuable—that it can pass, that someone else will take it from you, that it can be settled and redeemed? (...) How are you sure of its identity, and how does it authenticate itself to you?” (1-2). Brunton’s piece is an extremely valuable contribution in understanding the symbolic value of

currency: for example, it posits that ideas about money acted as “techniques of futurity,” that is, visions of the future.

Cryptocurrencies

Cryptocurrencies are digital currencies that use cryptography to secure and verify transactions, as well as to control the creation of new currency units (“What Is Cryptocurrency? A Beginner’s Guide to Digital Currency” n.d.). They exist on decentralized or distributed ledgers called blockchains. Blockchains are decentralized records that are composed of blocks. These blocks are linked together using cryptography: each block has a hash (a string obtained through cryptography) that links to blocks together. To produce a new block, a user needs to “mine” it by employing processing power. Different blockchains have different incentives for users to mine blocks. When individuals engage in transactions in a blockchain (for example, when a user sends another some money), these transactions are logged in a new block. So, transactions depend on miners that can generate these blocks through cryptography.

The blockchain was invented in 2008 by a mysterious subject called Satoshi Nakamoto, as a technology to support bitcoin, a cryptocurrency. Nakamoto’s name is a pseudonym, and people have speculated about his identity (including theories about him being an agent of the government of the United States, or an extraterrestrial). In October 2008, Nakamoto published the Bitcoin white paper on a cryptography mailing list, describing it the new technology as “a purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution” (9). Bitcoin was designed as a decentralized currency akin to digital cash, where the reward for mining a new block is an amount of bitcoin.

Other than the Bitcoin blockchain, the most utilized blockchain is the Ethereum blockchain. Ethereum is an open source blockchain based on the Bitcoin blockchain, conceived in 2013 by Vitalik Buterin. Like its Bitcoin counterpart, the Ethereum blockchain relies on a cryptocurrency, ether. Ethereum's central innovation is that it supports smart contracts, computer programs or protocols that are contained in the blockchain and are executed automatically (see De Filippi and Wright 2018). Ethereum also allows for tokens, other currencies created and legislated by smart contracts in the Ethereum blockchain.

From its origins, the blockchain was seen by researchers as a technology to facilitate governance. Governance refers to the social practices and activities involved in all processes of governing (Bevir 2012). This application was seen as one of Bitcoin's most promising uses, as highlighted by Guadamuz and Marsden's paper on regulation of cryptocurrencies published in *First Monday* in 2015. From then, researchers from fields like governance and HCI reflected about the role that blockchains could have as an artifact for collective decision-making and enforcement, with uses such as mediating decisions in communities through DAOs and creating tokens that could support community networks (Antoniadis and Martignoni 2018; Cila et al. 2020; Elsdon et al. 2018; Firth 2017).

Among this literature, a fundamental body of work is De Filippi's scholarship. Her work stresses the power of blockchain technologies to enable "trustless" governance. In "Decentralized Blockchain Technology and the Rise of Lex Cryptographia," Wright and De Filippi (2015) argue that blockchain produces "trustless" governance, as systems of trust become fully decentralized. The authors propose an optimistic yet critically balanced view of cryptographically supported law, that is, law that is automatically enforced through the blockchain: "The rise of Lex Cryptographia presents a world where ideals of individual freedom

and emancipation might come true. (...) This could significantly contribute to the process of disintermediation that has characterized the online world” (56). In a similar vein, in “Blockchain technology as a regulatory technology,” De Filippi and Hassan (2016) iterate upon Lessig’s “code is law” to propose that blockchain technologies offer us the “code-ification of law,” where code is utilized to both enforce and write law.

Beyond being artifacts to facilitate governance, blockchains need to be governed: they depend on decisions over protocols and common practices. Their decentralized nature makes them especially trickier grounds for making these decisions. Numerous scholars have studied governance of blockchains through the language of imaginaries. Groos (2020) problematizes different aspects of the blockchain and different controversies surrounding governance of blockchains, posing that they present contesting imaginaries: fully automated algorithmic governance, the techno-social approach, and the radical liberalist approach; all these approaches are spearheaded by leading individuals in the community. Studies have also focused on the imaginaries of governance of blockchain as infrastructure. Jabbar and Bjørn’s (2013) study points of breakage of development blockchain infrastructures to study the relationship between concrete decision-making and imaginaries. Kow and Lustig’s (2018) ethnographic study of Bitcoin conferences sheds light on how actors, including open-source developers and entrepreneurs, make use of imaginaries to identify differences among them, negotiate, and reach points of crystallization to integrate with these infrastructures. Following a similar approach of studying points of breakage in infrastructure and then analyzing the ideological aspect surrounding these moments, Vidan and Lehdonvirta (2019) analyze the inequities in power that underlie decision-making of Bitcoin’s blockchain (unaccountable centers of power, inability to reconcile conflicting interests, and, consequently, questionable ability to guarantee collectively-

held values and just distribution) and contrast it with the techno-utopian language of “trust in code” and decentralization.

Argentina

Argentina’s history is plagued with political and economic crises. Most notably, the 2001 crisis had a lasting effect on the contemporary generation of Argentines. In the context of increasing poverty and unemployment, the government imposed a restriction to withdrawing cash from their bank accounts. This led to a series of riots in large urban centers in the country, also accompanied by peaceful “cacerolazos,” where Argentines banged pans as a sign of protest. A common chant was “que se vayan todos, que no quede ni uno solo,” “they should all leave, not even one left,” referring to the Argentine political class.

This precedent constitutes Argentina as a culture of mistrust, an ideal ground to explore the relations of individuals and collectives to public institutions. Since the 2001 crisis, Argentine politicians have tried to present themselves as trustworthy in the context of the generalized mistrust towards the political class. For example, Néstor Kirchner, the first elected president after the 2001 crisis, presented himself as an “anti-party” president, determined to be seen as an ally to the people and not determined by his political party, the Peronist Party. However, as Epstein and Pion-Berlin (2008) point out, Kirchner could not restore confidence in public institutions. Despite the popularity of Kirchner and his successor, his wife Cristina Fernández de Kirchner, high levels of corruption, negative perceptions of Congress and the administration of justice, and high numbers of poverty, inequality, and crime contribute to a general climate of mistrust in Argentina. Three administrations later, Argentines’ mistrust to public institutions seems to not have faltered. In Edelman’s 2022 Trust Barometer survey of 27 countries, Argentina ranked last in two categories: trust in government and trust of the Central Bank (Edelman, 2022).

The instability of the economic system is not just an abstract idea: it is present in Argentines' everyday engagement with the economy (Feliba 2022). After a series of inflationary crises, in the last two decades inflation has been growing steadily. In February 2022, the interannual price variation was 52,3% (“Índice de Precios al Consumidor (IPC)” 2022). To protect their savings from inflation, the upper and middle classes purchase non-state currency, often in clandestine but tolerated ways. While these will be presented in depth in the first chapter, the existence of informal economic networks for economic transactions is important to highlight.

Lastly, Argentines' exceptional rate of cryptocurrency adoption makes it an especially interesting case to explore. In June 2021, Argentina ranked 10 among 154 countries in Chainalysis' Global Cryptocurrency Adoption Index (Chainalysis n.d.). Furthermore, the perception of many informants I spoke with for this thesis was that many Argentines companies were global leaders in the blockchain industry. While this is hard to contrast, it is true that many companies with Argentine founders have gathered funding from international investors and that other non profit-centered projects have attracted the attention of individuals generally recognized as international leaders in the blockchain and cryptocurrency space. Lastly, Argentina has a growing ecosystem of companies catering to cryptocurrencies as a consumer product, such as “custodial wallets” and “exchanges.” These are analyzed in chapter 2.

Methodology

The insights of this thesis were gathered through 15 interviews with cryptocurrency users, enthusiasts, and blockchain technology developers in Argentina. I recruited my informants through “snowball sampling” in an extended sense: by recruiting individuals mentioned in informants' interviews, but also by seeing who my informants interacted in social media like

Twitter Spaces and reaching out to individuals who could bring novel approaches to my thesis. This thesis is not meant to be an exhaustive representation of a community's ideology and practices: indeed, delimiting what the community around cryptocurrencies is in a country, where "communities" and "belonging to a country" are especially slippery concepts, is an almost impossible task. It aims to explore diverse points of views and practices, focusing especially on their breadth and their different possibilities.

I also employed digital ethnography methods to explore virtual communities. Following Pink et al. (2016), digital ethnography is an approach to ethnography that centers "multiplicity, non-digital-centric-ness, openness, reflexivity and [unorthodoxy]" as its main principles and aims to explore how individuals engage with technological artifacts. In chapter 2, I also employed Light, Burgess, and Duguay's (2018) "walkthrough method." The walkthrough method aims to establish a software application's environment of expected use, "how an app provider anticipates it will be received, generate profit or other forms of benefit and regulate user activity," by describing its vision (what a user is supposed to do), operating model (the business strategy and revenue sources) and modes of governance (rules and guidelines).

Outline

In the first chapter of this thesis, "The Legacy Systems," I explore how cryptocurrencies are framed as "solutions" for problems associated with mistrusted public institutions. I find that blockchains and cryptocurrencies are framed as "updates" for three "legacy systems:" the national state, traditional finance, and public identity. The focus of this chapter is the link between ideology and practice. It also sheds light on the imaginative potential of the community, and de-centers profit-making as the sole motivators for individuals engaging in a technological

market system. It also empirically grounds the theoretical argument of the introduction that associates cryptocurrencies to insurrectionist (Zuckerman 2021) practice.

In the second chapter, “Trust Brokers,” I focus on the practices and artifacts involved in acquiring cryptocurrencies. I question the idea of the “trustlessness” of the blockchain, commonly echoed as a truism in the literature. By focusing on the different gateways to acquiring cryptocurrencies by Argentine users, I aim to highlight the role of “off-chain” transactions in determining one’s engagement with cryptocurrencies. I find that how a user engages with cryptocurrency is highly dependent on choices based on the political and social ties existing in the off-chain world, even if this technological market system is perceived as opposing these political and social ties. In other words, this chapter stresses the roles that the government and social capital play and locates the specific ways in which these influences are latent.

“WAGMI,” for the Ethereum motto “we’re all gonna make it,” focuses on the role of affect and emotion. It highlights the effort behind community-building, and the role that different social media platforms and chat applications play in fulfilling different communicative needs and creating welcoming spaces. A key finding is that community spaces also play an important in managing emotions collectively, and that different communities engage in different gatekeeping practices to authorize and validate information guided by different perceptions of what it means to engage with cryptocurrencies as a community.

Lastly, “Future-making” is about how public institutions are transforming in response to this emerging imaginary. In this concluding chapter, I outline the imaginary of participatory institutions and explore how it is interpreted in a whitepaper published by the city of Buenos Aires’ Secretary of Innovation and Digital Transformation, created in collaboration with developers from the blockchain community.

Throughout this study, I aim to paint a broader picture of cryptocurrencies than just digital money. Studying cryptocurrencies and blockchain technologies as trust machines means shedding light not only on blockchain technologies as material infrastructures, but in the different artifacts, communities, institutions, emotions, and visions of the world that participate in the use of this technology. This approach to studying these new technologies can allow us to explore a contemporary transformation in the media ecosystem, understanding new practices and ideas behind the exchange of tokens and information and envisioning the future of this mediation.

The Legacy Systems

Introduction

The adoption of any media technology is tied to the visions of its users and adopters. Material circumstances and sociopolitical contexts are important, but they only show a part of the picture: it is also about how a technology is framed as the solution to a societal “problem.” So, when exploring the adoption of cryptocurrencies in Argentina, one can ask: what mistrusted public institutions are cryptocurrencies seen to address? And how are cryptocurrencies framed as addressing this perceived mistrust?

While it is common to hear about a “crisis of mistrust” in institutions, there are few academic works that provide a definition of the term. In this small body of scholarship, two directions are salient. One is the framing of mistrust as the absence of trust, where proximity and familiarity are not sufficient to generate expectations and predict future behavior (Carey 2017). An alternative view of mistrust focuses on mistrust not as absence, but as a skill or capacity. Mühlfried (2019) argues mistrust has a constructive potential, arguing that “radical systemic mistrust is the first step in the process of revising political power relations” (17). He sees it as a skill and as a social value visible through exclusions or reservations. These exclusions or reservations, which he calls “figures of mistrust,” can refer to practices like escaping, abstaining from investing in the future, constantly testing trustworthiness, and expressing detachment. This is similar to Zuckerman’s (2021) view of mistrust, which focuses on its creative potential.

In this chapter, I empirically study the relations between the use of cryptocurrencies and the mistrust of public institutions in Argentina. I begin by linking the early adoption of cryptocurrencies in Argentina with the country’s socioeconomic circumstances. I then move on to the intertwining of ideology and material practices and identify three public institutions that

the community discursively opposes: the national state, traditional finance, and public identity. Blockchains and cryptocurrencies are framed as “updates” for these institutions, which are seen as “legacy systems.” Introduced to me by an informant, the metaphor of legacy systems is useful to describe a discourse where traditional public institutions are considered outdated artifacts that these new technologies come to revolutionize. As an informant said: “crypto, to a large extent, liberates the individuals from a lot of obstacles set by institutions that don’t work for them.”

Following this view, blockchains and cryptocurrencies are framed as an alternative, superior and more normatively desirable trust mediators than hegemonic power institutions. Three public institutions are challenged in the identified discourse. For one, national states are seen as mistrusted. Furthermore, traditional finance is seen as aligned with a corporatist vision where “value” is extracted from individuals. National currency, tied to this financial system, is also a central locus of opposition. This is especially interesting as national currency is seen as producing “state effects” (Penrose 2011). Lastly, the institution of public identity is opposed. Per the framing of my informants, these three public institutions are obsolete and in need of actualization.

Media adoption and ideology

Winston (1995) argues that the adoption of media technologies is guided by supervening social necessities, “the accelerators pushing the development of media and other technology” situated “at the interface between society and the technology” (67). Supervening social necessities refer to both cultural readings of a technology as well as its embedding in material circumstances. But material circumstances are not isolated, objective facts. As Fine and Sandstrom (1993) argue, ideological beliefs are connected to attitudes, which are evaluative: the link “between is and ought, as applied to a sphere of action, is at the heart of ideology” (23).

That our reading of the material world is permeated by ideology is shared by most social theorists, but what “ideology” precisely means, and whether speaking of “diverse ideologies” make sense, are contested notions. For Marx (1978b), ideology refers to the “production of ideas, of conceptions, of consciousness,” functioning as the superstructure of a civilization (154). It consists of the ruling ideas of a historical moment, which are “nothing more than the ideal expression of the dominant material relationships, the dominant material relationships grasped as ideas” (172-173). Ideology is a separate sphere that aims to distract the proletariat from seeing the material reality, in other words, its oppression. Alternatively, for Althusser (1977) ideology represents the imaginary relationship of individuals to their real conditions of existence: it is inescapable, not just something to be overcome through the proletariat’s struggle, but something that is essential to human society. Ideology is not just mere abstract ideas: it manifests itself through concrete actions and practices and is enforced and replicated by institutions housed within the state and civil society. Stemming from these two precedents, among others, Williams (2009) understands culture, linked to ideology, in a more nuanced way. He suggests that hegemonic ideology certainly exists, which he labels “dominant culture,” but that that one should also look both at residual ideology (ideologies which have since been superseded but remain present through diverse mechanisms; literary traditions are a salient example), and to emergent ideology (“new meanings and values, new practices, new relationships and kinds of relationships” (123) in creation). Williams’ contribution is an expansion of the reach of the notion of ideology: even if dominant culture exists, “no mode of production, and therefore no dominant society or order of society, and therefore no dominant culture, in reality exhausts human practice, human energy, human intention” (125). William’s account of emergent ideology is especially interesting in the context of how media technologies are adopted. An emergent

ideology can account for a vision of how a technology responds to a social necessity. By understanding ideologies as multiple, it is possible to revisit societal problems perhaps addressed in the past by other media technologies through the ideological lenses of specific communities.

William's notion of emerging ideology is also useful to understand the relationship between ideology and technology. In "Do Artifacts Have Politics?" Winner (1980) argues that technological artifacts facilitate political relationships, and that political and social attributes are encoded in sociotechnical systems. Winner's argument has informed scholarship of civic media and critical studies of algorithms: by identifying the harmful effects of technology, it is possible to untangle how they operate ideologically. Some studies of cryptocurrencies have followed Winner's line of thought. For example, Golumbia (2016) proposes that bitcoin and the blockchain are inseparable from "right wing" ideology-informed assumptions of the world. However, Winner's approach can be limiting. Joerges (1999) criticizes Winner's approach due to its determinism. Joerges argues that "the power represented in built and other technical devices is not to be found in the formal attributes of these things themselves. Only their authorization, their legitimate representation, gives shape to the definitive effects they may have" (424). Instead of looking at essential qualities, Joerges understands technological artifacts as boundary objects: objects that "inhabit several communities of practice and satisfy the informational requirements of each of them (...), both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites" (Bowker and Star 2008, 297). Emerging ideologies can provide for specific accounts of these boundary objects, assigning them specific qualities in concordance with particular visions.

