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Data money makers: An ethnographic analysis of a global cryptocurrency community

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Abstract

Proposed by an unknown young man using the pseudonym Electra01, Electra appeared in the cryptocurrency markets in 2018. Thanks to its innovative supply mechanism, the money's market capitalization briefly reached 136 billion USD, surpassing Bitcoin in value. Focusing on the empirical case of Electra, a project that was chosen as the "best cryptocurrency community" by the users of world's largest exchange, Binance, this paper ethnographically analyzes the sociological universe of a cryptocurrency community. The research consists of two years of fieldwork, interviews with the core team and the project's anonymous founder, a survey among its community members, and computational analyses of the interaction data of the project's Twitter community of 376,600 handles, as well as their Bitcointalk forum. The paper approaches the socio-technical universe of a cryptocurrency community by examining the devices, networks, and representations that the community actors produce, use, and maintain in data-money making and proposes a way to make visible and examine centers of power in a global community operating a seemingly "decentralized" blockchain.

KEYWORDS
blockchain, community, cryptocurrency, data money

1 | INTRODUCTION

Since their emergence in the late 2000s, cryptocurrencies have been attracting ever more academic attention. This initial interest, seeing them either as revolutionary (Tapscott & Tapscott, 2016) or as a scam (Guardian, 2018), has now been replaced by a more nuanced multi-disciplinary approach to their universes. Informed by a global fascination with cryptocurrencies' phenomenal price movement, micro-economic approaches have dominated the research agenda on these data monies. Focusing on cryptocurrency trading, and thanks to abundant data concerning price movements, most research on these monies treats them like any other asset or commodity class. Studying their trading movements (Kyriazis, 2019), assetization and pricing (Giudici & Abu-Hashish, 2019), pricing volatility (Katsiampa et al., 2019), and derivation (Akyildirim et al., 2020), these approaches operate on the assumption that there is no categorical difference between pork belly and bitcoin when it comes to understanding market goods and their prices.

Sociologically informed research disagrees. Building on an empirically demonstrated thread of analysis that has explicated the social nature of monies and economies (Callon, 2021; Dodd, 1993; Fine & Lapavitsas, 2000; Hart, 2000; Polanyi, 1944; Zelizer, 1994), new research on cryptocurrencies has proven the persistence of money as a social process, made and repaired by new and old political institutions (Caliskan, 2020a; Dodd, 2017; Maurer et al., 2013). Seemingly apolitical and trustless blockchains are shown to be embedded in relations of power (Bodó & Giannopoulou, 2019; DuPont, 2017; Gandal & Halaburda, 2016), with accounting mechanisms that draw on highly political considerations and even oligopolistic tendencies (Brunton, 2019; Swartz, 2017).

Within this burgeoning literature, a thread of research has begun to look at new economic communities that come together around a cryptocurrency in order to realize it. Scholars have argued that these communities have been producing a new money form in legal terms, "the non-sovereign fiat currency" (Nelson, 2020), built on/by an assortment of social institutions, infrastructures, and networks that make data monies possible in the first place (Crandall, 2019; Rella, 2020; Thieser, 2019). Approaching crypto monies as community experiments, scholars have focused on the primary role that collective actors play in realizing data monies and have analyzed the nature of forum interaction (Tarasiewicz & Newman, 2015), ideological tensions (Megan et al., 2019), economic imaginaries (Arjaliès, 2021; Swartz, 2018), patterns of organization (Andersen & Bogusz, 2017), failed projects (Caliskan, in press), crypto entrepreneurship (Bogusz & Morisse, 2018), community impact on price movements (Breidbach & Tana, 2021; Walton & Johnston, 2018), governance (Spithoven, 2019), relations of solidarity (Diniz et al., 2020), and mining collectives (Xu et al., 2020).

I approach cryptocurrency as data money. I define data money as a historically novel and materially unique money form that draws on imagining economic value on the right to send data privately and exclusively. Unlike paper and metal monies that draw on transferring papers and metals, or their digital representations like the US dollar one sees on a computer screen, Data Money draws on the materiality of financializing the right to send data privately in a public space called blockchain. This study treats blockchains as actor-network accounting infrastructures that facilitate the imagining and transfer of economic value, by computationally representing this value as a right to move data securely. Miners or blockchain accountants account for the movement of data monies, and receive data monies like Bitcoins as a compensation for their work. Digital representations of fiat currency such as US dollar are digital currencies that are still fiat and substantively different from cryptocurrencies. Thus, seeing cryptocurrencies as mere digital money or digital currency leads to flatting of the categorical difference between paper, metal, and data monies whose material political economies carry categorically different implications for economization and marketization relations.[1]

Contributing to the recent ethnographically informed research on cryptocurrency communities (DuPont, 2019a; Rella, 2021; Swartz, 2020), this paper analyzes the socio-technical universe of a data-money community, a coming together of around 10,000 individuals who live in various time zones all over the world and work around the clock to make a cryptocurrency called Electra Protocol. The research draws on three strategies. First, I surveyed Electra's 254 leading members, who represented more than half of the core actors that shape the courses

of action in the community. Their answers present a picture of the demographic characteristics of this community and their general take on cryptocurrency economies. Second, I carried out a computational text analysis of Bitcointalk's Electra forum that illustrated a variety of concerns that marked the main contours of discussion and contestation in the community. Complementing this, I carried out a network analysis of all Twitter interaction data among the 18,600 followers of the handle @ElectraProtocol and their 358,000 followers, be they groups, persons, or bots. This analysis enables us to locate and visualize the community's relatively more powerful actors and clusters. Third, I have carried out fieldwork within the Electra community since March 2018, as participant and non-participant observer in a variety of group platforms, and I conducted 53 unrecorded interviews with central actors of the community, including its anonymous founder Electra01 who agreed to meet me also in person.

The paper presents three clusters of finding. First, employing an interplatform perspective (i.e., considering all operative platform participation from Discord to Twitter in a single framework), and focusing on a general sociological approach to the community's networks, the paper presents visual representations of all actors within the Electra community, underlining the concentrations of power in rapport with the actors' own description of these relations. Presenting an introductory demographics of the people who make Electra, we see among these "open" communities, the unprecedented dominance of well-educated men who live in the West. We observe that there exist clearly identifiable centers of power in these "decentralized" financial infrastructures, marked by education, gender, and geographical location.