Following the idea that blockchain technologies can be understood non-deterministically, scholars are beginning to study their discursive aspect, many of which focus on techno-utopian

discourse. Technological utopianism refers to an ideology based on depositing faith in technologies to fulfill a utopian ideal. The topic has been thoroughly studied by cultural historians of technology in the United States, like Segal (2005) and Turner (2006). Ames (2019) links technological utopianism to “charismatic technologies,” where a charismatic technology is one that “derives its power experientially and symbolically through the possibility or promise of action: what is important is not what the object is but how it invokes the imagination through what it promises to do” (21). Ames links charismatic technologies to technological determinism: they are portrayed as fated to having a social effect through their mass adoption without addressing the complications or power relations involved in technological adoption.

In that sense, in an ethnographic study of a community of developers of blockchain technology, Faustino (2019) explores the metaphors that these developers utilize: “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” (486). Swartz’s (2018) essay “What Was Bitcoin, What Will It Be?” explores the techno-utopian visions of digital currency that emerge in early forums and email lists of Bitcoin and argues that two contrasting and incompatible imaginaries emerge: digital metallism (Bitcoin is money) and infrastructural mutualism (Bitcoin is a way to surpass the state). Other studies have focused on the clash between utopian imaginaries and material actuality in blockchain technologies. Dodd (2018) challenges many values underlying bitcoin’s public discourse, such as the currency’s supposed “trustlessness” and its abstraction from the political. He argues that in contrast the technology benefits from a complex social

organization and that the unequal relations between its users are, in fact, not distant from the ones in traditional finances. In a similar vein, Vidan and Lehdonvirta (2019) analyze the inequities in power that underlie decision-making of Bitcoin's blockchain (unaccountable centers of power, inability to reconcile conflicting interests, and questionable ability to guarantee collectively held values and just distribution) and contrast it with the techno-utopian language of "trust in code" and decentralization. They examine this "promissory gap" and focus on the discursive strategies that support these promises: "conflating people with devices, assuming subjects to be self-interested rational individuals, appealing to technical expertise, and explaining contradictions as temporary bugs—are also used in legitimating other projects where code and community supposedly transcend the messiness of politics" (45).

These studies valuably scrutinize discourses surrounding blockchain technologies through a constructionist lens. However, these analyses are often devoid of time and space: they stress the political relations that exist within communities, but none of them link the technology to broader social and political dynamics that can inform discourse. It could be that they fall under the guise that their subjects perform: for example, the "nationless" techno-utopian discourse does not precisely mean that blockchain users or developers are devoid of national belonging. Instead, there is a clear link between the specific socioeconomic context, material practices, and the ideological framings envisioned by people.

In my interviews, I have focused on understanding specific practices and dynamics, and focused on how users and technologists make sense of them. For example, I asked informants about how they acquired cryptocurrencies, and then asked them if they thought this was legal or not. In most cases, this sort of question spurred reflections about legality, which were useful to explore ideological dimensions. I also asked my informants their opinion about different

governments' (like Argentina, El Salvador, and China) engagement with cryptocurrencies and blockchain technologies, if they were familiar with these recent events. I finished most interviews asking my informants what cryptocurrency meant for them in a general way. In my analysis, I identified oppositions as valuable thought guides — in a way, positive values emerged as corollaries of these oppositions. This echoes DiSalvo's (2012) account of "adversarial designs." Stemming from Mouffe's theory of agonism, DiSalvo labels objects as "adversarial" to "call attention to the contestational relations and experiences aroused through the designed thing and the way it expresses dissensus" and "shifts the grounds for critique" (7).

I start this chapter by introducing three material characteristics of Argentina's socioeconomic context that my informants highlight as central to the emergence of the use of cryptocurrencies in Argentina. I then move onto analyzing three ideological oppositions linked to public institutions in Argentina. I outline three "legacy systems" that cryptocurrencies oppose: the national, traditional finance, and public identity. In computing, the term "legacy system" refers to an outdated computing hardware, software, or method that is still in use. I use this term because it was shared with me by an informant, and because it portrays the conception of the users, enthusiasts, and developers I interviewed: a perception of mistrust of and opposition to traditional institutions, and the optimistic hope for cryptocurrencies and blockchains to revolutionize them.

Drivers of obsolescence

Gustavo is a 32-year-old developer from La Plata, and, as described by many of my informants and the Argentine press, a "key person" in the crypto community in Argentina. Self-described as an early-adopter, Gustavo co-founded a successful blockchain startup, started numerous nonprofit initiatives to support the proliferation of the technology in Argentina, and

now lives a life “fully on crypto” — he sells cryptocurrency to pay for things, but his savings and assets are, according to him, all in cryptocurrency. Gustavo, as many others, approached cryptocurrency initially as a hobby. He learned about bitcoin in an English-language technology blog in 2011. Back then, he worked as a system administrator for a large corporation, but beyond his work he was a lifelong technology hobbyist: he was deeply interested in cryptography and in privacy-enhancing technologies. Politically, Gustavo considered himself a libertarian: he abhorred President Cristina Fernández de Kirchner’s (who held office 2007-2015) tight control over the economy. As he told me, he saw Bitcoin as a way to bypass these restrictions.

For most Argentines, high inflation is a staple in their lives. Preceded by numerous crises of hyperinflation, for the last two decades Argentina has had rising inflation rates.¹ In 2011, the annual inflation rate was 23.7%. To protect their savings, Argentines have traditionally resorted to saving in U.S. dollars. To counter this, Fernández de Kirchner’s administration took two key measures. First, they set up price controls for some items in supermarkets in a program called “Precios Cuidados.” And secondly, they restricted the purchase of U.S. dollars and set an artificially low exchange rate, to lower the price of exportable goods like meat. This meant that Argentines had to resort to clandestine “cuevas,” clandestine establishments where individuals can buy and sell foreign currency, to purchase U.S. dollars to save and challenge inflation. Cuevas, persisting due to Alberto Fernández’ presidency (2019 to present) capital controls, are tolerated by the national government, who sees them as necessary cooperators (Bercovich and Rebossio 2013).

¹ For a comprehensive review of Argentine economic history, see Gerchunoff and Llach 2018.

Gustavo argues he saw Bitcoin as an interesting way of saving money against inflation, but it is likely that his interest in the currency was driven more by curiosity than practicality. In 2011, Bitcoin's price oscillated between 1 and 29.60 U.S. dollars ("Bitcoin (BTC)" n.d.), so it is questionable that this was suitable as a mechanism for saving. Also, Gustavo could purchase bitcoins, but he could do little with them: today cuevas trade cryptocurrency, but this was not the case in 2011. However, these practical obstacles did not stop Gustavo from becoming personally invested in the currency. For the following three years, he became more and more involved with Bitcoin's community in Buenos Aires. Gustavo found a community of peers in "Bitcoin Argentina," both a Facebook group where users exchanged information and organized events and a Meetup (a platform for organizing in-person meetings) group where these were centrally communicated. There, he met fellow hobbyists, some of them who were growing an interest in starting businesses around Bitcoin.

It was in these meetups where he met the entrepreneurs of CriptoCajero. CriptoCajero, in Gustavo's words, was the first Argentine company to do something with cryptocurrencies, and he thinks that if it had become more popular then it would have been completely banned.

During Fernández de Kirchner's second tenure as president (2011-2015), capital controls remained. These restrictions mean that there were two exchange rates in Argentina. The first exchange rate, the "dólar oficial" or official dollar, was the government-mandated price of the U.S. dollar in Argentine markets. This price was artificially low, but citizens were not allowed to convert their pesos to U.S. dollars in this exchange rate. When exporters of Argentine goods (like soybeans) sold their goods in the global market, they would have to convert their U.S. dollars to Argentine pesos following this price. This meant that the government took a higher cut of these U.S. dollars, which would support the country's waning U.S. dollar reserves. The other price was

the “dólar blue” or “blue” dollar, which was the price of the dollar that was traded in clandestine markets. Middle-class citizens that could save money would purchase blue dollars, as well as companies that exported goods illegally. The blue dollar’s price, determined by a series of informal actors that granted the market liquidity but also from negotiations of the government with them, was publicized among the official dollar in newspapers and TV stations. For Argentina’s middle and upper classes, informality was a staple of daily life.

When tourists visited Argentina and paid with their foreign credit cards, the purchase was converted to pesos in the official exchange rate, much less than the blue exchange rate. CriptoCajero aimed to solve that inconvenience for the tourism industry. CriptoCajero gave businesses a special credit card machine. When clients paid with their credit cards, the sale was processed in San Francisco. Then, the dollars were converted to bitcoin, and businesses were given those bitcoins. But obviously, a hotel in Buenos Aires probably had scarce interest in bitcoin, a volatile currency that was in its moment of early adoption.

That is where Gustavo came in. Gustavo would visit CriptoCajero clients and offer them to purchase their bitcoins, 5% below the cryptocurrency’s market price. The 5% spread may seem high, but Gustavo says it was considered normal for the market, and, most importantly, business owners were glad to be able to sell their services at the dólar blue price, generally 33% more than what they would have owned with the official dollar. Gustavo was happy to gather these bitcoins, and made this his full-time job, but he soon found a problem: he could not pay rent or buy groceries in bitcoin. So, he reached out to the contacts he had made in the Bitcoin community, and found many people interested in exchanging these bitcoins for Argentine pesos.

Gustavo’s story sheds light on two supervening social necessities: inflation, and capital controls. Users in Argentina needed a way to bypass capital controls, and bitcoin offered them a

way to fulfill that necessity. But Argentina also presented another opportunity for bitcoin to proliferate. Another early attendee of Bitcoin Argentina events, Santiago Siri,² a 39-year-old Ethereum developer shared with me how many of the cryptocurrency enthusiasts in this early community were not just interested in buying bitcoin, but also mining it.

I remember talking to “Dieguito” Gutiérrez Zaldívar, who is the founder of RSK [a blockchain smart contracts solutions company] or one of them, and being fascinated by talking with him, and I remember he had two computers mining bitcoin. I also remember a guy, Iván Telo... Iván was a guy from Soldati, in fact I talk about him in my book [*Hacktivismo*, a book about the power of network technologies for social change]. Soldati is a working-class neighborhood. In his words, you enter a textiles factory at 15 and you leave at 65 in a coffin. He said his destiny was to work like this, because of where he was born. And he, a curious person, told me he had stolen a bunch of textiles from the factory, started selling them on MercadoLibre [an online marketplace], and discovered e-commerce, and then he discovered bitcoin when they (sic) wouldn’t let him charge credit card payments at that time... When he discovered bitcoin, he started mining. Today, he manages a VC fund. Last time I talked with him, a year or two ago, it was a 40 million dollars fund.

My interest in highlighting Siri’s testimony is not to argue that mining acted as a force for social equality. It is to highlight that, for some Argentines, mining bitcoins was a feasible enterprise, unlike in other countries. Bitcoin mining refers to the process in which new blocks “appear” in the Bitcoin blockchain, or in other words, the process through which a transaction record is added to Bitcoin’s public ledger. Bitcoin miners cycle through hashes until they find a hash that satisfies a condition called “difficulty,” which readjusts periodically. The network “rewards” miners by providing them with “block reward,” an amount of bitcoin which decreases throughout time, and with a transaction fee payment made by users. To decide if mining is a profitable enterprise, miners must compare the profits with the costs of mining, which are the cost of energy and of mining hardware, and the market conditions surrounding bitcoin (“How to

² Siri’s name is not anonymized as this information is available in his book, *Hacktivismo*. See Siri 2015.

Mine Bitcoin: A Beginner's Guide to Mine BTC" n.d.). If the price of bitcoin is too low, it might not be worth it.

Argentina presented a special opportunity. The government's strategy to subsidize energy prices and not anchor them to the international price of energy meant that consumer energy prices were artificially low. This created an opportunity for bitcoin miners (Squires 2021). To this day, mining bitcoin remains a profitable business in Argentina, both due to climate conditions and to energy subsidies. Tierra del Fuego, the most southern province, is currently a targeted location for miners due to its cold temperatures, which greatly reduce the need to ventilate mining equipment. Only in February 2022 did the government legally remove energy subsidies for cryptocurrency miners, which had not formally declared their commercial activity (*Clarín* 2022). Nevertheless, even without the subsidies, the activity is profitable, making it attractive for transnational mining companies (*El Economista* 2021).

However, the first Argentine miners were not entrepreneurs, but gamers. And the mining's profitability was not the only driver. In 2011, a cryptocurrency miner posted in a gaming forum about a "little program that uses the potency of the GPU of our VGA to solve blocks, and while we go solving these a website generates BTC [bitcoin] for us, BTC can be exchanged for dollars." The user shared some tricks to reduce high GPU usage and some advice for potential miners, like how to "pool hop." In the first replies, most users said it was just not worth it: it took too long to make profit, and it was unclear whether the energy cost made up for it ("you want money? Go to work," said a user). Nevertheless, others remained interested in bitcoin. When a user showed concern about the technology becoming too popular and the benefits from mining reducing, another one responded:

If that happens, it would mean that the "coin" (sic) would be advancing, and when that happens, we'd already have quite a few bitcoins, which is good haha. Anyway, hey, I

think that beyond personal profit, the fact that we're helping that this progresses matters. If it keeps growing in popularity at this rate, it might become something big. The day that any of this appears on TV, that's when it's going to become more important, I think. That's when common people will learn about it.

While it is hard to pinpoint if media attention played a role in increasing bitcoin's popularity, the cryptocurrency went through a rapid increase in price in 2013 and (while following an extremely erratic path) further increased in 2014. And as the cryptocurrency increased in price, the efficiency of the practice became more evident. More users in the forum became attracted to mining, and messages shifted to whether it was a good idea to sell and how (and what to do with those virtual dollars, like PayPal credit, afterwards), or where to buy imported VGAs.

But like Gustavo's story, the early miners of bitcoin show to us that the early drivers of Bitcoin adoption was not precisely the will to make a short-term profit. Instead, it was a mix between the identification of an economic opportunity and the genuine enthusiasts driven by what the technology "promised" (Ames 2019). Mining was, in the beginning, scarcely profitable or unprofitable, and bitcoin was an unlikely competitor to the U.S. dollar to save money. In that sense, to understand the adoption of bitcoin, it is necessary to account for the formation of a collective imaginary of how bitcoin could solve identified societal problems, which was indeed the promise of future value of the currency.

As bitcoin increased in global adoption and became pricier, this imaginary became more concrete: bitcoin became a way of effectively bypassing government controls through the proliferation of cuevas and local exchanges, and mining effectively became a profitable enterprise beyond making small, quick, cash. But this moment was also the one where bitcoin became "big business," and no longer the hobby of amateurs. Businesses became reliant on professional cuevas, leaving amateur traders like Gustavo (who, at any rate, had likely moved to

more exciting ventures) behind, and mining operations became organized efforts. This is not far from the story that Turner (2006) tells about cyberutopianism in *From Counterculture to Cyberculture*: many efforts linked to information technologies started in a “hacker” ethos, and then moved to support capitalism’s familiar dynamics.

Reading this through Winston’s (1995) lens, material supervening social necessities cannot be understood exclusively as objective, material circumstances. As argued before, supervening social necessities must be understood as the intertwining of the material circumstances and the ideological reading of the material circumstances. Adopting the technology, whether it was in the case of Gustavo, Santiago, or the Bitcoin miners, was not an attempt to make profit in the short term: it was tightly linked to an emerging ideology that justified adopting the technology as valuable and provided a vision of the future where bitcoin would increase in adoption and the price of the currency would also increase.

The national state

“Thinking about the legal scheme is losing time,” shared with me Hernán, a 24-year-old cryptocurrency trader from Buenos Aires, when I asked him about his thoughts about the regulation of cryptocurrency in Argentina. In the same vein, Guido, an Ethereum entrepreneur, explained to me that the reason why Argentina was so receptive to cryptocurrencies was because all Argentines felt that problems could be tackled in two ways: the “official” way and the “unofficial” way. “Sometimes we choose the unofficial one, because it’s more efficient. We say ‘oh, well, this one’s easier’. It’s how our identity is structured,” he explained to me.

As I interviewed technologists and enthusiasts, a common pattern emerged again and again: a mistrust and a rejection of the national state. This opposition was not always phrased in relation to Argentina specifically: Argentina seemed more like an expression of the problems of

the national state worldwide. In this view, centralized national states are prone to corruption, economic mismanagement, insecurity. And cryptocurrencies and blockchains are not there to “fix” countries and make them fit the idealized version of what a national state should be: instead, they are there to revolutionize the concept completely.

Since the 1648 Peace of Westphalia, territoriality has been an essential term to define a nation-state. Borders define where a nation-state begins and ends. Blockchains, capable of being interfaced with wherever one has access to an uncensored Internet connection, offer enthusiasts a rebuttal to Westphalian sovereignty: like the imaginary of the Internet in the 90s and 2000s, blockchains are presented as “rhizomatic” networks that escape bypassing all national borders. Armando, a 32-year-old cryptocurrency entrepreneur who owns a cryptocurrency wallet startup, told me that what especially excited him about this project was that, even if it was built in Argentina, anyone could use it since it served everyone’s purposes. “It’s one of the beautiful things that the blockchain offers you,” he said to me. “If I want to send 10 dollars from Argentina to Spain, I can do it in just a few minutes. Most of our users appreciate that, more than anything.”