Yet, these communities are also open to address such asymmetries: After seeing the survey results which I made available to a few key community leaders, they decided to take a number of concrete steps toward inclusivity, equity, and diversity, by deploying *everyday performativity*. Such a development calls for a rethinking of questions of economic performativity, which takes place between scientific practices and economization processes on the ground (Caliskan & Callon, 2009; Callon, 2007; MacKenzie, 2004; Polillo, 2020). Everyday performativity facilitates change and design interventions in actors' economic practices in the context of data money-making communities' daily routine of reading scientific accounts of their universe. This form of performativity is different from institutional performativity that scientists overserved in options markets whose design of trading architecture draws on econometric formulas like Black and Scholes (MacKenzie, 2004). Institutional performativity is infrastructural. Actors have to operate on the spectrum that such performativity defines. Whereas, everyday performativity depends on actors' choice and is everyday practice based. Actors *chose* to deploy specific scientific knowledge to tweak or redesign their economic interactions.

Second, drawing on a computational text analysis of forum discussion content, the article identifies the most frequently used words and interprets the results with a second derivative analysis of plotting the most frequently used social scientific terms in these discussions. We see how these communities were focused on a number of topics such as valuation, prices, and tokenization, given that they used "community," "exchange," "market," "work," and "money" as the most frequently cited social scientific concepts in their discussions. This discussion moves beyond a descriptive account of the unintentional distribution of actors' intentional choice of concepts and renders visible which actors' intentional utterances carry more power. Offering a second visualization of the same community, this time by analyzing Twitter data, the findings present a more nuanced understanding of intercommunity relations of power. We see that it is not who posts the most frequently or who is followed by the largest group that enjoys more influence in the community, but those who help build clusters and then bridge them to others that are more powerful.

Third, and rather surprisingly, the findings also show that it is not the most influential Bitcointalk forum or Twitter actors that have the largest influence on community affairs, but agents who manage to control and shape the Discord group, i.e., "the parliament of the community affairs," as one community member put it. This is the digital material place where coding and design decisions are made, following a deliberative process created by a variety of subgroups. However, like in a parliament, the process is deliberative and still requires actors' decision to take concrete steps in an open accounting and public blockchain like that of Electra. We see that the agency of actors on Discord is so powerful that these actors can even induce a vast digital-material migration of the

community, as happened to Electra. As I discuss and analyze elsewhere (Caliskan, in press), Electra (ECA) collapsed in November 2020 when its anonymous founder sold his hundreds of millions of Electras, effectively killing the project and pushing the value of its money to zero. Yet, within a few days, the community left the founder behind and moved on to a new project, giving (re)birth to their community money, this time called Electra Protocol (XEP). This entire move was planned by a handful of individuals in the core team and administered by the 369 members of Electra's Discord platform, and then followed by thousands of Electra community members from all around the world.

In conclusion, the paper discusses fundamental motivations behind the economization practices of community actors, as they pursue interests and propose ways of describing such interests and practices. We see that in this new money community, actors work many hours a week, mostly for free. So far, it has been impossible for these central actors to make money out of Electra, whether as ECA or (now) as XEP. Three motives seem to incentivize their unpaid and arduous labor: hope, joy, and knowledge.

We still know too little about these actors of new economic universes, such as those of data monies, whose market capitalization exceeded USD 2.5 trillion in May 2021. Who are they? How to describe their class, gender, and ethnic composition? What motives and interests inform their behavior? How do these dynamics inform the future constellation of economic and financial activity in the world? It is beyond the objectives of this paper to present a general answer to these questions. Yet, this limited yet detailed study on the socio-technical universe of one data-money community presents a snapshot of the answers, as they are articulated by Electra and its makers.

2 | NETWORKS: A GENERAL LOOK AT THE ELECTRA COMMUNITY

Everything started with an idea, developed by a young man, announced over a personal computer. On March 30, 2017, following a year of preparations, Electra01 proposed a new cryptocurrency and its blockchain on a Bitcointalk forum page. Following the footsteps of Bitcoin's founder Satoshi Nakamoto and anonymizing his name after the cryptocurrency he created, he simultaneously initiated a forum, a money, and a blockchain. His aim was a successful valuation of the money that he proposed. For the value of money to be effectively entangled in such relations, an accounting infrastructure needed to be constructed for its transactions. The blockchain made such transactions possible. Yet, he knew that, without a community, monies could not be exchanged. And without a forum, communities could not gather. Much like Nakamoto, he needed them all. It is not a coincidence that Nakamoto had also started his project with the trilogy of forum, money, and community. It worked for Bitcoin, and it was going to work for Electra, for a while.

His Electra drew on an interesting idea: Instead of a slow and energy-costly mining process like that of Bitcoin, he planned a mining big bang to take place in a matter of hours. At the end of this process, 95% of all proof-of-work Electras would emerge and be owned by miners. If people found the idea interesting, then they would rush into what he called a "Super Rewards Bonanza," thus beginning to value the money. This push effect would then be balanced by a pull device: If miners kept their Electras, they would earn a very high interest rate, initially set at 50%, thus incentivizing keeping a stake in the money. This proof-of-stake currency would then have enough time to build its community, as people loved or hated it, but still conversed about it in its forums.

Everything went as planned. The value sky-rocketed for a short while, making Electra01 a theoretical billionaire. As the effect of the "Bonanza" faded, the pull mechanism kicked in, convincing miners to keep a stake in the money and wait for a while. In the meantime, Bitcointalk's Electra forum pages began to be more active, bringing together dedicated followers. Eventually, a new leadership began to form, with Master Den becoming one of the emergent leaders of this community-building process, or, as one Electra-owner described him, the "glue of the community." He had approached money-making from another angle:

> I realized that technical stuff was secondary to cryptos. What comes first was the community. So, I decided to build a community for a crypto project, instead of offering a new crypto by myself. It was easy to code a crypto; it was very difficult to make a community money. One had to bring together digital infrastructures, tools, filters, organizations, and people. This was similar to the power projects that I led as an electrical engineer.

Building and developing a community entailed preparing an interaction infrastructure. Securing Electra01's support, Master Den reached out to other active members and began to contribute to making a community out of followers. He opened Telegram, Facebook, and Twitter accounts. He built the project's Discord group, a popular platform with interactive chat, video, and audio-conferencing functions, specialized meeting rooms, a toolbox for developers, and file-sharing links. As these networks and devices are made and/or adopted, more "followers" turned into "community members." As they grew, a "core team" emerged, using the analogy of a system or a planet with a center.

A term used by many other data money or gaming communities, "core team" refers to a handful of very active members who maintain community relations, develop, and repair tangible and intangible infrastructures and networks, write and improve the code and data infrastructures, and represent the community in forums—in short, they are responsible for the management of the entire project, and when it comes to this specific community, they even plan and execute its digital emigration. As I have discussed in detail elsewhere (Caliskan, in press), following a fundamental controversy between its founder and the core team on the project's future, Electra collapsed in value as Electra01 sold off his hundreds of millions of Electras in November 2020, effectively killing the money that he had helped create. Within a short period of time, however, the community left the founder behind and moved on to a new project, disassembling all infrastructural formations and remaking them, giving (re)birth to their community money, this time called Electra Protocol.[2]

The core team also identified a second tier of people, who led collaborative projects yet did not have the time to meet every week on Sunday. These "Electrans" took on many responsibilities and reported to the core team. Over two years, the core team increased to fourteen persons; the community now included a professional editor, designers, community managers, a head moderator, 25 Electrans, and more than 430 members who had the privilege to join Electra's strictly moderated and controlled Discord group. Also, there were 18,600 Twitter followers, 8,000 Telegram users distributed across 13 channels, each using one of 11 different languages,[3] and many Facebook, Reddit, Medium, LinkedIn, and Whatsapp groups or pages, as well as a few advisors, including myself. Reading my work, they had decided that the money they were making was indeed "data money" and asked me to advise them, giving me an opportunity to observe their everyday life more closely.

In Figure 1, strategic designer Nishant Wazir and I propose a visualization of the Electra community, by imagining varying unit sizes, shapes, and hierarchies drawing on the data I collected. With 32,800 users, the largest community activity in terms of interactions, mentions, information-gathering, and production takes place on four platforms: Twitter, Telegram, Reddit, and Facebook. Yet, these platforms are not used for decision-making. Thus, we chose to illustrate 100 users of these platforms as one node. Discord takes the center stage for leadership, and 430 others who join conversations in a variety of Electra's Discord groups. This platform operates as a general assembly of individuals who have proven their commitment to the project. All major decisions are shaped and made there. Aiming to visualize platform hierarchies better, we chose to represent 80 actors as one node in Figure 1, propose a larger representative symbol, and locate them at the core of Electra's world in rapport with how interviewed Electra community members associate their place as closer to the core team.

We also placed two individuals among other nodes and clusters. Electra01 never chose to be an active member in any community sub-group, nor did he participate in the core team or joined hundreds of community meetings, even though he held much power thanks to the 1 billion ECAs he owned. We represented the author of this paper since he had been a member of all these platforms and joined in conversations, but never in decision-making. I was the only participant in the community who did not own cryptocurrency, either.[4] We chose not to represent the Electra Foundation, for two reasons. First, it was an organizational device proposed and founded by the core team
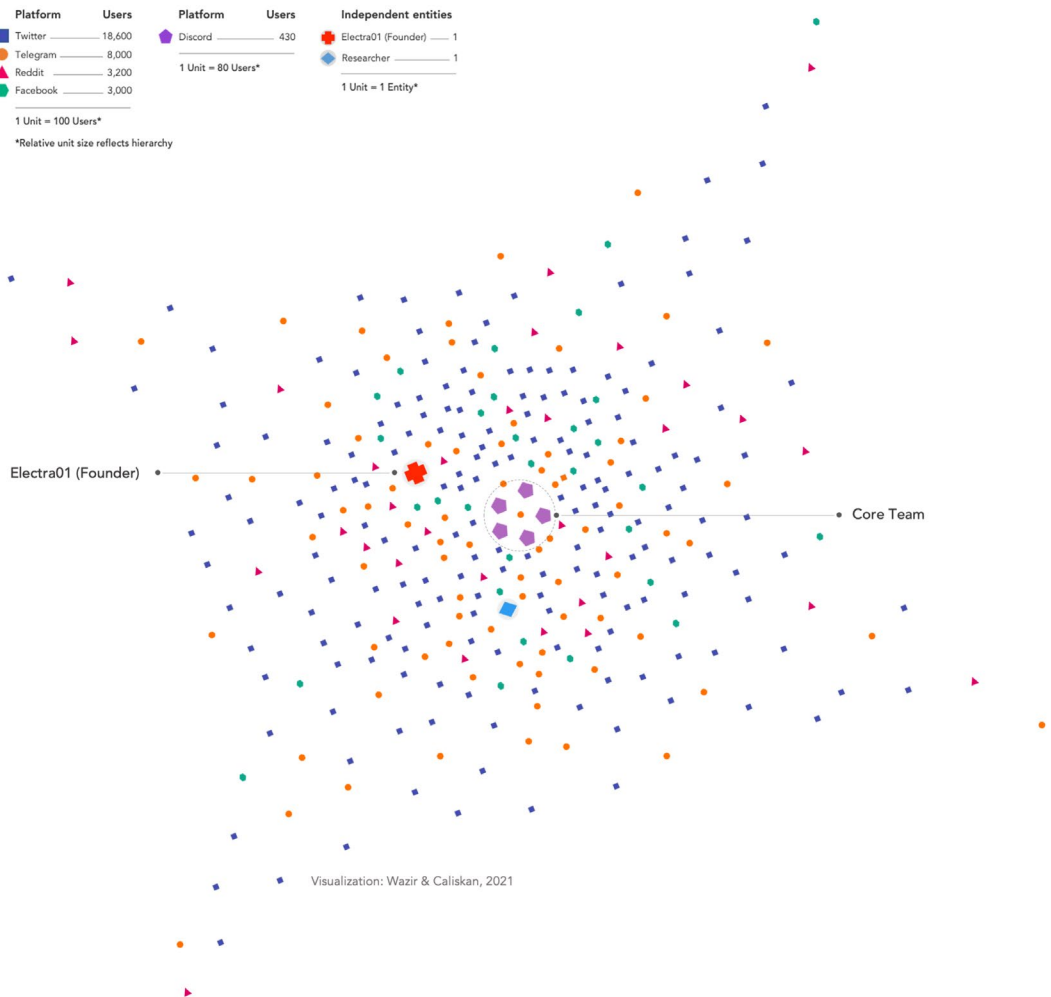
FIGURE 1 A Visualization of the Electra community