But bypassing obstacles in transferring money globally is not just seen as a matter of efficiency. Indeed, my informants often framed cryptocurrencies and blockchain as cosmopolitan. This is not novel to cryptocurrencies: as Zuckerman (2013) argues in *Digital Cosmopolitans* without any mention of these technologies, the Internet offered an “imaginary cosmopolitanism,” where netizens could share information and collaborate despite censorship or geographic barriers. My informants shared a similar vision about blockchains. For them, state corporatist interests are an obstacle to the flourishing of individuals in a world with free flows of information and capital. Cryptocurrencies were the engine behind a vision of global citizenship,

the infrastructure of a world where national origin does not matter. Luis, a blockchain entrepreneur from Buenos Aires, explained to me:

Bitcoin and the blockchain in general give people worldwide the chance of having a leveled playing field. Think about Argentina 20 years ago. You had to conform yourself with what the country gave to you or move to another country if you could get a visa or whatever. But you couldn't be integrated into the world economy as a service provider as you can today with software, for example. So, I saw bitcoin as a way of achieving this. You can charge for services in bitcoin, you can do contracts via smart contracts, and that gives people the possibility — not just in Argentina, but in emerging countries worldwide — to equate their opportunities to those who were lucky to be born in more developed countries. That is what attracted me to bitcoin and blockchain.

This cosmopolitan appeal of cryptocurrencies is also related to transnational flows of labor and capital, another point where the material and the ideological intertwine. Many of the initial enthusiasts drawn to cryptocurrencies as a catalyzer of imagination also happened to be technology developers. The labor of Argentine developers is highly prized globally, but the government's high taxes and currency exchange distortion make what Hernán described as "the unofficial way" especially appealing to them. Transnational capital acted as an initial driver of the cryptocurrency community in Argentina, providing jobs linked to cryptocurrency and blockchain without the need for a local business ecosystem around these technologies. This transnational capital impacted on the local development of technologies by Argentines, independent from these transnational companies. In 2013, Bitcoin enthusiasts and Bitcoin Argentina organizers Rodolfo Andragnes, Franco Amati, and Diego Gutiérrez Zaldívar started the Latin American Bitcoin & Blockchain Conference, also known as LABITCONF. The conference was highly successful in gathering internationally renowned speakers and the attention of Bitcoin enthusiasts worldwide. Numerous companies attended the conference interested in poaching talent from Latin America, highly knowledgeable in blockchain technologies and attractive due to their high availability or lower salary expectations due to the

conditions of their local markets. In 2013, an American bitcoin payments company attended the conference, where they met and hired a group of Argentine developers. The developers requested the company to rent a house in Buenos Aires for them to use as a co-working space. Two years later, the developers quit the American company. The house was converted into a hackerhouse, where some of the company's ex-employees worked on shared projects and organized social events around the local cryptocurrency community, especially with an excitement surrounding Ethereum which had recently launched. Numerous projects, many of them globally notable and highly capitalized, emerged from this hackerhouse. This episode highlights that transnational flows of capital affected the development of blockchain technology locally, alongside the cosmopolitan discourse of its supporters.

In this imaginary, national states are not only outdated: they are normatively undesirable and oppressive. For Luis, the revolutionary potential of the technology was understood through the re-centering of the capacity of individuals. "The word here is autonomy," another interviewee told me. "You can be yourself. Nobody's going to judge you because there's no central power." The key value a bitcoin user connected the cryptocurrency to was liberty: in his words, which he tied to "freedom from all authority."

A casual observer could be tempted to relate this understanding of cryptocurrencies with right-wing organized politics. Certainly, as I approached my topic of study originally, a prejudice that I had was a strong link between the new right-wing movements in Argentina and the decade-old Liberal-Libertarian Party. In the field, this hypothesis did not turn out to be factually correct. One of the founders of the NGO Bitcoin Argentina, which owned a space for social events in the Argentine downtown and hosted numerous events to support the diffusion of the technology, was an important activist at the Liberal-Libertarian Party and recognized that the early Bitcoin

Argentina community and the party had some common members, but heavily downplayed the influence. Indeed, in my observation of the Bitcoin Argentina Facebook group, I identified a common widespread rejection of traditional politics. For example, in a post where users discussed whether bitcoin could be turned into an official ledger, a user replied that rationally that would never happen: politicians from all establishment parties (including the right wing) are corrupt, and the blockchain would allow common citizens to track the movements of these monies. Furthermore, on many occasions my interviewees often made a point to reject Javier Milei's far-right political movement, arguing that they were identified with liberty as a value but not so much with their conservative ethos.

Despite the concern for autonomy against an oppressive state, cryptocurrencies do not represent the crystallization of individualism and, as Putnam (2000) describes, the death of social capital. Once again, my informants echoed the "playing field" vision, stressing that this was a collective effort. Nicolás, a 27-year-old cryptocurrency trader, explained to me that this "leveling field" that cryptocurrencies offered meant that the adoption of the technology relied on the goodwill of the Argentine cryptocurrency community.

Crypto, for me, is literally liberty, and the capacity to engage with people that in the traditional world wouldn't be at your level, so to say it. In the crypto world you can easily talk to a person who has 50 or 500 bitcoins without this person talking down on you, you can have a conversation in the same wavelength. Because we're all looking for the same thing, it's a market where we're all looking for projects to get involved in and benefit each other.

If "crypto" is a collective endeavor, what is its "horizon"? As another informant added, Bitcoin's true potential would be unleashed when "mass adoption was achieved." "Bitcoin transcends everything," they described to me. In their view, the true revolution would happen when we all "understood" how Bitcoin worked and when we realized that if we all "managed" our money through there, then those in power would not have access to it. For these informants,

cryptocurrencies enable the potential of the individual, but this feat can only be achieved by a community of peers. In this sense, cryptocurrencies' true value is in decentralization: the portrayal of the blockchain's infrastructure as decentralized and the idea that this implies a subsequent decentralization of power. When I asked Florencia, a blockchain enthusiast from La Plata, about how she first learned about cryptocurrencies, she replied:

It was a bit anecdotal. A friend invited me over to eat homemade pizzas at his place. I got there and the place was really hot, and there was a weird noise. And when he finished making the dough he said, 'I'll leave it there rising with the miners.' And at that moment he was mining Ethereum Classic, and then I asked him what that was about, and he started talking to me about cryptocurrencies, bitcoin, blockchain. He didn't talk to me about prices or speculation, because to him what mattered the most was that it was decentralized. And that's what drew my attention, the idea of decentralized nodes worldwide.

Florencia then went on to become an active community member in her local community and in groups with individuals from Argentina and Latin America, making a special effort to support women interested in becoming involved in cryptocurrencies. Most of the labor she does is unpaid. "To me, the community are the people who are there every day helping others, doing it not for profit because they believe in the paradigm and in decentralization, so they sow the seed of what more open and equal spaces can look like, not just financially." In short, decentralization, liberty, and autonomy are intertwined values, where cryptocurrency materializes a vision of the self that is enabled through a communitarian ethos.

The stress on the state as a legacy system is visible when one considers how Argentine enthusiasts are imagining its updates. The mistrusting vision of the state can be linked to a collective imagination about what institutions could look like if mediated by blockchain technologies. For example, a Bitcoin Argentina Facebook group user posted:

Good morning, maybe what I'm going to ask is stupid, but would it be possible to take blockchain technology to the political space to bring more transparency and try to

eliminate some of the corruption in the country? What I mean is to try to decentralize the government and that “the representatives” (sic) don’t do what they want, sorry if this isn’t allowed here, but I’ve had this in my head for years.

Some users replied saying that this was impossible, as politics was structurally flawed and corrupt. Others said that politicians were too ignorant, and that it would be impossible.

Another user referred to a post by Vitalik Buterin, Ethereum’s co-creator, who addressed some ideas around the topic and suggested voting via blockchains would not be ideal, highlighting those local conversations are linked to global ones.

But discussing ideas in a forum is just one way of engaging in collective imagination. As Zuckerman (2021) argues in *Mistrust*, one way in which “insurrectionists” (those who aim to create new systems that oppose oppressive ones, per his account) creatively act upon their mistrust is by creating code. A key example of this is Democracy.Earth, launched by Santi Siri, an Argentine technology developer and radio columnist who was an early adopter and communicator of cryptocurrencies. Democracy.Earth is a spinoff of the Net Party, a party in the city of Buenos Aires that ran for legislative elections, where citizens would be able to vote for what the elected congressman would do via “fluid voting.” Siri was granted a Y Combinator grant to develop the technology, a project that combined blockchain and fluid voting, equating votes to tokens. Democracy.Earth then spun off into Proof of Humanity, a registry of individuals on the blockchains where users could “validate” their identity as humans and automatically receive UBI (for “universal basic income”) tokens (see Democracy Earth Foundation 2017). Proof of Humanity’s validation system is powered by Kleros, also co-founded by an Argentine, Federico Ast. Kleros mimics the judicial system via the blockchain: users decide on conflicts and are rewarded by taking part in this, achieving what is called “crowd jury” (Lesaege, Ast, and George 2019). Ast, then a doctoral student in business living in Buenos Aires, started

the project as a reaction to what he saw as inefficiency and high corruption in the judicial system. He won a scholarship by the Buenos Aires city government to attend Singularity University in Silicon Valley, where he amassed a network of contacts to kickstart his project. Another project worth mentioning is Decentraland, a project developed by Ari Meilich and Esteban Ordano that situates a virtual 3D world in the blockchain. Decentraland works via smart contracts, making its government “incorruptible” and fully transparent.

These experiments are to a certain extent profit-making enterprises: as each project becomes more popular, their tokens become pricier, and the assets of their original creators increase in value. However, they can also be seen as experiments of worldbuilding: of understanding what artifacts are necessary to replace the obsolete ones that sustain the national state as such. Proof of Humanity can be read as a challenge to the centralized census and documentation machinery of the national state, Kleros to the aristocratic judicial system, and Decentraland to the traditional state-safeguarded private property system via its \$LAND tokens.

Traditional finance

For many informants, cryptocurrency offered individuals the capacity to materialize ownership over their money, which was unethically absorbed by another public institution: traditional finance. “Frankly, the state steals from me,” Guido told me. And likewise, the right over access to unmediated power over one’s money also extends to traditional finance institutions. As Hernán told me:

Crypto comes to decentralize and change the way institutions use money. So, I’m not in favor of the idea that you give your money to the bank so that they “ruleen” [manage money, in a derogatory way] or move around your money and then charge you. I’m not in favor of a fiscal entity charging you for... I mean, you have to share those principles of liberty to truly enjoy crypto, otherwise you’re playing against your own principles.

Hernán's account of cryptocurrencies being tied to principles of liberty merits special attention. Money can be understood as an abstract token with no affective relation required from its user: indeed, utilizing a U.S. dollar does not necessarily imply the belief in the morality of the U.S. government. However, as Swartz (2020) argues, money produces transactional communities: networks of relations that are guided by a common sense of identity, geography (in this context, its dissolution), and values. In this sense, this transactional community is presented agonistically to traditional finance: like the power of the national state, it is framed as an immoral power over others' money. And likewise, this can only be countered through a strong community. As Guido explained to me when describing particularly the Ethereum community, what bonds the community together was not particularly an impetus of altruism, but the consciousness that they are all competing against "the legacy financial system:" "Without a community, your token goes to zero, marketing is too hard, you make products nobody wants — so it's not only about contributing capital, but also ideas, partnerships... We are all here working on a protocol for a common goal."

But traditional finance does not refer only to banks. In the context of Argentina, it also means opposing business as usual for the government managing public finances. For example, Luis, an Ethereum project leader, explained to me that he was drawn to cryptocurrencies as an essential pathway against the country's inflation. Two general explanations of inflation coexist in Argentina. The heterodox explanation, associated with left-wing Peronist politicians and intellectuals, links inflation to price monopolies who rake up prices to increase profit. The orthodox explanation, linked to more economically liberal ideas, reflects the "mainstream" view of economics and links inflation to government's emissions of money supply, which is linked to compensating for a deficit in public accounting. This explanation, which frames inflation as a

problem of mismanagement, is echoed in Luis' vision. Indeed, when I asked Luis about Bitcoin's volatility (the price of the cryptocurrency follows often unpredictable ups and downs), Luis pointed out to me that what was especially volatile was not bitcoin, but the Argentine economy.

When talking about volatility, I would refer to inflation. The Argentine tradition is to understand value in terms of U.S. dollars. Bitcoin represented to me a sort of digital dollar, a non-state money that can allow you to hold value in a way that is controlled by the Central Bank or by any government in general, as the only thing these have done throughout history is to produce inflation. So, when I talk about volatility I would point to that aspect.

In a sense, Luis points to an interesting aspect of cryptocurrencies: their prices are volatile, but, in Luis' vision, what matters is that this volatility is not linked to mismanagement. Volatile, instead, was to live in a country where human action is a determinant of the economic future. State money can be manipulated to fit the political aims of the party in power, but cryptocurrencies are exclusively delegated to market procedures. Luis' account of volatility is a valuable representation of the importance of this delegation of economic governance onto the blockchain: when state governments do not "work" and are therefore mistrusted, delegating political faculties onto a machine can maybe do the job right.

However, it would be mistaken to argue that a faith in the market solely guides cryptocurrency enthusiasts. The social aspect, as is the case in framing the political aspect of the tools, is also present in its financial survival. As Nicolás explained to me, cryptocurrency enthusiasts were very unlike "mervaleros," those who operate in the Buenos Aires Stock Exchange, who do not understand the communitarian appeal of the tool. A common vision that could be identified among my informants was that they were investing in cryptocurrencies "for the long run." There are two sides to this. "HODL," as cryptocurrency users worldwide refer to "holding" (not selling) cryptocurrencies even when the price is going down, can be read as an of collective resistance: a user might choose to not adhere to the downwards inertia of the currency,

and not contribute to it going even further down. But furthermore, many of my informants shared with me a true belief that selling is not worth one's time because cryptocurrencies, for them, are ultimately destined to go up. Speculation is something best left to banks and mervaleros. "Some people support selling. I don't. When it goes up, I just keep it. I don't sell my stash for nothing in the world. That's my philosophy," Joaquín, a 24-year-old trader shared with me. "My philosophy is to buy and keep. Last time I bought at 50000, and when it went down to 30000, I said, 'oh no,' but then I thought: 'do I plan to sell this in the medium or short term?' And I said, honestly, no," a Bitcoin user echoed.

In certain communities, speculation is deemed in clear rules about "what matters." Mariana, a cryptocurrency community builder from Rosario, stressed that for her and her interlocutors, speculation was not a priority.

I don't think anyone in this community will care if bitcoin goes down to 20000 dollars. Maybe there's going to be comments about that, yes, but I do think people would be more scared if suddenly a blockchain suffers from a fork, or if there's any architectural problem, or if there's a problem with some known protocol. I think that's linked to the community ethos and not to the merely speculative.

In short, traditional finance institutions engage in practices that users find both unethical and uninteresting. My informants saw in cryptocurrencies the possibility to re-establish the right place of "value:" both in the individual and in money itself.

Public identity

In liberal states, public interactions are associated with publicly documented citizens. In the case of blockchain technologies, this is not the case. Transactions in blockchains like Ethereum and Bitcoin can be traced historically, but public keys do not necessarily need to be identified with individuals (how this becomes problematized in artifacts that require government identification for legal compliance is explained in chapter 2). In fact, a user shared with me that

they saw that Democracy.Earth was underwhelming in how it went against this very principle (“Crypto means transparency, and you can track Vitalik’s or whoever in Etherscan and see all their transactions. That’s great, yeah. Now, to go and voluntarily fill in all my data and say, ‘this is me’ doesn’t sound too great.”).

Pure anonymity, however, can stand in contrast with the strong communitarian ethos within the community. My informants, in line with Dodd’s (2018) observations, stressed the social aspect of the technology. The same way that the decentralized infrastructure supposedly leads to the absence of hierarchies, the community holds the idea that “everyone can talk with everyone:” the goals are communitarian, and therefore the collectively performed vision is one of democratic information sharing and a disdain for elites. And indeed, it is difficult to generate links of kinship among complete strangers. How communities are organized and what levels of intimacy and privacy they afford in different platforms is explained in depth in chapter 3, but all communities involve the differentiation between different individuals.

Community members negotiate among these tensions by understanding anonymity in the community is a fluid concept. It can mean staying “off the grid” for the government and tax enforcement, but it can also be an expression of rejection of traditional entrepreneurial culture with a focus on individual founders. For example, an informant shared with me that the early Ethereum developers that created projects in the hackerhouse were especially weary of not to draw too much attention from the press:

There was a conscious effort to not do the usual news piece of the entrepreneur showing the offices in [Buenos Aires neighborhood] Palermo, it was completely low profile, it was sitting down and pushing code — a league of programmers, hackers, not a business-style profile but an engineering one. That’s why this story is largely untold.

Another informant, however, added some complexity to this vision. Although there were certainly some “biz people (sic)” in the hackerhouse, it is true that these entrepreneurs were

drawn by the rejection of entrepreneurial ego. But they were also trying to escape two things. For one, they were not trying to avoid the law, but the uncertainty that came with being noticed by the government (“They didn’t want the tax agency to think that one guy had all that cash, and even if it would’ve probably turned out fine, they didn’t want to go through a huge process until it died out”). And they feared the real risk of being a victim of a crime, like being robbed or kidnapped. The concern for physical insecurity is commonly shared among cryptocurrency users: Hernán shared with me that he also took measures to hide his identity, even if his username was public in his Twitter account.