to support the project in its move toward greater transparency. Second, the community was using it to counterbalance the anonymity of the founder, which was now perceived as a liability for the growing project. It was more of a tool than an actual actor in the community. Another platform we chose not to represent is the original forum, Bitcointalk's Electra page because it had become outdated after a short while and used, almost like a personal communication channel, mostly by Electra01 whose messages were simultaneously broadcast on other channels.

This visualization also proposes many paths outside this world, connecting the graph to other crypto communities. The four edges in each corner of the visualization are populated by nodes that leave and join communities such as Electra. It would be misleading to imagine these communities as a mere coming together of platforms, for each individual keeps an assortment of platform memberships. It is not uncommon to be a member of all platforms simultaneously. My survey data suggest that Telegram's 13 sub-groups (58.2%), Discord (29.5%), and Twitter (9.8%) represent 97.5% of the most frequently used platforms among the community. This is also why I focus on the activity on these three platforms in the section below.

It is important to note that this observation draws on the survey data, not actual user membership data as seen in Figure 1.

Who are these people? They are mostly men (96%), with an average age of 37.5. As we see in Table 1, they live in Europe, USA, or Canada (75%). They joined the community citing three reasons: to make money (41%), for enjoyment (21.1%), and to learn about cryptocurrencies (20.7%). This is a mostly White, male, and Western data money community that claims to be global, open, and transparent.

The members of the Electra community are well-educated: 73.2% have a college and 31.2% a graduate degree. They typically use a pseudonym or a nickname (57.1%) in their correspondence; 22.2% use their legal name, whereas 20.6% use both. All core team members, except for Asmoth, make available their legal names and post their pictures on the project webpage (https://www.electraprotocol.com/team/). Members of Electra are also loyal to their community. Of the community members, 57% have been active almost since the emergence of Electra in 2017, while 92% of active members joined Electra in 2018 or before, providing evidence that the community is successful in incorporating and retaining anyone interested in what they do.

How active are these members? On average, a community member uses a platform at least once every 2.8 days per week and receives and sends at least one instant message about Electra on 3.5 days per week. According to the survey respondents, there are 210 very active,[5] 683 moderately active,[6] and 4,544 less active members,[7] making the community's estimation of its own active membership to be 5,437. Yet, members who are active at least 4 days per week and are thus more informed about the community estimate the total size to be 10,970.[8]

We can approach the size of the Electra community from another angle: Theoretically speaking, it cannot be more than 26,032, which is the total number of memberships of the platforms that the community uses. However, we know that most users are members of more than one platform used in the Electra community. Twitter is a good indicator of follower population, and we can assume that the Electra Community numbers below 20,000 persons. Twitter data show that the followers of Electra themselves have, in turn, 358,000 Twitter followers. These followers of followers are informed about what is going on in the Electra community on a daily basis, but they are not even inactive members of this community.

What keeps these economic actors in the community? One may think that Electra is their key investment in life; therefore, they are actively participating in the community on a daily basis. After all, they put their money in

TABLE 1 Top 10 countries of origin
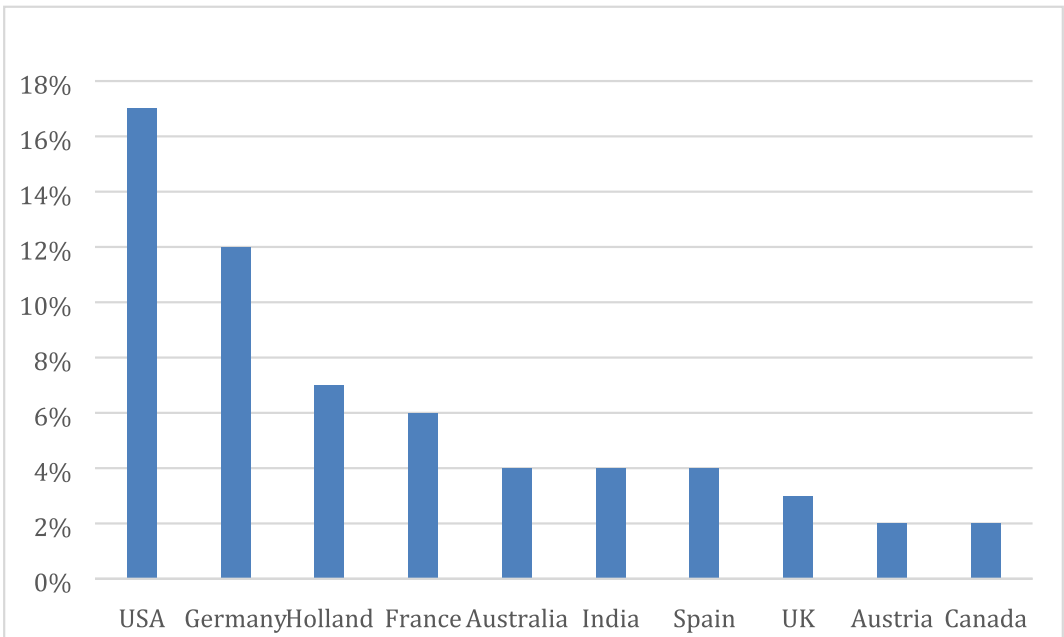
this money project. Surprisingly, this is not the case. An average Electra community member keeps only 38% of his or her entire financial assets in Electra. More than 75% of Electra members invest only 22% of their wealth in the data money they make. They are not paid to make this money. They do not keep most of their assets in it. Why, then, are they so active? To address these questions, we need to shift our attention from who they are to what they do and talk about.