I read about this guy who sold graphics cards [for mining]. Supposedly he went with 100000 dollars in graphics cards to sell them to La Matanza [a large urban county in the outskirts of Buenos Aires], three guys mugged him, they killed him and took all the graphic cards. And many people do the same thing — I have a friend who lives in Puerto Madero [an affluent neighborhood in Buenos Aires] and he does that for a living. Like, he has the flow (sic) of his own graphic cards, and he has a warehouse in Pilar [suburb near Buenos Aires], so people know he is trustworthy. My point is you have to do relatively sane marketing and at the same time avoid being the visible face of your business (...). In crypto, in social media, sometimes on Twitter I speak about... I take care of what I say. I use my pseudonym, and even if they find my address, I’m anonymous. I mean, maybe they know my nickname but not my real name, so they could never put them together.

However, this does not stop Hernán from attending in-person meetups, where he has become friends with many of the people he met through Twitter or Discord. For different organized communities, meetups are the space where anonymity is displaced, and where different links of sociality can be formed. For example, Mariana retold me about an episode in a community gathering where she met with other users that, before then, she had only seen through Twitter avatars, where users frequently have NFTs they own representing them.

There’s this person called Astro Peter — bah, I don’t know if that’s how he’s called, that’s his nickname. And we were sitting on a table with other referents from the crypto world, who always show themselves through their avatars, they only show their faces in

real life. And Astro Peter comes to say goodbye and says “bye, Mariana, a pleasure to meet you,” and people ask me “hey, who is that?” and I say, “it’s Astro Peter,” and everyone at the table stands up to congratulate him, because you don’t have a physical dimension... you chat with the avatar. And when that becomes bodily, it’s like an emotion, a huge admiration. It’s really emotional.

“Decentralized identity” in the cryptocurrency world has its limits, nevertheless. Despite this vision of fluid anonymity, access to events and people, as any other industry, depends on social capital. The events of Vitalik Buterin’s visit to Argentina can be reflective of this. His trip, with its schedule heavily influenced by a group of cryptocurrency entrepreneurs, included visits to ex-president Mauricio Macri and meetings with local company officials. A developer tweeted “I celebrate VB’s (sic) visit [to Argentina], but today’s photos with Macri, [Democracy.Earth founder Santiago] Siri and Co. give me a strange feeling. The software caste that has the contacts has privileged access, but that place should have been occupied by IT kids with a hunger for glory, and not by the same old people.” One of the organizers responded to him that all who had been in that meeting also started with “a hunger for glory,” and that opportunities would come for all in due time as they grew. The exchange is useful to understand two things. Vitalik’s political significance is that of the Ethereum community, and the fact that successful entrepreneurs and not “IT kids” were invited to the table seems to go against the self-starting ideology of it. The right to access Vitalik, in that sense, seems to have been misplaced.

And secondly, it can act as warning for us to understand how the rhetoric of decentralization and techno-utopianism still finds its limits in the sociological boundaries of access to technology and specific communities. Quote-tweeting a picture of Vitalik with a group of entrepreneurs, a female product manager of a local cryptocurrency exchange said “not one piba [young woman]. NOT EVEN ONE”. The original tweet read “la banda de Vitalik” — “Vitalik’s gang,” and included a photo of 28 men posing with Vitalik Buterin (Ethereum’s

cofounder). A prominent Argentine journalist also retweeted the photo: “are women virtual?” she asked in English tongue-in-cheek. “Not proud of this fact,” replied one of the entrepreneurs in the photo who had helped organize the event, “I am committed to improving this in the crypto industry.”

As numerous informants pointed out to me, women, and LGBTQ+ individuals are vastly underrepresented in the community. Women in the cryptocurrency community have since created separate communities especially for women. For Mariana, who organizes a community of women in crypto, this does not come without contradictions.

I have mixed feelings in the way that I feel that we’re segregating genders if we create these spaces, but every time a girl joins us, she says “I’m grateful this group exists, where I can be comfortable” or “it’s so good we can be here” ... So, I think it’s important: if there’s a demand for it, it needs to exist. I think there’s girls who need a place to start, in a safe space, where they think they can ask the silliest questions and they won’t be ridiculed for being women. I think you can ask whatever, there’s no silly questions, and this is one of history’s biggest revolutions. But that depends on each one’s personality and your past lived experience... The group is also open to men who wouldn’t feel comfortable in any other spaces. All [Twitter] Spaces in crypto communities are 80% or 90% men, and there’s even homophobic or transphobic comments that are completely naturalized.

Mariana’s efforts to create community spaces for women and LGBTQ+ collectives, as well to avoid “self-doxing” against hackers or the state, illuminate how the traditional account of identity becomes a legacy system. Cryptocurrency enthusiasts approach anonymity fluidly, navigating through different channels and presenting themselves in diverse ways to account for numerous risks.

Conclusion

Early adopters of cryptocurrencies made bets on cryptocurrencies as the possibility of countering the many problems they identified in the national state. The choice of blockchain

technologies as a preferred technology to counter these problems, like capital controls, versus less risky solutions sheds light on how the “promise” of the technology, aligned with certain framings of the societal problems and of the technology’s future potential, was prioritized versus short-term profit-making. Blockchain technology users and enthusiasts consider their adoption as a way of imaginative worldmaking: their engagement with the technology is framed as a rejection of the liberal state as a chosen mediator of trust.

This engagement is tied to specific values and visions of what a desirable polity is. The values and visions are performed in different ways. In the case of the national state, the technology’s affordance of immediate transnational transactions led to imaginary visions of cosmopolitanism. Likewise, the idea of obsolescence of the national state led to creative pursuits of media technologies that fulfill state-functions, such as Proof of Humanity, Kleros, and Decentraland. In the case of traditional finance, these collective visions were reactionary: they were stark oppositions to the acts of financial institutions. Even if the practices surrounding money were inherently compatible with capitalism, there was a focus on morality and values that was not necessarily linked to profit-making. This is in line with the idea that money is linked not ritualistic actions, where visions and ideas are shared within a transactional community (Swartz 2020). Lastly, the notion of public citizenship is countered by strategies of fluid anonymity. However, this is often made difficult by the deeply ingrained inequalities in social capital, which many see blockchains as trying to undermine.

In this chapter, I have explored the visions and acts of imagination of users when they engage with cryptocurrencies in an agonistic manner -- in other words, I have aimed to answer the question of “what do cryptocurrency users mistrust.” In the next section, I turn my attention to trust. The engagement with cryptocurrencies is not the stark transition from an “off-chain”

state-mediated world to a “trustless” blockchain. Instead, this engagement is ingrained in a network of trust brokers, including the (as I explained in this chapter, much opposed) state.

Trust Brokers

Introduction

Blockchain enthusiasts often refer to the technology as “trustless.” As Vidan and Lehdonvirta (2019) argue, this vision of trustlessness is present in Nakamoto’s original whitepaper, which opposes “trustless” blockchains to traditional economic systems which rely on “centralized trust.” Researchers of blockchain and cryptocurrencies often reiterate this vision. Wright and De Filippi (2015) argue that the blockchain could offer people access to “automated and trustless transactions systems,” materializing a utopia of individual freedom and emancipation (14). Accounts of cryptocurrencies also commonly consider trustlessness as a technological affordance in the blockchain (Blundell-Wignall 2014; Morris 2019; Barton 2015). However, this understanding of trustlessness can be deemed essentialist, as it presents a stable binarism between the “centralized-trust” everyday world and the virtual, “trustless” blockchain. In this chapter, I aim to deconstruct this opposition. By focusing on the different gateways to acquiring cryptocurrencies by Argentine users, I aim to highlight the role of “off-chain” transactions in determining one’s engagement with cryptocurrencies.

The concern with specific ways of engaging with broader systems has been disregarded by social theorists like Giddens (1990). Giddens argues that “facework commitments” may tie actors into trust relations, but that these displays of integrity and trustworthiness are mainly performative: the real repository of trust is in the abstract capacities of these systems. In the 1990s, when Giddens wrote this, it could be argued that this was likely very much true: it is irrelevant whether one trusts the bank teller, as the true depository of trust is the abstract notion of money itself. Giddens did not pay much attention to what Bodó (2021) calls “technological trust mediators.” Indeed, the “access points” to the abstract system of money were few: credit

cards, bank checks, cash. Possibly, Giddens' was an oversimplification: Swartz's *New Money* (2021) is a thorough exploration of the complexity and history of these technological mediations. Yet Giddens' intervention should be contextualized as preceding the advent of network technologies. The contemporary technological mediation of the abstract system of money is much more visible. For example, if one makes a purchase now in an urban area in the United States, they will likely face a wide variety of options to make the payment: cash, credit card, digital wallet services like Apple or Google Pay, or payments applications like Toast or Venmo. The trust in the abstract token of money exists in all payment methods, but the avenues through which one engages with the abstract system are diverse and depend on one's previous knowledge.

Blockchains are both material and abstract. They are indeed technological artifacts, ledgers of transactions that can be authored and validated by computing peers. However, they are also abstract: trust is deposited in the technological system without possibly accounting for all the transactions, but through a process of abstraction. Different artifacts are employed to account for this engagement with the abstract system.

The focus of this chapter is on the choices of Argentine cryptocurrency users make in acquiring cryptocurrencies. "Acquiring cryptocurrencies" is a complicated phrase, as is the case with any abstract token (what does it mean to "own money"? Have bills in one's pocket or wallet? Have money under one's names in a bank?). For this chapter, I consider acquiring cryptocurrencies as the act of gaining power over a set of cryptocurrencies' transactional abilities. Argentina as a case study is especially interesting, due to a high degree of mistrust towards the government (reviewed in the introduction and chapter 1) and the existence of established money exchange networks, both highly tolerated by the public and by the

government. As a caveat, it is important to note that my study does not include mining, as the chapter focuses on social and financial interactions as acquisition strategies.

This chapter explores the different artifacts and social practices present in acquiring cryptocurrencies, and how these are linked to broader institutions or human and nonhuman actors. It focuses on the choice of artifacts and practices as determined by the trust that the user deposits on the stakeholders involved. To achieve this, I first examine cryptocurrency wallets, including non-custodial and custodial wallets. I then examine brokers: local cryptocurrency exchanges and cuevas. Lastly, I expand on two platforms that enable peer-to-peer transactions, Binance P2P and the Bitcoin Argentina Facebook group.

I employ a mixed methods approach in this chapter, combining close readings of artifacts with qualitative insights from interviews. To analyze wallets, exchanges, and marketplaces, I gather from Light, Burgess, and Duguay's (2018) walkthrough method which aims to establish a software application's environment of expected use, defined as "how app provider anticipates it will be received, generate profit or other forms of benefit and regulate user activity" (883). To achieve this, one must describe its vision (what a user is supposed to do), operating model (the business strategy and revenue sources) and modes of governance (rules and guidelines). The walkthrough method involves an auto ethnographic approach: to understand the vision of the applications, I downloaded or accessed them and experimented with them, trying to emulate interactions that an interested user might have. Through masking technologies, I emulated the material environments of usage of an Argentine user.³ This method was

³ All walkthrough studies were performed utilizing a VPN that set the device's location to Argentina by masking its IP address. Mobile applications were utilized in an iPhone with "Spanish (Argentina)" set as its language, and websites were utilized in a MacBook utilizing Firefox Browser 98.0.1 with "English (US)" set as its language. In all cases, visible data related to private and public keys refers to wallets that are no longer in my control.

complemented with insights from in-depth interviews with Argentine cryptocurrency developers and users, which allowed me to understand the human dimension of the interaction with these technologies.

Wallets

In Bitcoin's whitepaper, Nakamoto (2008) defines an "electronic coin" as "a chain of digital signatures" (2). These electronic coins can be transferred between network users "by digitally signing a hash of the previous transaction and the public key of the next owner and adding these to the end of the coin." In other words, each transaction contains a string that has been encrypted by the payer using their private key, and the public key of the payee.

Transactions in the blockchain stipulate how much cryptocurrency is linked to a public key. This means that users in the network do not "store" cryptocurrency. Instead, the blockchain is a ledger that logs what public key is in possession of what amount of cryptocurrency. It also means that the power to make a transaction is exclusively reliant on the capacity to sign a hash (encrypt using a secret algorithm) through a private key, which cannot be obtained by knowing someone's public key. If one has access to a private key, then one can make any transactions linked to its coupled public key.

To make these transactions, individuals who utilize a blockchain rely on a "wallet." Wallets are software applications which run either locally in a user's computer or mobile device, in an Internet website, or in an external hardware piece, and help users' blockchains manage their cryptocurrency. Wallets can support one or many blockchains: for example, MetaMask is a wallet exclusive to Ethereum, while Coinbase's wallet supports more than one blockchain. For each supported blockchain, wallets hold a public key and a private key. They can generate "addresses" to the user, which are alphanumeric strings that are linked to this public key. When a

user wants to send cryptocurrencies to another, they do so by directing them to this address. There is no centralized ledger of users in a blockchain, so anyone generating a set of keys automatically becomes a “user” of the blockchain. Hence, the act of setting up a wallet is often the first action one takes in engaging with cryptocurrencies.

There are two different types of wallets: “non-custodial” and “custodial” wallets. Non-custodial wallets are software applications or hardware devices that locally store a user’s private and public keys. A user can “log into” their wallet by introducing their private key, granting them power to make transactions in a blockchain. Non-custodial wallet developer companies generally do not receive information about what transactions their users engage in, as they occur between peers in the blockchain.

An example of a non-custodial wallet is Muun. Muun was started in 2013 by Argentine developer Dario Sneidermanis as “a natural and pragmatic response to deeply flawed institutions,” and was built by a team of 10 in Buenos Aires (Sneidermanis 2018). It is a free mobile application, downloadable through Google and Apple’s mobile app marketplaces.

When I downloaded Muun through Apple’s app marketplace, I was greeted with a clean, spacious interface, where I could select if I already had a wallet or if I wanted to create a new one. As I chose to create a new wallet, I was requested to select a four-digit PIN number. After that, I was greeted with a screen (Figure 2) displaying two figures: a number in BTC (bitcoin, the only cryptocurrency supported by the wallet) and ARS (Argentine pesos). The choice of Argentine pesos was likely geo-localized. As I had not yet received bitcoins, both figures were at “0,00.” The exchange rate of bitcoins and “fiat currencies” (like U.S. dollars or Argentine pesos) depends on market conditions, being sourced from Muun’s servers.



Figure 2: Muun’s Home Screen

When selecting “Recibir” (“receive”), the user is greeted by a screen (Figure 3) that shows a QR code and a clipped string, which is the user’s address. The user can select between “Bitcoin” and “Lightning,” referring to whether the transaction will run on the Bitcoin network or the Lightning Network (a network that is generally faster and demands less transaction fees but is often seen as less secure and has other limitations). The user can either display this QR code for another user to scan with their phone or use the two highlighted buttons to either share (using the phone’s operating system’s sharing menu) or copy their address to the clipboard. The user

can also change the address settings by selecting an amount to be received and an address type (Legacy, Segwit, or Taproot), including explanations of each standard.



Figure 3: Muun's "Recibir" Screen

Muun does not allow users to purchase bitcoin directly from the application. Instead, for a user to receive bitcoins in their Muun wallet, they would have to either purchase them through a broker and have them sent to their address or purchase them through a peer by showing them

their address as a QR code or via text. In other words, Muun only supports peer-to-peer transactions.

Muun's operating company does not supervise or collect data over transactions. They do not charge a fee over transactions performed through a Muun wallet or receive a commission by exchanges. The precise way in which Muun is profitable is not clear to the user (indeed, as I asked an informant close to the company how the application was economically sustainable, they shared with me that it was not yet profitable and that it was surviving on venture capitalist investments). In the "Enviar" ("send") screen, the user can scan a QR code or insert the text of an address and choose how much bitcoin they would like to send and how, with no displays of Muun absorbing fees.

The home screen (Figure 2) offers three options in its downside menu: "Monedero" ("wallet," the predetermined home screen), "Seguridad" ("security"), and "Ajustes" ("settings"). In "Seguridad," three measures are offered for a user to safeguard their wallet: backing up their wallet by using an email and password stored in Muun's servers, creating an alternative backup by writing down a code on paper, and creating an "emergency kit" by downloading the data needed to recover a wallet. The first option is the only one that involves centralization on Muun's private database and can be skipped by users: they cannot produce an emergency kit without creating an alternative backup, but they can pursue these options without associating their wallet with a user and passwords. This shows us how Muun's vision is linked to user autonomy, aiming not to coerce the user into sharing their data. This is also strengthened in the app's settings section, where a user can choose to delete their wallet through an immediately accessible button highlighted in red.

In relation to the applications' governance, Muun's terms of service stipulate that the company may collect personally identifiable information such as name, email, and phone number, as well as "log data" (IP address, device name, operative system information, and app configuration), but no information linking an individual to a wallet is collected. Therefore, it is highly unlikely Muun's management provides any information to authorities, as the company does not have any data linked to financial transactions.

The other type of wallet is custodial wallets, software applications that hold private keys under "custody." This means that a company owns them and associates the keys with a centrally stored user and password. An example of this is Belo, an Argentine wallet startup founded in 2020 by Manuel Beaudroit with the goal of "creating a bridge" between the "worlds" of cryptocurrencies and Argentine pesos (Redman 2022). In Belo's website, the application is presented with three main features: the possibility of buying cryptocurrencies easily, the promise to "win" against inflation and preserve value, and a credit card to use cryptocurrencies "every day" ("Belo" n.d.).

The process of signing up for Belo is extremely different from Muun's. As I downloaded the app, I was greeted with an illustration of a man wearing sneakers and a tie, about to press a button reading "launch" and a spaceship about to take off next to him. A text read: "Validá tu identidad para operar con criptos," "Asegurate de tener tu DNI a mano" ("Validate your identity to operate with cryptos," "Make sure to have your DNI [Argentine national document] at hand"). After that, the application guided me through taking and uploading a picture of both sides of my DNI, and to record a "video selfie" of me making a circular movement with my head. After that, I was greeted with a home screen (Figure 4), where it said my identity was pending validation.

Three minutes later, I received a notification saying my identity had been validated and that I could now make transactions, hinting at how the process likely relied on automation.



Figure 4: Belo’s Home Screen, Validation Pending

The Belo home screen shows a variety of currencies: bitcoin, ether, Argentine peso, dai (MakerDAO’s stablecoin Ethereum token, anchored to the U.S. dollar) and Tether USD (often known as USDT, another stablecoin anchored to the U.S. dollar). The inclusion of dai and USDT exemplifies how Belo facilitates using cryptocurrencies for saving “in U.S. dollars” easily and countering inflation. The interface includes three circular buttons: “Recibir” (“receive”),

“Intercambiar” (“exchange”), and “Enviar” (“send”). It also includes a section “Mis tarjetas” (“my cards”), including an icon of a credit card with a Mastercard logo, as the wallet offers users a credit card that allows them to make purchases using the funds in their wallets.

In the “Recibir” screen, I was offered many options to include cryptocurrencies to my wallet: “\$belotag” (“Rápida y segura entre usuarios de belo (sic),” “quick and easy between belo (sic) users”), bank transfer, and cryptocurrencies (referring to exchanges between peers, like Muun’s interface). As I selected bank transfer, the application then requested I provided, in accordance with national government regulations, my marital status, my occupation, and my address. After I provided this data, the application showed me a CVU (a virtual bank key, which is used for wire transfers in digital wallets in Argentina) to deposit my funds to. I transferred \$2500 Argentine pesos (roughly the cost of dinner for one in a restaurant in Buenos Aires) using my bank application. In a matter of seconds, the sum was accredited in my Belo account. I then used the “Intercambiar” section to convert my funds to bitcoin.

I was then asked to “check the details” (Figure 5). Here, it stipulated that the origin of the transaction was my Argentine peso balance, that the price per bitcoin was \$8060253.49, that I was trading \$2500, that the commissions were zero, and that the total was 0.00031016 BTC.



Figure 5: Belo's Transaction Review Screen

As I returned to the home screen, my large currency number displayed \$2419.0237, and below it said I had 0.00031016 BTC. I briefly wondered why this was the case, as I had transferred \$2500, but I then realized that this was because the purchasing price of bitcoin is higher than the selling price. The confusion nevertheless shed light on how I was not given the chance to compare prices or scrutinize if the price of bitcoin that the app offered me was correct. Belo acted as my cryptocurrency wallet, but also as my exclusive broker.

Belo's vision is extremely distinct from Muun's. Muun's aesthetic is clean and relies on soft shades of blue, and its messaging is straightforward and neutral. In comparison, Belo utilizes strong purple colors, and futuristic illustrations featuring spaceships and astronauts. Its language is friendly: it uses the first person often ("we need to ask you"), and requests information from users by posing questions ("what is your marital status?"). It also extends the mere purpose of engaging with the blockchain: through their \$belotags, Belo users can exchange cryptocurrencies operating internally in Belo's database. Furthermore, the operating model is clear: per its terms of service, Belo profits from fees when money is exchanged for cryptocurrencies ("Términos y condiciones" n.d.). The fees were zero in the case of my transaction, but they could exist for later and higher transactions.

The decision of whether to use a non-custodial wallet or a custodial wallet depends on numerous factors, the most salient one being one's desire to escape the government's radar. As Fer, a designer at a custodial wallet company, shared with me, "peer-to-peer [referring to non-custodial wallets] is always a solution if you don't want AFIP [Administración Federal de Ingresos Públicos, the tax enforcement agency] to kill you." Custodial wallets, unlike other digital financial products, are not formally banks under Argentine law, which means that they do not report to the Central Bank. But all cryptocurrency companies that are based in Argentina and engage in cryptocurrency exchanges, including custodial wallets, must report users' operations to AFIP: identifying account data, transactions, and available sums (*BAE Negocios* n.d.). They also report to the Unidad de Información Financiera (Financial Information Unit), the Argentine government agency that centralizes and analyzes data to avoid money laundering and terrorism financing. Reporting to AFIP and UIF implies that wallets need to associate each account to a

real person, which requires them to undergo through a “KYC” (“know your customer”) process such as the one described in Belo, where they require data and documentation from the user.

So, if a user inserts a large value of cryptocurrencies in their wallet, the alarms will go off at AFIP and UIF with the user’s associated identity information. The government bodies do not share their internal automated thresholds, but users still speculate around this. Nicolás told me that “AFIP generally starts bothering you when you move over 1000 dollars in your bank account. For example, today you’re moving more than 200000 pesos that you send to your wallet every month and you have no way of justifying it, you might be in trouble.”

But avoiding taxation is not the only principle behind the choice of using a non-custodial wallet. When I asked Joaquín why he chose to use MetaMask, an Ethereum non-custodial wallet that runs as a browser plug-in, he replied that he just did not trust Argentina. He knew many of the CEOs of the most popular non-custodial wallets, but that nothing linked to Argentina made him feel safe. “I’d rather have it on MetaMask, which is nowhere, it belongs to the blockchain,” he explained. “Also, it’s not under my name. I don’t have to share my identity. Nothing can be compared to that.”

Fer understood that there was an opposition between the blockchain’s proclaimed anonymity, but this was a price to pay for making cryptocurrency “usable.” In Fer’s framing, non-custodial wallets offer cryptocurrency users a way to interface with the off-chain world. Non-custodial wallet users can convert their Argentine pesos to cryptocurrency almost seamlessly. And furthermore, non-custodial wallets like Belo, which offer credit cards that interface between businesses and wallets, can allow cryptocurrency users to “use” their cryptos for everyday purchases. This idea does not always materialize, however: even if Belo is enabled by Mastercard’s commonly reliable infrastructure and businesses receive fiat Argentine pesos for

transactions with them, an informant shared with me how their cryptocurrency wallet-credit card had been rejected from many businesses, the clerks arguing they had instructions not to accept anything related to cryptocurrency.

In my conversations, many supporters of non-custodial wallets found the vision behind non-custodial wallets to be fundamentally antithetic to the values of the blockchain as a technology. “All companies are mandated to inform all transactions of all users in a custodial wallet. And that’s basically staying in a bank,” said an informant. “If you’re going to use all the features of the blockchain but you’re using a bank, then your actions don’t really make any sense.” However, these visions are not necessarily in such stark opposition. As Mariana (a cryptocurrency community-builder) explained to me, they could be seen as a way of entry into cryptocurrencies.

It’s subjective, but... at the end of the day, I think we all want the ecosystem to grow (...). We’re not oblivious to the business model of many custodial wallets, which is that users use them, so they make money from fees. This is great, but I always make the clarification of “be careful with the sums, you’re subjected to a KYC.” I mean, Bitcoin wasn’t born to be used with a KYC. Ethereum either. Obviously, using a custodial wallet has implications when it comes to government control, and that also puts in tension your right to privacy, the taxes aspect, the aspect of who has your private keys. And that is where two things come into conflict: how that product is built and who it’s addressed to. (...) They are also a gate of entry for people who decide to enter crypto. They start using these wallets and then they take off. When I worked in [redacted cryptocurrency exchange company], we analyzed the people who used our platform, and we had a blue quadrant of people who clearly no longer used our platform because they had outgrown it and they wanted to explore more. The user can evolve, but the idea is that they feel comfortable in the paradigm they choose, whether it is centralization or decentralization.

In short, the decision of whether to use a custodial or non-custodial wallet depends on a user’s trust over the Argentine government, their desire of anonymity and autonomy, their willingness and capacity to engage with the numerous cryptocurrency brokers or peer-to-peer markets, and their level of experience utilizing cryptocurrencies. In the next section, I describe

three centralized cryptocurrency brokers: cuevas, arbolitos, and local exchange platforms.

Cuevas and arbolitos can technically support transactions with both sorts of wallets. Local exchanges exchange Argentine pesos to cryptocurrencies, generally relying on built-in non-custodial wallets.

Brokers

Cuevas are clandestine establishments that exchange foreign currency. While in the past they served the purpose of exchanging Argentine pesos to dollars while avoiding taxation or government supervision, with Fernández de Kirchner's capital controls they started catering to a middle class who wanted to purchase dollars to save against inflation. Cuevas are a staple of contemporary Argentine urban middle-class life: as they are one of the few ways in which Argentines can save (the current government has elevated the limit to buying 200 dollars at the exchange rate, although this has numerous other restrictions), the government turns a blind eye at them or even negotiates with them the price of currency exchanges (Bercovich and Rebossio 2013). In Buenos Aires, they are in Florida street, a commercial pedestrian street. Most of them are not exactly visible, but not at all hard to find: they have people shouting "cambio" ("money exchange") outside, so someone who is interested in exchanging with them can ask for the location. Other ones are exchange houses with a few front-facing cashiers, who direct customers to a clandestine operation behind them. Purchasing foreign currency in a cueva is not a particularly "sketchy" situation: it has become largely institutionalized practice, commonplace and visible enough to law enforcement to reduce any significant criminal activity surrounding them.

As cryptocurrencies became more popular and as stablecoins emerged, numerous cuevas adopted cryptocurrencies. An informant shared with me that cryptocurrencies in cuevas has

become so widespread that some cuevas have a Bitcoin sticker outside. They generally trade in bitcoin, ether, and stablecoins like dai and USDT. The process is like trading dollars or euros: one brings national or foreign currency in cash, shows the QR code of their (generally non-custodial, as cuevas try to avoid government scrutiny) wallet, and the cueva cashier deposits cryptocurrency onto this wallet.

Cuevas have tacit agreements with law enforcement. However, trading with a cueva requires one to trust the establishment. The operation is still clandestine, so if a transaction goes wrong, there is no legal higher authority to complain to. For example, Hernán shared with me a story of a transaction that went wrong for a cryptocurrency buyer:

One guy wanted to buy 100000 dollars in crypto. When you want to do a wallet-to-wallet exchange, in many wallets you can scan a QR code, so you don't have to give them your address. You scan the QR code, put in the sum, and that's it. There's a wallet where you have that public QR and, at the same time, if you do two clicks (sic), you can see the QR code of the private key, and with that QR you can take all of that person's crypto. It's like the password of the wallet. So, this guy went for the first time and loaded 10000 dollars to see how the process was. And the next week he went in and added 100000 dollars. When the guy goes in, he gives his cellphone to the guy in the cueva, and this was supposedly a well-known cueva. And in that movement where the guy gives him his cellphone, the cueva guy switches to the private key tab, takes a photo of it with his phone, then goes back to the public one and transfers the money. And the guy left the cueva and it's not like he tried to send his stuff to Binance right away, he said "I'll get home and do everything right, it's a load of money." Well, the guy leaves, and when he goes back home, they had taken his funds, they had disappeared.

This does not mean that there are no accountability mechanisms in the blockchain. In fact, cryptocurrency exchanges are far from being untraceable. According to Hernán, the funds were moved to an empty wallet. When they wanted to transfer funds from that wallet, due to the scammers' amateurism, they paid for the fees (the sum of money required for a miner to log a transaction) using funds from the cueva's main wallet. The original owner of the money was still helpless: he would likely not have a convincing case with courts if he tried to denounce being

scammed while trying to buy 100000 dollars in cryptocurrency in a cueva. However, as Hernán shared with me, the episode meant that the cueva's reputation in trading cryptocurrency was tarnished.

This episode sheds light on the importance of trust and reputation when trading cryptocurrency. If a user decides to use a cueva, it can be interpreted as a sign of mistrust towards the national state, but it implicates a trust in the cueva itself. They are choosing to renounce the national state's institutional mechanisms over resolving legal conflicts and relying on a key fundamental principle of engaging with the blockchain: reputation. Power relations are still present in how this reputation is managed: as the transaction was clandestine, the story Hernán shared with me likely circulated socially, but there was probably not an opportunity to denounce the transaction publicly. Therefore, the capacity to understand a cueva's reputation and deposit trust in an informed way depends on one's insider status in specific social circles.

The place of trust in centralized peer-to-peer transactors like cuevas is further illustrated in the existence of "arbolitos." Before the adoption of cryptocurrency, arbolitos worked as smaller scale cuevas that offered a more personalized service, often in non-public spaces. Like cuevas, some arbolitos started offering cryptocurrency exchanges. Users reach arbolitos by common friends or contacts who recommend them, and likewise ensure the arbolito that that person is trustworthy. Nicolás told me that arbolitos were suitable for larger sums, since they were more trustworthy: cuevas were a good option to start with smaller amounts, and when one became more confident buying and selling cryptocurrency, they could find an arbolito who was trustworthy. Some arbolitos work by going to one's location, which requires a user trusting them to access one's home or workspace (giving cash to someone in public would be considered unsafe in most places in Argentina), but also relieves the user from being in an environment

operated by the arbolito. Other arbolitos are in private locations, where you need to call beforehand and say who recommended you.

Arbolitos depend on social capital to establish trust. They operate in similar ways to Fukuyama's (1996) pre-liberal account of trust: as mediated by social links of affinity and reciprocity. If one scams or is scammed by an arbolito, the relationship with the recommender will be tarnished. Trusting an arbolito means trusting the social link that mediates the relationship with the arbolito.

Fukuyama (1996) argues that in societies with low social capital, public institutions emerge to facilitate transactions between strangers in a trustworthy way. They do this by relying on law, contracts, and economic rationality. Cryptocurrency exchanges are the institutional way of purchasing cryptocurrencies: they are legal companies, bound by contracts and clear economic expectations. Local cryptocurrency exchanges allow individuals to purchase cryptocurrencies using Argentine pesos, without the need to convert pesos to U.S. dollars as they would be required in international exchanges.

SatoshiTango, named for Nakamoto's pseudonymous first name and the traditional Argentine music genre, is an Argentine cryptocurrency exchange. It allows users to buy and sell cryptocurrency using national currency. It supports 17 cryptocurrencies, including familiar ones like bitcoin and ether, but also "altcoins" (coins that have a novelty value) like dogecoin and Decentraland's MANA token. As I signed up in SatoshiTango, I had to go through a KYC process: I had to submit an image of a national document as well as a document that verified my residence like an electricity bill or a bank statement, and to record a video selfie like Belo's. A message read that my process would take up to 72 hours, even if most were approved much quicker: it took approximately one hour. The KYC process shows that, in contrast to cuevas and

arbolitos, local exchanges cannot be used anonymously. SatoshiTango's terms and conditions stress that the exchange is not a "bank," but highlights its adherence to Argentine law as well as to recommendations by the international organization Financial Action Task Force and the UN in terms of knowledge of the customer (SatoshiTango n.d.).

SatoshiTango's home screen (Figure 6) greets users with graphics on the prices of different cryptocurrencies. Below, users see how much money they have in their "cartera cripto" ("crypto portfolio"), as well as in their external addresses outside the exchange (as any user's transactions are logged in the blockchain, one can know how much money any wallet has just by inserting a public key). The next blocks are a "technical analysis" gauge, which makes suggestions on what cryptocurrency to buy, and a curated list of relevant news. The technical analysis gauge includes different points, recommending the users to "strong sell," "sell," "neutral," "buy," or "strong buy" a cryptocurrency, where users can select from a dropdown box what information they would like to see. Clicking a link at the bottom of the block, a message explains that technical analysis is a "trading tool used to evaluate values and try to forecast their future movement through the analysis of statistics gathered from trading activity, such as movement of prices and volume," warns that holding or exchanging cryptocurrencies is ("as any other asset") risky, and that the tools is granted by a third-party, tradingview.com.