3 | REPRESENTATIONS: COMMUNITY DISCUSSIONS AND PERSPECTIVES

Looking at where it all started, the Electra Forum in Bitcointalk is a good point of entry to locate and analyze specific ideas and representations that the community produces. Bitcointalk had been one of the main forums that brought together Bitcoin followers, giving them an opportunity to imagine their community and invent forms of agency and tools of realization to pursue their goals. Originally operated on bitcoin.org and then moved to its current domain, which Satoshi Nakamoto created, Bitcointalk gave birth to Bitcoin to the extent that the first Bitcoin transaction did not take place in a market but in this forum. It also introduced myriad other cryptocurrencies and forums. Economic actors used the Bitcoin blockchain to create their own and Bitcointalk pages to build their very community forums. Electra was one of them.

Electra's Bitcointalk forum emerged on March 30, 2017, with Electra01's genesis message. During the formative period, this forum served as the main vehicle for the members' interaction; later, as the community grew, as we saw in the previous section, they began to use many other platforms. The content of the Bitcointalk Electra forum can then be indicative of the priorities of the emergent community's discussions. If copied on a U.S. letter size page, its text corpus would fit on around 1,000 pages with around 200,000 words and 1.2 million characters. A computational text analysis of these pages illustrates the relative frequency of words used by the community members.

As we see in Figure 2, the most frequently used words in Electra's forum are "coin," "wallet," and "exchange," for a number of reasons. First, crypto communities usually refer to cryptocurrencies as coins because it is short, thus easy to type. It is expected for a data coin community to mention "coin" all the time since the forum is built to discuss a coin in the first place. Second, community members are primarily concerned about security, even before the value of the coin, for valuation does not matter if one fails to keep the material in which the value is imagined. The intangible material that data monies are made of is the right to send data on a digital material infrastructure.[9] The wallet is the place where the data leave and arrive as one sends or receives it, making its security even more important than a leather wallet where many people keep their paper monies. One cannot fit much into a paper money wallet, but a digital wallet can hold an unlimited value of money: One can "fit" all cryptocurrencies of the world in only two wallets, for the materiality of data money is relational: One wallet is not enough to maintain the material relational possibility of transferring the right to send data if one lacks a place to send it.

"Exchange" is the third-most frequently used word, for it is around this concept that the forum conversations revolve because as cryptocurrencies are accepted in more exchanges, it is more likely for them to gain value. The possibility of being accepted to a new and vibrant exchange attracts great attention from forum participants. Exchanges are platforms that mobilize stack economization; thus, they offer a variety of economic services to actors (Caliskan, 2020b). Such an openness may also entail security risks because platforms invite actors to use channels to enter them, thus also providing thieves with multiple channels to reach wallets, something that happens often in exchanges. That is also why community members talk about exchanges very frequently.

The second group of most frequently used words are clustered around two themes: (1) *actors* such as "team," "people," and "community," and (2) *valuation* such as "day," "staking," "project," "price," and "Coinmarket." Actor-oriented concepts, also less frequently used ones such as "dev" and "foundation," mark the agencies referred to in most of these discussions. Community members typically converse about the ways in which the Electra price can
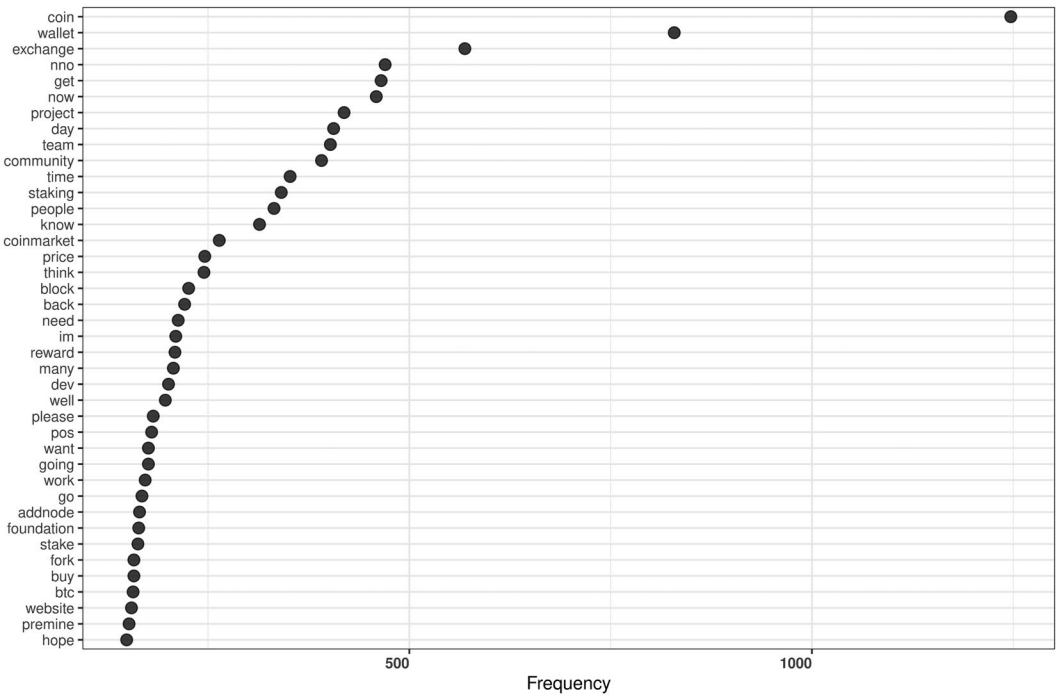
FIGURE 2 Frequency of words used in the Bitcointalk Electra forum

be valued and protected on exchange-related webpages such as Coinmarket. Time-related concepts such as "day" are used frequently in the context of valuation because *time is for a cryptocurrency value what a glass is for water.* One can only give shape to fluid, digitally represented values using the intangible material order of time to mark uniqueness on otherwise identical representations. Without time-stamps, it is almost impossible to mark a unique identity on data monies and their transactions.