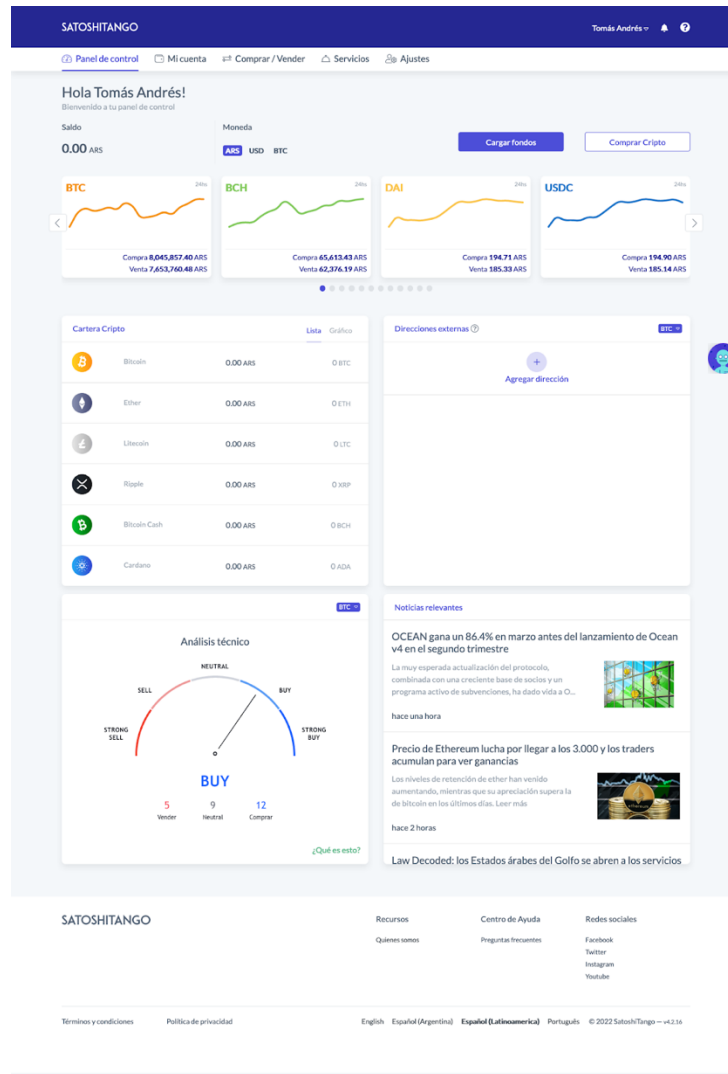


Figure 6: SatoshiTango’s Home Screen, After Validation

Like custodial wallets, SatoshiTango works as an interface between the off-chain market and blockchains, offering to exchange fiat currency for cryptocurrency. In that sense, in the “Servicios” (“services”) tab, SatoshiTango offers users to pay for services like their electricity bill or their mobile phone bill using the cryptocurrencies in their account, as well as buying gift cards for a wide arrange of businesses, limitedly allowing users to make services and retail purchases using cryptocurrencies. However, SatoshiTango’s vision is distinct to those of credit card services of wallets like Belo, which also mediate between off-chain and the blockchain

markets. SatoshiTango presents itself as primarily an investing tool: the interface's priority is in allowing users to understand trends in the market via graphs and text. Another key functionality that SatoshiTango offers is making exchanges between cryptocurrencies. So SatoshiTango is especially useful to traders: individuals who trade cryptocurrencies to profit from the variations in the market, like traders of stocks.

SatoshiTango and Belo present different conceptions of off-chain-blockchain mediation. Belo offers users two ways of engaging with the market. One is through purchasing cryptocurrencies and sending them to other individuals, paying for goods and services to others. Another one is through its credit card service: users can purchase goods and services from off-chain businesses utilizing cryptocurrencies, while businesses receive Argentine pesos. Belo positions itself as the gateway of cryptocurrencies into the flowing market of goods and services. In contrast, SatoshiTango centralizes the interactions between blockchain and off-chain currency holding. Users cannot send cryptocurrencies to other users other than SatoshiTango users. They also cannot purchase goods and services with businesses as they wish, but only through gift cards for pre-approved businesses. This is in line with SatoshiTango's operating model: according to its terms and conditions, it profits from a 1% fee in cryptocurrency buys and sells, as well as from withdrawal fees (SatoshiTango n.d.). In conclusion, SatoshiTango prioritizes the engagement with the market as a financial construct, while Belo presents itself as the mediation for everyday transactions.

Marketplaces

Beyond centralized brokers, individuals can also purchase cryptocurrencies from other individuals. Marketplaces refer to the digital platforms that mediate these user interactions, acting as trust brokers between individuals that want to buy and sell cryptocurrencies.

One platform that frequently came up in interviews with informants was Binance’s peer-to-peer platform. Binance, a company registered in the Caiman Islands, is a global cryptocurrency exchange. Binance offers services similar to other exchanges, like SatoshiTango: users can utilize their credit cards, bank accounts, make payments through authorized payment processors to purchase cryptocurrencies from Binance. However, it also offers a service called “Binance P2P,” a peer-to-peer exchange (Figure 7).

Comerciantes	Precio	Limite/Disponible	Pago	Trade	Comisión 0
worldtrading capital 65 órdenes 95.59% promedio	191.10 ARS	Disponible 809.60 USDT Limite ARS\$15,000.00 - ARS\$40,000.00	Cash in Person	Comprar USDT	
Estudiarg 254 órdenes 96.58% promedio	192.00 ARS	Disponible 99.95 USDT Limite ARS\$10,000.00 - ARS\$19,190.40	Banco Brubank	Limitado	
MUNDO-CRIPTO 633 órdenes 99.06% promedio	192.20 ARS	Disponible 40.15 USDT Limite ARS\$1,000.00 - ARS\$7,717.58	Mercadopago	Limitado	
cryptoFortu 1163 órdenes 98.56% promedio	192.25 ARS	Disponible 168.52 USDT Limite ARS\$800.00 - ARS\$32,398.46	Mercadopago	Comprar USDT	
themoon21 23 órdenes 69.70% promedio	192.25 ARS	Disponible 99.95 USDT Limite ARS\$800.00 - ARS\$3,000.00	Banco Brubank Uala Mercadopago	Limitado	
MentayLimón 1616 órdenes 97.64% promedio	192.28 ARS	Disponible 400.05 USDT Limite ARS\$800.00 - ARS\$76,923.53	Mercadopago Uala Reba	Comprar USDT	

Figure 7: Binance P2P, USDT “Buy” Screen

Using Binance P2P, users can browse through the different cryptocurrency seller ads. These are often individuals trying to sell their cryptocurrency, but it is clear that many merchants are professionals: the interface shows the merchants’ usernames (generally pseudonyms), their number of past orders, and their success rate. Numerous users have hundreds of orders, likely hinting at the fact that these are not individuals trying to get rid of their cryptocurrencies. The platform offers to show only merchant ads through a checkbox at the top: selecting it displays only users that have an authentication badge (shown as a golden “tick” icon). However, I saw that numerous non-authenticated users had high amounts of past orders, likely hinting at the fact that Binance does not strongly supervise which of its users are, in fact, businesses. Merchants

can decide their selling price, as well as how they would like to receive the payment. Unlike exchanges, users can decide who they want to purchase the cryptocurrencies from, and for what price.

When a user clicks the green “purchase” button, they enter a chat with the merchant. The purchaser must fulfill a money transfer to the merchant’s account, utilizing the means of payment that was published in the ad. Then, they must notify the merchant that the payment was carried out utilizing the Binance P2P interface. Then the merchant must disclose that they received the funds, and Binance transfers the funds from the merchant’s Binance account to the buyer’s Binance account. By allowing this exchange, Binance transfers funds from different Binance accounts, while interactions between individuals in fiat currency are carried out outside Binance’s infrastructure. Binance receives a transaction fee, which is charged to the merchant.

Binance’s peer-to-peer exchange was attractive to numerous of my informants since it allowed privacy from the government’s supervision. Binance does require its users to perform a KYC process. However, according to its website, “unlike credit card or bank transfers, peer-to-peer exchanges do not collect information about buyers and sellers. So, you can buy Bitcoin with cash on Binance P2P and don't need to use any bank account or online wallet to make a crypto-fiat transaction.” (“Buy and Sell Bitcoin on P2P | Local Bitcoin Exchange | Binance” n.d.) In a Twitter Space hosted by cryptocurrency enthusiasts in Argentina, the Director of Operations of Binance in Latin America said that Binance did not provide information to Argentina’s tax enforcement agency (Mejores Inversiones 2021). As Binance’s P2P offering does not sell cryptocurrencies directly like exchanges, it is exempt from providing full information to the government.

However, like cuevas and arbolitos, mistrusting the government involves trusting other stakeholders that are necessary to access cryptocurrencies. In these interactions, buyers trust the cryptocurrency merchants. This trust is based on a series of figures provided by Binance: the number of past orders and the success rate, as well as, possibly, Binance's authentication badge. Furthermore, the user trusts Binance, as Binance manages the escrow system that facilitates the exchange. If the transaction goes wrong, the consequences are reflected exclusively on Binance's platform: users cannot appeal this to a judicial court, but to Binance's support, which oversees penalizing one or another side with a decrease of quantified reputation or with a moderation action in the platform, such as a permanent or temporary ban.

However, peer-to-peer dedicated marketplaces are not the only avenue for the exchange of cryptocurrencies. In addition to platforms, users also reutilize familiar platforms for the purpose of the exchange of cryptocurrencies. The most popular site for this purpose is Bitcoin Argentina's Facebook group. In addition to hosting conversations about cryptocurrencies, the community allows the advertisement of cryptocurrency buys and sells. Horacio, a 31-year-old system administrator and Bitcoin enthusiast, explained to me how he bought cryptocurrencies using Bitcoin Argentina:

In the group you can use the little magnifying glass [referring to the search functionality on Facebook Groups] to see if that person is recommended, to see if it has previous transactions. And as you make transactions, you post "successful transaction this or that guy." I mean, obviously, there's some people who fake those transactions. But if the guy has 200 transactions fulfilled with different people, then it's very hard to fake that. And the guy I started buying from was a case like this. It was a guy that did this for a living.

Bitcoin Argentina works like Binance P2P: it centralizes reputation information, provided by users. But while Binance P2P is a dedicated infrastructure that validates data on reputation, Bitcoin Argentina is an appropriated space by users for this purpose, offering users the possibility of making their own general judgements based on the data they perceive.

Furthermore, Binance P2P facilitates the escrow by retaining funds and facilitating a structured interaction, while in the Bitcoin Argentina this is left to users' hands. In addition to the transaction fee, this loss in confidence is likely compensated by the wins in privacy: Facebook, a social media site, does not receive any "transaction fees" for these interactions, and does not collect information that could then be transferred to a company.

What do users trust, then, in using a peer-to-peer exchange in Bitcoin Argentina? In a way, they are trusting other community members: as users engage in a transaction, they are depending on the veracity of past transactions as reported by other users. This trust is also to some extent facilitated by Facebook: while Facebook does not require most users to authenticate their identity, it requires them to use their "real" names. This is in line with the social media site's intent of facilitating "radical transparency" surrounding social interactions (Kosseff 2022). But the trust is not dependent on the expectation that that specific seller's name is effectively their real name: it is dependent on the expectation that transparency extends to all users involved in guaranteeing the transaction's safety, including those that made positive reviews in the past.

Conclusion

Studies of blockchains frequently focus on the technology's "trustlessness," both understood as a technological affordance (De Filippi and Hassan 2016) and as a discursive construct (Vidan and Lehdonvirta 2019). Focusing on the different mechanisms and artifacts involved in the acquisition of cryptocurrencies allows us to understand that engaging with blockchains effectively involves trusting one or many stakeholders: governments, local and transnational companies, clandestine establishments, acquaintances, communities of strangers, or uninvolved social media companies, among others.

This chapter has furthered the idea of the social natures of blockchains and cryptocurrency. This has been explored by previous authors like Dodd (2018), who argues that the production of cryptocurrencies relies on social organization where inequalities of wealth and power exist. However, the main contribution of my study of these mechanisms and artifacts is to highlight how reputation becomes problematized. Blockchains ensure validation of record-keeping by not relying on reputation: through mechanisms like proof-of-work, the validity of a transaction is not ensured by the previous knowledge of that node being trustworthy, but by the consistency with the blockchain ensured by the processing power dedicated to this, which is then validated by computing peers in the network. However, as surveyed, reputation as a social construct remains present in the users' engagement with the blockchain. Users evaluate their knowledge of the different stakeholders and their expectations of their future actions and decide based on different mechanisms to understand reputation like social capital or by specific platforms' affordances. These knowledges are sometimes "datified" and quantified, but they can also be supported by informal structures and reliant on place-based knowledges.

In short, this chapter has illuminated how blockchains and cryptocurrencies comprise human systems, and therefore should not be thought of as existing outside human relations. How a user engages with cryptocurrency is dependent on the interface between off-chain and blockchain interactions, a choice that a user can make and that is dependent on the political and social ties existing in the off-chain world. Future studies that explore a variety of geographies will be useful to understand better the off-chain-blockchain dynamics, understanding how blockchain technologies operate in different sociopolitical contexts.

WAGMI

Introduction

During his widely publicized visit to Buenos Aires, Ethereum co-founder Vitalik Buterin posed for a picture with the city's governor, Horacio Rodríguez Larreta, which was promptly uploaded to Rodríguez Larreta's social media account. In the photo, Buterin is wearing a white t-shirt printed with a suited-up Pepe the Frog (an image usually associated by the online far-right, but reclaimed by Ethereum supporters, see "Crypto Pepes: What Does the Frog Meme?" 2021) t-shirt that reads "WAGMI." WAGMI is a common phrase among Ethereum enthusiasts, meaning "we are all gonna make it." It is an expression of reassurance and of optimism about the possibilities of the cryptocurrency, and of its rootedness in collectiveness. Ethereum supporters do not represent the only thought current in the cryptocurrency community. Indeed, an informant told me that Bitcoin users, often "maxis" (Bitcoin maximalists), scoff at Ethereum's collective rhetoric and arguably naive aesthetic (beyond Pepe the Frog, unicorns are a common occurrence in Buterin's outfits). But this expression can be linked to a strong ethos of communitarianism that, my informants stressed, exists throughout Argentina's cryptocurrency community. The community's communitarian ethos was introduced in chapter 1. Cryptocurrencies and blockchains are framed commonly as solutions for problems that affect society, and hence the success of these solutions is dependent on a collective effort. "I understand that everyone in the crypto community is standing up for me and that I'm standing up for them, just for being in the community," an informant shared with me. However, how this communitarian ethos is performed is an open question.

In this chapter, I explore how cryptocurrency communities create and inhabit online spaces. I start by understanding how community users employ different social media platforms

and chat applications to generate different spaces for conversation, and then I examine the communities as support systems. Lastly, I explore how gatekeeping works as a way of validating ideas and information.

Space-making

As outlined in the previous chapters, purchasing, and managing cryptocurrencies involves acquiring and sharing knowledge. To create the spaces for these conversations, cryptocurrency users employ different social media platforms and chat applications. In the previous chapters, Bitcoin Argentina's Facebook group appears as a significant convener, both to facilitate exchanges of cryptocurrencies between users and to generate conversations around the societal implications of blockchain technologies. However, Bitcoin Argentina is just one part of the communicative ecosystem: other virtual communities allow for other sorts of interaction and shed light on the diverse social dynamics present in the community. These virtual communities are supported by a set of platforms and chat applications: Discord, Telegram, Twitter, and WhatsApp. Each artifact presents affordances which are related to different ideas of intimacy and information-sharing.

Beyond Facebook, the most common platforms for public communities or closed communities with very low barriers of entry are Discord and Telegram. These platforms were described to me as useful for "interest groups:" there are groups for users of a specific blockchain (for example, there is a community called "Lunáticos de Argentina," tied to the Terra blockchain), or of specific practices and technologies (such as DeFi [decentralized finance] or mining), specific collective identities (I identified at least two communities for women in cryptocurrencies), or localities (numerous groups are tied to cities or provinces, like "Córdoba

Bitcoin”). An informant explained to me that Telegram is an ideal platform for this because it allows users to search for groups in its application and join them easily.

Discord also has a function to search for “servers” (Discord communities), but search results are heavily filtered, and it is almost impossible to find a community of Argentine cryptocurrency users. Instead, users access through direct or indirect referrals by other users or links in websites. An informant told me he found a Discord community for Argentines via YouTube: he searched “how to mine with Ethereum” in Spanish and found a video that had a Discord invite link in it. Since accessing them is more difficult and membership is smaller, Discord servers foster a greater sense of community among their members. For example, they often serve extensions of community spaces in other platforms. Hernán told me that he would often casually have conversations on Twitter Spaces, live, short-term voice chatrooms where only authorized users can speak. He eventually became friends with another user that was a frequent speaker in these rooms, and they started a Discord server together that was open to the listeners of these Twitter Spaces.

Hernán’s goal for his communities is to share “ICOs”: initial coin offerings. Also known as token sales, ICOs are an innovation of the Ethereum blockchain, where projects can capitalize themselves by offering a token that can then increase in value relative to the growth of the project. Hernán became drawn to them, and shared with me that his Discord community was a more engaged audience than what he could find in Twitter:

There’s some projects you can’t just post on Twitter because you can’t be tweeting all day stuff that the audience maybe doesn’t care about. Discord is more like the specific group, more for “I want a new project that is soon to come out and I don’t know where to find it.” Well, in our group, we introduce them to you. And the community also contributes many projects, which is great. And that’s how you find good projects where your profit is larger than just buying cryptocurrencies. That’s what you’re looking for when you go into a project, the famous ICO.

Other communities share information around specific topics. For example, an informant told me they were active in a Discord group about “play-to-earn” games (games where users are rewarded with cryptocurrency for their actions in the game). This informant entered the community asking about how to get started earning money through Axie Infinity, a game that runs on the Ethereum blockchain, and found other users willing to generously answer his questions. Natalia defined this process as one of “feedback” within communities, where users are expected to “pay back” to their communities. “The community is like a place of consultation,” she explained, and outlined what she believed are three “big pillars” of community-building: “bringing new people into the community, making the community grow, engaging with feedback from the members”. Julián, a content-creator about Ethereum smart contracts, described community-buildings as the work of generating the necessary conditions for this feedback.

For me, building community is a job in where you have to understand, unlike in marketing where you have a regular audience, you’re not thinking about a message that you want to propagate and distribute. It’s more multidirectional. I have to create a space for people to connect with each other. It’s not that everyone consumes me (sic), but everyone produces, and everyone consumes each other. So, I want to generate content in the community. In a sense, the idea is to facilitate this construction of links and at the same time facilitate the production of value. And here with value I mean helping people do things that are useful them. This is achieved by creating spaces. Once you connect with people and you know that you feel part of a group of friends, you truly become part of the community.

Community members see these groups as fundamental to attract new users to the technology. María, a woman in her late forties, described herself as an unlikely cryptocurrency user (indeed, an informant whose company had carried out market research shared with me that most cryptocurrency users are middle-class males between 35 and 40). She is documenting her exploration of cryptocurrencies in her Twitter account, where she also hosts Twitter Spaces for other enthusiasts, which she also published on a podcasting platform. She told me that talking

about cryptocurrencies was complicated because there's "guita" (money, colloquially) in the middle: some people are too rigid and too convinced about their course of action, so proposing something outside this trigger violent responses, in her view. But otherwise, she said that the community had been thoroughly welcoming to her:

Mind you, there's also very generous people. I've entered Telegram groups on DeFi for beginners and it's incredible the "buena onda" [good faith/intentions, colloquially] when they explain things to you. And you also read some questions where's you're like, "I couldn't even think of such a stupid question," and there's still someone with "buena onda," with a true willingness to teach. I really notice that those who are in crypto want everyone to enter crypto. It is not like "oh, no, this is for an elite, you guys stay out." It's like they want there to be more people in the ecosystem, and that's great.

Beyond these public and semi-public communities, users also use WhatsApp to communicate with closer friends in the community. WhatsApp groups involve a higher level of intimacy among users, since users employ their phone numbers to take part in these groups and may have their names and profile pictures attached, since they likely use the same WhatsApp number for their friends and family (in contrast, Twitter, Telegram, and Twitter allow for pseudonyms and generally do not require identifiable information). This further represents the fluid anonymity that cryptocurrency users engage in (see chapter 1). In these groups, some users share riskier information, but since they are less anonymous, the quality of the information can be potentially higher. As Hernán told me:

Many of the Telegram groups are trash. The most relevant information you can get is when you find people who are more or less in the same [wavelength] as you and you make a small WhatsApp group with those insiders. Because a WhatsApp group between 3 and 15 people is ideal, more than 15 is too much for me. So, someone reads something interesting and sends it there like "hey, check this out" or "this new currency is about to come out." The information maybe is not relevant for everyone, it's not a thing for entry-level people. But the information is really relevant, it's useful to have it. That's what I think is ideal.

In conclusion, cryptocurrency users employ diverse social media platforms and chat applications to fulfill different communicative needs. Twitter is useful to engage in live conversations through Twitter Spaces and to connect with like-minded enthusiasts by making tweets and following others, but information there has an expectation of seriousness and authoritativeness. Discord servers allow for more casual conversation, as well as homing in on specific interest groups, as they are delimited communities — in contrast, Twitter Spaces usually appear accessible to all followers of authorized speakers. Telegram is also useful to create spaces for specific interests or affinities, but the ease of finding and accessing groups makes communities less tightly knit. These spaces, being public, allow for newcomers to cryptocurrencies to ask questions, which are generally welcomed guided by a communitarian ethos. WhatsApp groups are intimate and allow for information to be shared less authoritatively, allowing users to take more risks.

Support systems

Cryptocurrency users also convene for a purpose that is key for engaging with cryptocurrencies: supporting and reassuring each other. Mariana described virtual communities as “emotional containment spaces.” Not all cryptocurrency users engage in “trading” (the act of exchanging cryptocurrencies and tokens to profit their forecasted future increase in value) but they are all affected by the changes in the currency’s price: even projects that are not geared towards obtaining profit, all tokens have a relative price, and increasing costs of fees can obstruct transactions in a blockchain. “I mean, who in your family can understand what you go through in this maelstrom that goes so fast?” she argued.

In chapter 1, I described the practice of HODLing. HODLing refers to the social practice of not selling cryptocurrencies, even when the price is decreasing. This practice is tied to a

commitment of not paying attention to the volatility of a cryptocurrency, but also to faith in the future increase of the cryptocurrency. Unsurprisingly, HODLing is practiced by cryptocurrency's most invested enthusiasts, frequently the ones who participate the most in virtual communities surrounding cryptocurrency. For them, economic changes can be especially socially taxing. Therefore, virtual communities play a key role as these enthusiasts' support systems. As Nicolás explained to me:

Dealing with the mentality of the trader is a topic we talk about on Twitter Spaces. How to control these price dips and these feelings, these emotions... and be able to do well in the market. The psychological factor matters a lot. The normal person may or may not be prepared, or they may or may not care. But you truly receive a shock then you send your first market trade and you're live and you say "ouch." You see how the price moves and that gives you an anxiety, an adrenaline rush that only few things give you. It's tremendous. Sometimes my friends who are not in crypto tell me "hey, it's going down like crazy," and since I've been in this for a while, I tell them "no worries, it'll be fine." But, well, having someone by your side that is in the same situation, that really calms you down.

The trader mentality is also about acquiring knowledge about how to internally process emotions. Nicolás explained to me that he was extremely fearful to start investing in cryptocurrencies, even if he was interested in the topic. The media did not help, too: he pointed out that it generally covers cryptocurrencies when prices are going down and paints a picture of the irreversible end of a trend, when Nicolás says those are the best moments to start investing. To acquire this initial mentality, Nicolás started reading books. He shared some of the titles with me *Trading in the Zone: Master the Market with Confidence, Discipline, and a Winning Attitude* by Mark Douglas, *El Método Wyckoff* published by Profit Editorial, and *Trading for a Living* by Alexander Elder (a book that argues that successful trading is based on three "M"s: mind, method, and money). Nicolás told me he commonly shares these titles on the Discord group of which he is a part. Andrea, the moderator of a community for women that invest in

cryptocurrency, echoed this idea: to understand how to manage one's emotions, one needs to read about trading and cryptocurrencies and to gain confidence.

However, managing one's emotions is not just about talking to others or reading books. Moderators or "community builders" or "community managers," as a moderator of a Telegram group on DeFi explained to me, play a key role in helping community members navigate their emotions. They explained to me that it was common for them to address two emotions: "FOMO" and "FUD."

"FOMO" is the fear of missing out. When suddenly bitcoin is in a bull run [steadily rising] in the market, it's going up, and the other coins are also going up, or there's a fever of NFTs, or there are DeFi protocols that are getting bigger... In those moments where everything goes up and the currency is going to rise, that feeling of not wanting to be left out is generated, so people hurry. They don't do an adequate study of where to put money and for what time, then this whole thing begins of "I don't want to be left out, so I go where I see that everyone is going or where they are taking me with the promotions." People come in and say, "I got into this one, the protocol is giving me this," and other people sometimes follow them. I'm very careful not to say those things so that people don't end up involved in things that can go wrong. It's also very common to say, "not financial advice", like... "this is not financial advice, do your own search, sometimes it doesn't go well." And "FUD" is fear, uncertainty, and doubt. The issue of fear, of uncertainty, of doubt when the market turns bearish [steadily falling], when suddenly there is a red bullet downwards and the market suffers from news like the [mining] ban from China or the flash crash [a rapid and deep decrease in prices] that brought the lockdown by COVID. So, people feel fear, they don't know where to go, if taking out is unstable, if selling, if buying... and then in these communities the administrators, community managers and community builders also have to deal with crisis management and calming people down. To say, well, "this happens, and it will happen again and it's the market's ways."

These practices shed light on the centrality of community as support systems to adapt to cryptocurrencies' volatility and novelty. The idea of communitarianism that reigns in the community in terms of accessing information and making contacts, as represented by my informants in chapter 1, is reflected on the feeling of mutual responsibility that cryptocurrency users feel for others' wellbeing. But beyond the idea of helping one another, these support

systems can be seen as performing two tasks. Encouraging other users not to sell can be interpreted as a desire to maintain behavioral consistency: cryptocurrency users are often “in the same boat” when it comes to capital increases or decreases, so dissuading others from acting can help users reassure themselves that they are taking the right action. Furthermore, cryptocurrencies lower in price when the perception is that they will be lower. Of course, a single transaction made by an individual is unlikely to have significant effects in the market. However, HODLing is a social, shared maximum. The role of HODLing is to share a widespread belief in the future increase of the cryptocurrency, and therefore dissuade users collectively from selling.

Looking at virtual communities as spaces to combat both FUD and FOMO, however, sheds light on how they operate as support systems against emotional biases. Cryptocurrencies, after all, are about money, and making rational decisions is primordial. HODLing is not seen as irrational, but as an action consistent with the very principles of cryptocurrencies. FUD and FOMO, however, are emotional biases: they go against the notion of genuine value generation. FUD can dissuade users from understanding the “true vision” of cryptocurrencies and misguide them into paying attention to price changes that are deemed meaningless. FOMO can lead users to becoming lured by promising projects that do not necessarily generate value.

As I outlined in chapter 1, cryptocurrency users see the “success” of cryptocurrencies as a collective endeavor. WAGMI as a motto encapsulates this. “Making it” as a goal is ambiguous: it could be linked to mass adoption, but the benefits of this mass adoption could be translated to the community profiting from cryptocurrencies’ increase in value or to the potential radical changes in the world granted. In any case, this collective endeavor is tied to an assertion of an ethical and “practically rigorous” account of value: value being returned to their rightful owners, and value being meaningfully generated collectively. Community support systems play a key role in

safeguarding this correct idea of value from the emotional biases that the human components of the blockchain, individuals trading and creating projects, may bring into the system.

Governance

Support systems depend on specific practices to validate and invalidate information and behaviors. In that sense, they can be linked to the concept of “epistemic cultures.” This concept from science, technology, and society studies (STS) refers to “sets of practices, arrangements, and mechanisms bound together by necessity, affinity, and historical coincidence that, in a given area of professional expertise, make up how we know what we know” (Restivo 2005). Given STS’ disciplinary affinity to studying the production of scientific knowledge, the concern has been with “professional expertise.” However, the term is malleable enough to also understand other sorts of knowledge-production beyond traditional institutional knowledge.

The validation of knowledge in the epistemic cultures of cryptocurrency enthusiast communities can be linked to the governance practices in online spaces, such as “gatekeeping.” According to Shaw (2012), gatekeeping in online communities (referring to the management of organizational boundaries and filtering of information) can take both centralized and decentralized forms. Centralized gatekeeping refers both to acts of direct or indirect enforcement of rules and norms by a defined elite of users, such as community founders or moderators. This can refer to concrete acts of moderation such as banning users or deleting content, or to actions afforded by specific privileges in a platform that aim to persuade users of a desirable behavior (for example, Shaw describes how a founder of a blogging community decided to go on “strike” and not produce content in opposition to how their favored political candidate was treated on the website). Decentralized gatekeeping refers to strategies employed by users without formal elite

status, in small-scale “microlevel” interactions, to stabilize and reproduce larger social dynamics. Examples of these strategies are expressing mockery, sympathy, or direct criticism.

Both dynamics are present in the different virtual communities surrounding cryptocurrencies in Argentina. Inspired by the blockchain’s decentralized infrastructure and the early adopter’s libertarian ethos, the Bitcoin Argentina Facebook group prioritizes freedom of expression: the group, per its rules, is not a “safe space,” censorship is saved for cases of fraud and aggressions, and requests for censorship are stated to be removed. The number of moderators, for a large community, is generally small: it has only 12 moderators for 78000 users. The group does have some rules: for example, it prohibits spam, price predictions without a “grounded analysis,” or false information. In practice, moderators prioritize not removing information. For example, an informant shared with me that he made a post asking for advice on getting cash for his PayPal money (not allowed, since it is not related to bitcoin), messaged a moderator asking for his post not to be removed, and the moderator said he could leave it up for a few hours. But beyond centralized actions from moderators, users of Bitcoin Argentina engage in decentralized gatekeeping to prioritize desired content about the cryptocurrency. “I think that a big part of the Bitcoin spirit is to build community, there’s always people sharing information in good faith. Then there’s always the guy who tries to make his little ‘currito’ [grift], to sell you a course about investing in cryptocurrency or whatever.”

The decentralization of gatekeeping in Bitcoin Argentina is tied to a vision of decentralized agency. Moderators in Bitcoin Argentina do not perform a distinguished role in validating knowledge: their role is seen as mainly operative. In that sense, epistemic agency (the notion of freedom to engage in knowledge-making in each community) is decentralized: while,

as Shaw argues, accounts of expertise exist within decentralized communities, moderators in Bitcoin Argentina do not engage in the prioritizing of these voices.

Other groups, far from Bitcoin Argentina's libertarian approach, engage in different epistemic and governance practices. An example of this was described to me by Mariana. Mariana is a member of "DeFi Task Force," the Telegram group of "DeFi Latam," a community of decentralized finance enthusiasts mainly from Argentina. As she explained to me, the community is often concerned with what truly was "value creation:" what behaviors led to the technology meaningfully transforming the economy. This translates to specific moderation actions, taken discretionarily by the moderators: the community does not have a public set of rules. Mariana explained to me:

If someone entered DeFi Latam or DeFi Novato or DeFi La Plata, which are communities that are more than a year old, already very well shaped, and posted a referral link [to an exchange, where they would get money for each referral who signs up], it is likely that the message will be deleted because it's not the sort of construction they want to make. There's lots of people sharing referral links, or promoting platforms, and that is not taken well. Because it's not really information, it doesn't contribute. And when someone makes an analysis of a tokenomics (sic) or of some blockchain, that is very welcomed, because it's the idea of creating information collectively that helps us all make decisions.

Epistemic agency, in the case of DeFi Latam, is centralized in the moderators.

Moderators are tasked with judging what information is valuable or not, and censor information if they deem it to be invaluable. However, this is not the only governance practice that can accommodate this notion of epistemic authority. In the case of a large Telegram community for women in cryptocurrencies, content needs to be vetted before it can be posted: users interested in sharing any sort of hyperlink must send it to one of the moderators privately, who decide if it can be shared or not. In conversations with moderators of this community, they referred to this practice as allowing only "curated content." Curated content accounts for two separate

phenomena. Like the case of DeFi Latam, the moderators of the community filter some content that goes against the vision of what the technology should be. For example, as moderator Andrea told me, they censor paid content since their values are the “free circulation of knowledge,” and a paid course would go against this. But more importantly, the goal of curating content is to avoid the circulation of misinformation and “scams,” supposed ICOs (initial coin offerings) or NFT (non-fungible token) “drops” that obtain the investors’ cryptocurrency in exchange for a worthless asset or for nothing. This is done with the intention of protecting users who are new to cryptocurrencies. Andrea explained to me:

All our information is curated because we have many users who are new in the ecosystem, and we want to take care that they do not fall in a scam, because falling for a scam is a horrible experience in crypto. Many people that go through scams are really hurt, and it is hard to pick up and get back on track and get back into legitimate and good information.

Natalia, another moderator, strengthened this idea in terms of emotions. She explained to me that it is easy to promise to inexperienced users that investing in a token, for example, will make someone a millionaire. “Probably many people will go and do it because they don’t have the knowledge to apply the necessary filter,” she said. As explained in the previous section, many cryptocurrency users see acquiring knowledge about the technology and markets as key to counter emotional biases. The moderators see women as often being excluded from these knowledge spaces, and hence they see creating a space where knowledge was previously authorized as necessary to provide a starting point where they can discern empty promises from meaningful opportunities to obtain value. Since the community is presented as a space specifically for women where information is curated, Rosalía (another moderator) said that the moderators felt especially responsible if someone was negatively affected by receiving unapproved information in the Telegram group. In other words, the moderators are trusted by the

community's users. Moderators understand that trust is linked to avoiding a scam, but also to becoming "inserted" in the community by starting from a truthful base. In Rosalía's words:

For us, in all blockchain projects there's usually two key factors. First, the destination of the money, because when you're buying a token or an NFT, you're buying something with your money. So, if the ends of that publicly collected money are irresponsible or diffuse, then we can't commit to sharing your project. We can't commit because of transparency, and because of trust: many people trust the community, trust its members, so it wouldn't be fair that we favored a minority that wants to collect money irresponsibly. And, on the other side, because there's the communication and then the effect of that communication. So, if something that is communicated is something wrong about the technology, then it could be the case that many people learn how to be inserted in the blockchain technology in the incorrect way. That's why it's not about authority, but it's about knowledge where, as more people learn, more people can be involved in communities, more people can curate content and filter and say "no, this project is a scam" or "this project is right."

Demanding transparency from a project is just one of the strategies that the moderators employ to validate content in their epistemic process. In the case of online courses, Andrea told me that the first thing they do is see who is behind the project. If the project will be carried out synchronously, they ask for the course's syllabus or slides and often for a recorded class, looking to see if the contents are "well presented and well ordered." Then, they analyze the social media behind the project, and to see if there is a community behind it. Natalia told me that she also prioritizes the people behind the project, but that she also looks at the project's antiquity. But in the end, she argued, it is a deeply subjective process of evaluating risks.

We always ask what they want out of sharing that information among the community. Asking to share a link because you want people to know about your NFTs isn't a good reason, wanting to teach the community about NFTs is. And then we ask ourselves what the advantages and disadvantages of would be sharing that content with the community. But it's a very subjective thing, I mean, that's why we're a committee of people, otherwise we'd make a bot do it. And it's also about fields, for example, I know more about some topics, and then other girls know about other topics. So, then each of us can validate one thing or another, but it's still subjective.

Users' epistemic agency in the case of the women's community is equal than in the case of DeFi Latam: ultimately, moderators oversee validating knowledge. However, the differing governance practices shed light on the different accounts of users and censorship present in the community, where women are seen by the community as deserving special protection through a vision of empowerment.