Searching for frequencies is helpful, but they have limitations. What would we see in this corpus text of interactions if we pursue a controlled analysis and search for the relative frequency of concepts that social scientists use in their research practice?[10]

Presenting the conceptual infrastructure of their forum discussion, Figure 3 shows that the "community" (top concept) makes itself by talking about itself as a "community." Such a performative effect is materialized as the emergent "community" discusses its money's place in "exchanges" (the second-most popular concept). "Good" appears as the third most frequently used term, for it operates as a positive reinforcer in a community of individuals who work on a voluntary basis.[11]

Forum discussions are never mere chats. Much like in other economic contexts, actors carry out everyday research about their financial universe by being active in these forums and, thus, *work* to imagine, make, and trade value. They also use this discussion platform for the purpose of reinforcing certain perspectives. Very frequently they use "good" to incentivize others, and "bad" relatively less frequently, to disincentivize disliked behavior or perspective.

The second group of most frequently used social scientific terms are "work," "market," "money," and "development." Electra's economic actors conceive of their contribution as *work*, not a mere hobby or insignificant activity. Their primary purpose is the successful *market*ization of Electra as *money*. For this, they continuously develop devices, infrastructures, networks, and projects by reaching out to *people* and other communities around them. The *core* team works as the coordinator of these efforts that entail discussion, planning, and outreach.
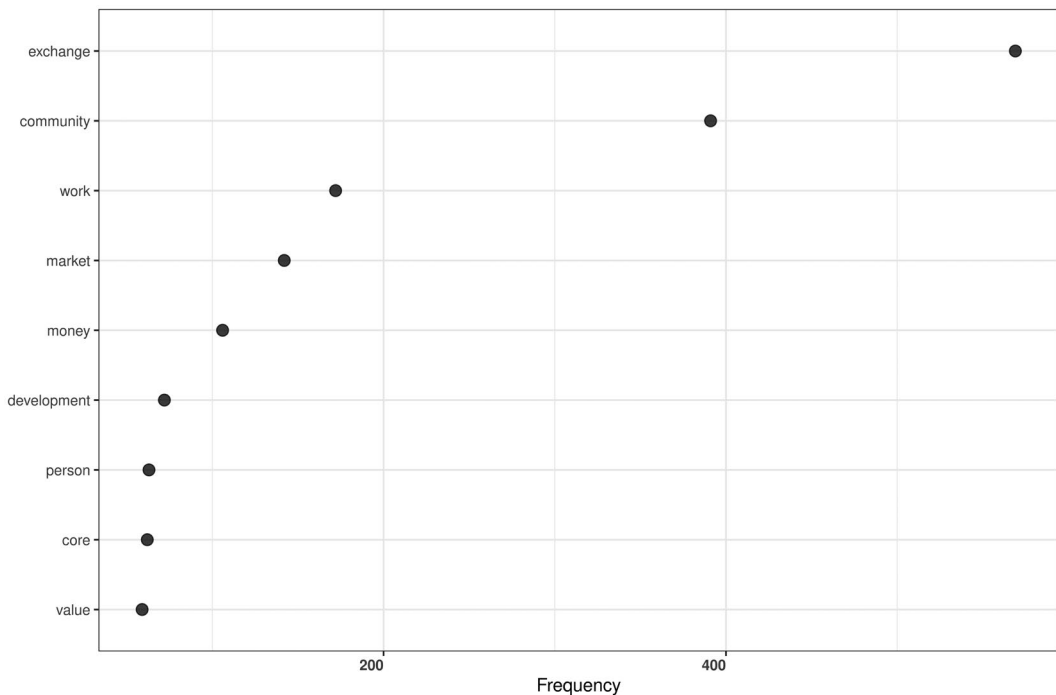
FIGURE 3 Frequency of social scientific concepts used in the Bitcointalk Electra forum

Computational text analysis gives us a general picture of an unintentional distribution of the actors' intentional choice of concepts. It is useful for putting together a bird's-eye view of the terms' distributions and popularities, but it is limited when it comes to illuminating how actors intentionally describe the worlds in which they live and which they make, as well as which actors have more power in reaching out to others. Drawing on a variety of forums where the community converses about itself, projects, practices, and futures, Electra uses a number of vehicles to describe itself. Its Twitter account is one of them. Bitcointalk's Electra forum is small, intimate, and insular. In contrast, Twitter's platform is large, public, and externally oriented. Electra's Twitter Handle describes itself as "a secure, open-source, community-driven cryptocurrency project."

Two interesting references in the handle underline the centrality of the performative aspects studied in this paper and the realities it tries to understand. First, realizing how male-dominated their community was after seeing the raw data from my research on their community, Electra decided to present itself as supportive of women's participation in crypto communities by incorporating #womenincrypto into the seat of their Twitter handle as we see it in Figure 4. In a core team meeting, they discussed some of the findings of my research about themselves. They had been aware of the problem of not having as many women as they wanted to have in their communities, but they only realized how seriously male-dominated they were after looking at this paper's survey data and decided to act. Pursuing a #womenincrypto agenda became possible in part because of this research.

Second, their Twitter handle began to present their cryptocurrency as #DataMoney, following the first paper I published on cryptocurrencies (Caliskan, 2020a). Already aware of the recent social scientific studies that my paper also discussed, they gave me extensive comments and thus also contributed to the making of the scientific statements that, in turn, had a performative effect on them. Needless to say, many community members had been following social science and technical literatures about cryptocurrencies and blockchains, drawing on an evidence-based decision-making process, everyday research, and data-driven planning as their strategy. After all, this is one of hundreds of community money projects in the world which describes itself with an academic-looking White Paper in the first place.

FIGURE 4 Electra's Twitter handle communication

How to make sense of such an interaction between professional research and economies? Studies of performativity have shown that economic knowledge contributes to the making of economic realities on the ground (Callon, 2007; MacKenzie, 2003). Empirical studies concerning these developments usually focus on larger economic universes and institutionalized actors who can deploy such economic knowledge in reality and who sanction those who do not use it, as we observe in options pricing algorithms that exchanges use. What we observe in the Electra community is *everyday performativity*, different from institutional performativities. Similar to institutional performativity, it still shapes the ways in which an entire project works, such as informing organizational devices to increase women's participation. But naming its entire community money project after a social scientific concept, such as data money, exemplifies a more engaged character of the nature of everyday performativity.