Gatekeeping practices in the cryptocurrency community shed light on the different visions prioritized in by different virtual communities. In the case of Bitcoin Argentina, preserving free speech is prioritized vis a vis filtering content, where decentralized gatekeeping structures by non-moderators reign. In the case of DeFi Latam, the vision of valuable content fosters specific practices by moderators, who moderate content without necessarily providing means of accountability. And in the case of the reviewed community for women, a vision of empowerment is prioritized, where the "curation" of information is linked to the protection of a specific group.

Conclusion

Communitarianism is performed through employing different communication platforms and applications to create spaces for diverse interactions and accounting for different expressions of sociality. Platforms and applications' aesthetics and affordances inform different spaces for conversation and engagement and create different spaces of intimacy that can provide a space for activities such as answering questions to newcomers or exchanging risky opportunities of investment. These spaces also fulfill the task of helping community members manage their emotions, both by expressing sympathy during moments of volatility and by practicing restraint from jumping on opportunities that might appear too enticing to think rationally about. This labor is performed both by regular community members and by moderators, who understand

their role as “shepherds” of the community in guiding this emotional turmoil. The authorization of information follows a similar path. In some communities, the filtering and validation of knowledge is done primarily by community members, while in others it is performed by community organizers. These different approaches to information provide accounts of cryptocurrency virtual communities as diverse epistemic cultures, shedding light on how the discourse of decentralization may clash with the centralization of knowledge-authorization. An especially salient case is the role of moderators in a community for women in cryptocurrency, who engage in gatekeeping practices with the goal of protecting others.

These practices point at two different dynamics. First, they highlight the importance of emotion and affect in the sustaining of technological infrastructures. While much attention has been devoted to analyzing blockchain’s technical infrastructure, more studies focusing on how blockchain users engage with one another and form links through the sharing of emotions and sympathy are needed to fully account for the technology’s sociality. Further studies in this direction will allow researchers to understand how technological affordances in discourse (such as decentralization) are translated to specific practices. Secondly, they guide our attention to the place of culture and sociality in the maintenance of technologically mediated trust. Anderson (2006) pointed at shared values and feelings of fraternity between individuals as central to establishing modern nations. Focusing on how these shared visions are performed is crucial to understand how these new ideas of citizenship emerge in technologically mediated trust systems beyond the state.

Future-making

In March 2022, Diego Fernández, the Secretary of Innovation and Digital Transformation posted a Twitter thread, the first tweet reading: “UN NUEVO PARADIGMA[.] Desde el @gcba, invitamos a la comunidad a co-crear un nuevo protocolo de #IdentidadDigital auto-soberana con la persona en el centro y al mando de su información (...)” (“A NEW PARADIGM[.] From the [Buenos Aires city government], we invite the community to co-create a new self-sovereign #DigitalIdentity protocol with the person at the center and in command of their information. (...”). The tweet followed by tagging five Argentine blockchain developers and entrepreneurs (Diego Fernández [@fernandezdiego] 2022). The thread went on to outline the benefits of the proposed system: sovereignty about one’s own information, less time (“a scarce good!”) lost in bureaucracies and less transactional costs for organizations. The last tweet of the thread included a link to a Markdown file on Github (an online platform for software development and version control), titled “Whitepaper Tango.”

Whitepaper Tango acts a window into how the imaginary of decentralization is impacting public institutions. In the previous chapters, I have explored visions and practices surrounding cryptocurrencies and blockchain technologies in Argentina. As I outlined in chapter 1, cryptocurrency and blockchain enthusiasts in Argentina see these technologies as capable of building a world outside “outdated” and “dysfunctional” public institutions: a decentralized society, where the political and financial class does not hold power over the value created by individuals in the market. The role of nations, traditional finance, and public identity are understood as replaceable by these technologies. Blockchains and cryptocurrencies do not exist on their own: their functioning is reliant on the creative capacity of the community (as evidenced

in the projects highlighted in chapter 1) as well on its community-building efforts (as discussed in chapter 3).

Public institutions can be thought of as both a cause and consequence of public life. They shape interactions, but they also adapt to the expectations of the publics they serve. In this concluding chapter, I explore how public institutions are being informed by this imaginary. I introduce the concept of imaginaries, both from the fields of civic media and STS. I explore decentralization as an imaginary and its cultural implications, and then analyze Whitepaper Tango as a way of understanding how public institutions are adapting to this vision. I conclude by summarizing the key insights from this work.

Imaginaries

Imaginaries refer to visions of the world. For Sartre (2004), imaginary objects are mental images of the world that are deeply informed by our own perspectives and are not necessarily anchored on material grounds, making us ontologically free. Imaginaries and ideologies are deeply related, but imaginaries point to a “broader picture:” not just a normative idea of how things should be, but also as mental exercises of speculating about how things could look.

There are two main ways to think about the political aspects of imaginaries. The first one is linked to civic imagination, which can be thought of as “low theories” of civic life. From media studies, Jenkins et al. (2019) understand civic imagination as “the capacity to imagine alternatives to current cultural, social, political, or economic conditions; one cannot change the world without imagining what a better world might look like” (5). They argue that this imagination requires seeing oneself as an agent of change that can form bonds of solidarity with others who can also imagine collective futures. The main contribution of their co-edited volume *Popular Culture and the Civic Imagination* is highlighting how practices of imagination can be

activated through diverse means, from Harry Potter fanfiction to creating handmade VR devices. Jenkins et al.'s focus on imagination as a capacity presents the idea that not all individuals are empowered with the capacity to imagine, and therefore interventions (from companies, public institutions, or grassroots groups like fan groups) are needed to facilitate these activities. A second valuable work, a contribution from urban sociology, is Baiocchi et al.'s (2016) *The Civic Imagination*, an ethnography of seven civic groups in Providence, RI. The authors define it as “the ways in which people individually and collectively envision better political, social, and civic environments. (...) They are the cognitive roadmaps, moral compasses, and guides that shape participation and motivate action.” (55). This vision is a closer synonym to ideology and political strategy and does not center the role of interventions as it assumes that most people engage in imagination. Both contributions are useful to understand imagination as a process that can be performed collectively and that refers to a desirable vision of the world.

The second key definition of imaginaries I will use is, from the field of STS, Jasanoff's (2015) concept of sociotechnical imaginaries. Jasanoff defines sociotechnical imaginaries as “collectively held and performed visions of desirable futures (...) animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology” (19). She states that sociotechnical imaginaries are unlike mere ideas and fashions, as they are “collective, durable, capable of being performed; yet they are also temporally situated and culturally particular”, and “at once products of and instruments of the coproduction of science, technology, and society in modernity” (19). Jasanoff's idea of imaginaries is useful to focus on how these imaginaries become “stabilized.” Jasanoff and Kim's co-edited volume *Dreamscapes of Modernity* (2015) focuses on the role of states to materialize these visions: public policy is a way to reinterpret imaginaries and apply them in material reality.

Participatory institutions

Blockchains are, by definition, decentralized ledgers. While some authors question how this effectively translates to material reality (Vidan and Lehdonvirta 2019, Dodd 2018), decentralization is generally understood as a material affordance of blockchain technologies, and the previous chapters have shown that decentralization is a present ideological construct. As highlighted in chapter 1, decentralization can be interpreted as the opposition to the centralization of power, both by states and by financial institutions, which puts them in a privileged position to extract value in unethical ways. It can also be understood as the decentralization of knowledge authorization, as outlined in chapter 3, even if concrete centralized practices exist.

The value of decentralization can be linked to a novel idea of public governance: participatory institutions. As an ideology, decentralization is tied to the destabilization of the centralization of ownership. In contrast to the public institutions, which are shown as owing to corporatist interests, the blockchain is seen as collectively owned: transparent to all, belonging to only those who actively take part in its shaping through making transactions. As outlined in chapter 1, the blockchain is read by the community as a malleable artifact that can afford the possibility of enabling social interactions more efficiently and more ethically than the state. This can be described as a “do-it-yourself” approach to institutions: by taking part in the Bitcoin blockchain, individuals and collectives are “opting into” a financial system they willingly take part in — in comparison to the monopolistic account of traditional finance —, and by participating in Ethereum projects, they can engage with governance mechanisms they approve of and vest interest into voluntarily. This can be defined as a “participatory approach” to public institutions. In *Convergence Culture*, Jenkins (2006) presents participatory culture as a new way

of spectatorship where audiences want to actively engage with the content they consume, contributing or producing content themselves. The same can be said about the perception of public institutions by blockchain users in Argentina: they understand participatory institutions as something to be actively created, and not something they are bound to be passive respondents to. These efforts can be playful: Decentraland, a blockchain-based MMORPG, is an example of this. But Kleros, a blockchain-based jury system, aims to fulfill concrete, practical purposes.

This imaginary is tied to an assertion of the “true meaning” of value. Participatory institutions are seen as rectifying value and engaging in an ethical and desirable way, in contrast to legacy institutions who behave in extractive ways. In the case of participatory institutions, value is not just linked to profit-making. It constructs a new world in a meaningful way, either by democratizing access to financial products or by enabling new ways of social interaction that are seen as beneficial to the community. Preserving this correct idea of value, as described in chapter 2, is a collective and social effort. Participatory institutions are tied to markets: they exist in blockchains, closely linked to token transactions. However, markets themselves are “too human:” they are tied to human transactions, which are at risk of being tied to emotional biases. A collective effort is tied to the blockchain’s technical promise. In other words, participatory institutions are not devoid of humanity.

Blockchain enthusiasts are not the first ones to argue for the centering of individuals’ value in opposition to oppressive institutions: while many in Argentina’s blockchain community would probably shy away at this comparison, their account of value and ownership echoes Marx’s (1978a), who argues that the worker is alienated from their own labor and value is unethically extracted from the individual. Communism as a horizon for Marx is seen also as a collective endeavor. Marx sees the revolution of the proletariat as the way to achieve this,

blockchain enthusiasts see writing code and engaging in valuable projects as the necessary praxis.

In sum, the imaginary of participatory institutions can be described as one of a collectively constructed world where individuals own their value and non-coercively “opt in” to institutions they trust. To really understand how this is imaginary is potentially impacting the practice of institutions, I will analyze Whitepaper Tango, which sheds light on how public institution leaders are interpreting this vision.

Whitepaper Tango

Whitepaper Tango outlines some points for an identity protocol based on decentralized nodes. It establishes five levels on the architecture of the solution, to be based on decentralized identifiers (“DIDs”) (*Gcba/Identidad-Digital* [2022] 2022). The published whitepaper is not the finalized solution, but a series of initial pointers: at every “level,” the initial version of the whitepaper outlines the necessary components to be “co-created” with the community. The whitepaper can be a useful window into analyzing how the city of Buenos Aires, a traditional public institution, interprets the cultural relevance of the blockchain and stabilizes the imaginary of participatory institutions into a potential public policy.

In chapter 1, my informants saw blockchain as affording the re-centering of individuals. This value is prioritized in Whitepaper Tango. Its summary begins with the following statement:

In the digital world, it is common to hear that having data gives power to those who control it. Identity information, in particular, is perhaps the most important data record relating to an individual or organization that exists. Today, however, access and usage of these records is beyond the control of the individuals they identify. The power and control is on the side of the entities that keep the information, not on those who refer. The true bearer of the identity is relegated, with no idea of where their information is, who has access to it, or what it is used for. This is why, from the GCBA, we invite the community

to co-create a new digital and self-sovereign identity protocol with the user at the center and in control of their information.

The whitepaper aims to make an intervention in how identity is managed globally, by all stakeholders involved in this task. The paper is published by a government official in the government's Github official repository, but it has implications beyond this specific institution: the proposed project would transform how this data is managed both by governments and companies. The intervention is tied to a vision of ownership and control of users over their data, which very much echoing the visions of mistrust over government information-holding shared with me by my informants when deciding to use non-custodial wallets, but also tied to the mistrust of traditional finance organizations that extract value in a way that is perceived as unethical. This vision of ownership around value, as argued in the section before, is key to participatory institutions.

The whitepaper also echoes the idea of “fluid anonymity” outlined in chapter 1. In its proposed vision, users would be able to choose what data about themselves they would like to share with another party without having to present their full government identification. This is similar to how individuals choose to express their identities fluidly in the blockchain and cryptocurrency community, as reviewed in chapter 1, and to how they participate in communities supported by different platforms that afford different levels of anonymity, as reviewed in chapter 3. It also engages with the creative efforts to transform these institutions: the whitepaper mentions Proof of Humanity, a decentralized identity system based on the Ethereum blockchain surveyed in chapter 1, as one of its inspirations, and Diego Fernandez' thread includes a tag to Santiago Siri, Proof of Humanity's co-founder.

Whitepaper Tango also provides a reflection on trust-building through technological systems:

In an interaction between two parties, knowing and verifying the identities of the parties involved is a necessary condition for building a bond of trust. This link is a fundamental aspect of social, commercial, and public-private relations. The first step in any interaction is always to verify the identity of the parties involved. (...) For the first time in the history of humanity it is possible to create trust frameworks by purely technological means (...).

This fragment is useful to explore a key question: what “problem” is the government trying to “solve” through “trust frameworks by purely technological means”? The justification is both practical and ideological. In terms of practicality, the whitepaper mentions higher efficiency and less time spent, a common framing in “smart city” discourse. But much more space is devoted to an ideological justification. The whitepaper says the project aims to “empower individuals and evolve towards a paradigm where individuals and society are the social guarantors and not a few centralized entities.” The distribution of power is seen as a normatively desirable horizon itself. Another aim is to “strengthen/upgrade/enhance [potenciar] relationships between individuals and institutions (public and private) based on trust, with a technological backup backed by the users themselves.” Once again, control over data is tied to a vision of empowerment, and about “thin trust” (Putnam 2000) between stakeholders in a society being restored. Another outlined goal can be defined as simply imaginative: to “enable new ways of doing business, sharing information, and providing access to government services and resources. Whoever wants can develop and build on the basis offered by this protocol, opening innumerable doors to new projects and methodologies that involve identity as a fundamental factor.”

The whitepaper embraces co-creation in two ways: by arguing that the paper is open to being written with the blockchain community, and by proposing the creation of an “open ecosystem” of development. The whitepaper proposes a “second level” of interaction with the protocol where different wallets and digital agents, akin to those surveyed in chapter 2. This vision is identical to the one afforded by the blockchain. While in traditional public institutions

the ways of engaging are predefined and inflexible, the artifacts surveyed in chapter 2 allow users to make decisions over their engagement with the blockchain, depending on their off-chain socio-political ties.

But furthermore, the whitepaper embraces participatory institutions by envisioning the creation of an open ecosystem where users “opt-in” to institutions. The role of government, therefore, is presented as shifting from the monopolist of public infrastructure to a peer-like partner that can benefit from its privileged position to contribute to the collective good:

Although there are numerous attempts to implement self-sovereign digital identity systems, the intrinsically community component of this concept implies the need for a critical mass of users for its real and effective operation. This is why a state, given its institutional powers, is probably the best body to kick start this new paradigm, guaranteeing massive adoption through the official implementation of the system. Once this is achieved, society as a whole will benefit, as it will be considerably simpler to build new protocols on top of or in parallel to it.

This vision of public institutions is radically different to the traditional vision of the government as a centralized trust mediator, as described by Fukuyama (1996). The government is not seen as the facilitator of trust between strangers, but as a co-producer of technological systems that mediate trust.

Discussion

This thesis has explored cryptocurrencies and blockchain technologies in Argentina to understand the role of the blockchain as a technological trust mediator in the context of a culture of mistrusted public institutions. By focusing on practices, perceptions, and social bonds, it has identified that cryptocurrencies are not seen solely as a more efficient way of exchanging tokens, but as a window into imagining and creating more ethical worlds that are guided by values like decentralization and value ownership. “Blockchain worlds,” however, coexist alongside the off-chain world, regulated by legacy institutions. As I reviewed in chapter 3, it would be a mistake to

trace a stark distinction between the “trust-centric” off-chain world and the “trustless” blockchain: how users engage with cryptocurrencies is tied to one’s social capital and one’s perception of the government, among other factors. However, this does not mean that governments do not react to the emergence of blockchain technologies. As I argued in this chapter, public institutions like the city government of Buenos Aires are interpreting an imaginary of participatory institutions by presenting the government as part of a larger ecosystem where functions that once belonged exclusively to the state, such as validating identity, are purposefully delegated to market-based technological systems.

Future studies can explore how this incipient imaginary is stabilized by policymakers and company officials. This thesis has mainly explored the discourse of decentralization and its implications for public governance and has not fully considered how this discourse contrasts with material reality. How participatory are participatory institutions? What new power relations emerge? Who is left behind in these changes? What are the ethical implications of officially incorporating market-based technological systems for public service provision? More studies in this discretion can inform how governments adopt blockchain technologies, which will be especially pressing as governments (as happened in El Salvador, and as has been proposed in Uruguay) move on to accept cryptocurrency as legally admissible currency. Further studies can also explore how blockchains and cryptocurrencies are transforming the governance of other institutions beyond governments, like companies or nonprofits. As numerous institutions consider adopting technologies like DAOs for decision-making, the incorporation of this technology will certainly have underexplored ramifications.

Lastly, cryptocurrencies and blockchain technologies can be seen as a window into exploring a change in the media ecosystem. Concerns with decentralized infrastructure,

ownership of value by individuals and communities, and autonomy and liberty are very much different to the values that have guided the development and commercialization of network technologies in the last two decades. Dismissing these technologies too easily would be a missed opportunity to critically understand a potential moment of transition in media.

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