Finally, institutional performativity is more about the institutional infrastructure-building of markets and their auction mechanisms. Everyday performativity in a cryptocurrency community can be defined as a practice to incorporate scientific or popular representations to change an element of its community's universe.

For this, they reach out to a spectrum of representations from entrepreneurial discourses to social scientific studies. Community members carry out research all the time and incorporate anything that works, that they like and find appealing.[12]

Electra's White Paper and its three versions are a good example of how research and money-making in crypto communities go hand-in-hand. Publishing three papers in two years, the Electra community became the first data-money community that wrote a paper without the original founder's contribution. The paper publication has also turned into a series, each version announcing the publication of the next. The first paper was published on January 31, 2018, 10 months after Electra first emerged (https://github.com/electracoin-ECA/electra-open-paper/blob/master/ElectraWhitePaper-TheOpenPaper.md). Much like a social science research paper, it counts around 6,000 words, introducing the money, its community, and the socio-technical scaffolding surrounding them. Locating "traditional financial structures" as "darkness," it is in rapport with many other crypto projects that emerged following the 2008 financial breakdown.[13] Yet, it is neither anti-market/capitalist, nor anarchist in its political aspiration. Locating itself as "an ecosystem," (p. 12) the paper stresses the importance of collaboration, solidarity, and transparency. The ecosystem is imagined to be a community built by individuals who believe in Electra and offer their services in changing forms.

Aiming to be "the electric current of the cryptocurrency community" (p. 1), it uses tangible material infrastructure metaphors, such as the electric power grid, to describe the process of building an intangible material infrastructure in order to operate as a blockchain accounting mechanism for a global payments system. In its imagination, the main problem in the "traditional system" is its limited infrastructure to incorporate "everyone" in its making. "(R)eturn(ing) the power to the people, and assign(ing) members of the community an active role in the evolution of … economic and monetary systems," Electra wants to create "a global people's money" to serve as an alternative to the assortment of sovereign fiat currencies (p. 5). Yet, the main problem is not structural, but about accessibility to money transfer infrastructures. Locating itself as a market collective actor, the Electra Project describes its "products," their qualities and uses, and how they are made by the community itself. But it does not imagine itself to be a cooperative or socialist economization process. It is a collaborative marketization project, run by individuals who have changing power to govern the direction that the project takes.[14]

4 | ACTORS AND AGENCY IN THE ELECTRA COMMUNITY

Who are the followers of @ElectraProtocol? Who follows these followers? Whom do they mention? How to locate the most influential actors and their relationships within this community? Electra had 18,600 Twitter followers when I received the authorization from Twitter Inc. to download the data from their data bases in January 2021. These followers were followed by 358,000 handles, be they groups, persons, or bots. Many of the followers have less than 1,000 followers and, thus, only a limited reach. However, an analysis of followers who are followed by more than 1,000 handles makes visible the interactive universe of Electra's Twitter community.

An analysis of the followers' and their mentions locates several patterns.[15] We can visualize a number of clusters whose members are more connected to each other when compared to others. We can then compare similar clusters in terms of the direction of their interactions. In other words, we can see who is mentioning whom more often than not. Following these directions, we can locate *bridge actors* whose specific location connects one or two clusters with each other. Bridged clusters are more effective in community discussions than distant and unbridged clusters. By analyzing the timing and frequency of inter-cluster mentions, we can measure the proximity of the actors of each cluster whose relative size can be located in terms of its active members.[16] Such interactions also help locate the most influential actors in Electra's Twitter community. Follower counts are not necessarily a powerful indicator of influence in the community, because an Electra follower with a very high follower population may not be followed at all *within* the community, may not have an interactive cluster, or play a bridging role between various clusters.

It is not useful to look at every interaction between thousands of actors since this makes it difficult to locate effective interactions. For a community such as Electra with its 18,600 actors, it is useful to locate the interaction of nodes with 1,000 or more followers. Such a filter helps to locate effective mentions instead of all mentions because it is more possible for nodes with a larger number of followers to initiate a discussion that has a larger impact on the community. Figure 5 illustrates all the interactions between all actors with 1,000 or more followers. These 626 nodes play an effective role compared to the rest of the 17,974 actors who have a very small number of followers and, thus, less of a possibility to play a central role in Electra's Twitter community.

Figure 5 renders visible three dynamics.[17] First, isolating those actors who interact with each other more often, the visualization plots them closer to each other. Such a possibility of illustrating actors' interaction clusters also makes it possible to plot various groups in the digital community closer in geographical distance. Needless to say, geographical closeness pertains only to the digital-material geography of Electra. Figure 5 locates seven clusters, located arbitrarily in this universe-like looking design in a number of locations. The number of clusters would change if one changed the criteria of making visible these groupings. In this analysis, I aimed at analyzing an
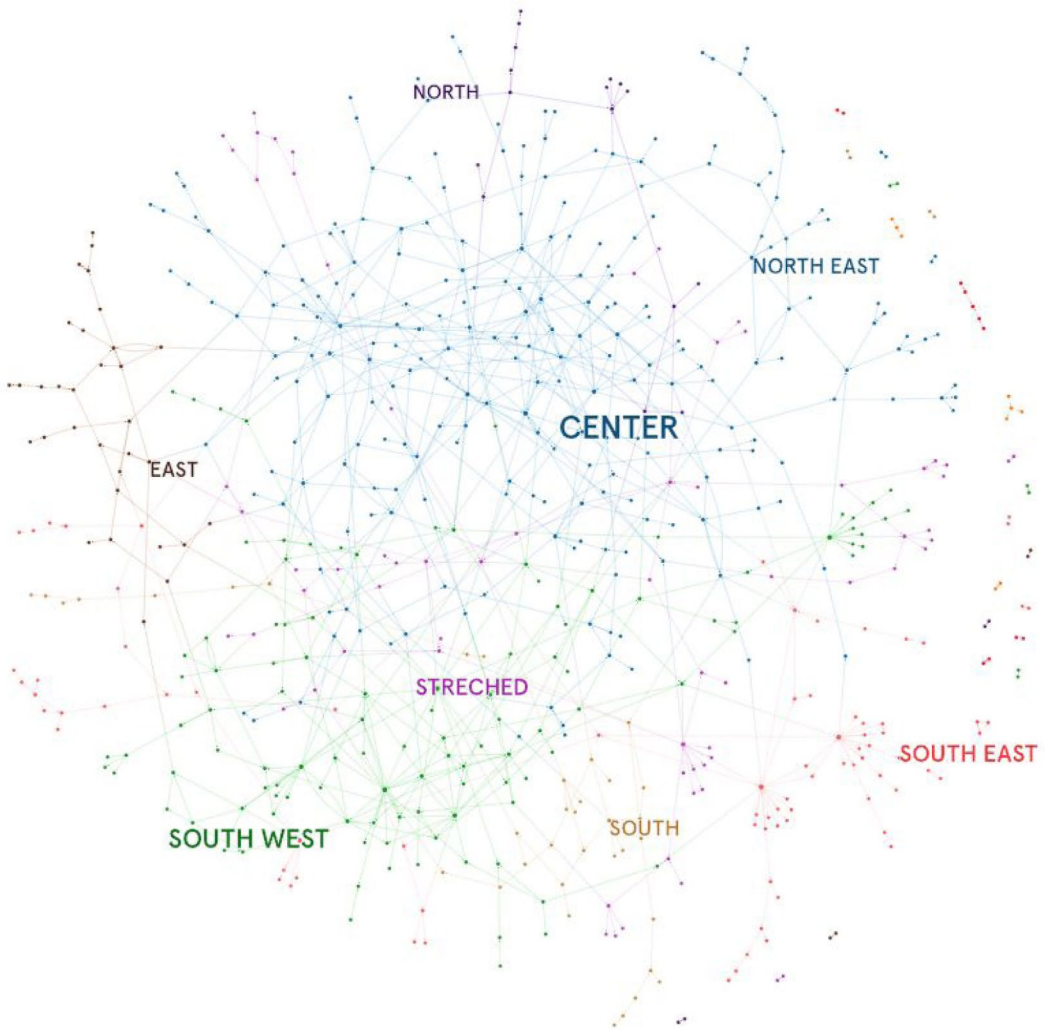

FIGURE 5 A visualization of Electra's Twitter community

optimum number of clusters with the maximum number of interactions; this allowed me to locate seven clusters which carry 93% of all mentions in the Twitter conversations of Electra followers. Following the analogical universe of the visualization, I chose to name these clusters with reference to their location within our visualization. These clusters seem to be of two types. Central clusters, composed of the Center Cluster and the Stretched Cluster have a widespread reach and carry 43% of all interactions in the community. They also connect all other clusters to each other. The second type can be called peripheral clusters, which dot the periphery of the community and are composed of Southwest, South, Southeast, Northeast, North, and East Clusters, carrying the rest of the interactions.

The second dynamic we can observe in the analysis concerns the most influential actors and the directionality of their mentions and actors' locations. A closer look at these seven clusters shows that the Twitter handles with the names humoalex, linkcrypto1, ElectraPanther, Htmlbunker_Boy, Tapatrade, bitcoins_future, pumpingAltcoin, Verge Girl, and, finally, didencu1 play a central role, as we see it in Table 2. One might think that an actor in a more central cluster would have a larger effect than one in a peripheral cluster. This is not the case. We can analyze the impact potential of a certain actor with reference to two variables: connectedness and betweenness. The former registers the number of connections that an actor has, whereas the latter refers to the frequency of mentions that an actor makes or receives.

Observing connectedness and betweenness dynamics in the Electra community helps us articulate several conclusions. It is not the follower count or centrality of actors that make them more influential in digital communities such as that of Electra. For example, Electrapanther may not be found to be an influential actor if one checks its followers. With 1,658 followers and following only 777 handles, one may think that Electrapanther is completely negligible. Yet, it is the most connected actor in the community.

Analyzing the nature of betweenness gives us an additional hint. Humoalex is followed by and follows less than 9,000 actors. Yet, he is among the top two most central actors in the community in terms of betweenness—that is, the number of mentions they receive and make. Anything that Electrapanther and Humoalex share has the largest possibility of being seen by the largest number of actors in Electra's Twitter community. There are actors with more than half a million followers in the community, but even the actor with the highest follower count of 1 million handles cannot make it to the top 100 list of the most influential actors.

Finally, the centrality of a cluster does not say much about the centrality of an actor in those clusters. Four of the top-five central actors in terms of connectedness and three of the top-five central actors in terms of betweenness are from peripheral clusters. One may be a central actor in a peripheral cluster, or a central cluster can be composed of less influential actors. It is the coming together of an actor's place, connectedness, betweenness, and location that matters the most, not a static count of followers per se.

However, one should not confuse the interactive universe of Electra's twitter community with the community itself. Twitter interactions are important when making sense of communications within the community, yet it would be a mistake to exaggerate the role that Twitter actors play in making and maintaining the community itself. For instance, Electra01, the founder of Electra Money, and Aykut Baybaş, the most central community-builder, have almost no presence as "influential" actors in the Twitter community. Except for RobertSB84 or Robert Bakker, there is no one

TABLE 2 Most influential actors in Electra's Twitter community

Connectedness	Betweenness
ElectraPanther	humoalex
bitcoins_future	davidgokhshtein
PumpingAltcoin	RoyCavalera3
humoalex	LinkCrypto1
devnullius	devnullius

in the core team who can make it to the top-10 most influential actors in the community as observed in Twitter data. Where, then, should we look for the central actors in the government of Electra community?

I asked this question to every community member I interviewed. Their unanimous answer was Discord, a popular platform with interactive chat, video, and audio-conferencing functions, specialized meeting rooms, a toolbox for developers, and file-sharing links. The holding company of Discord describes itself as a "platform designed for creating communities" and claims to give its users "the power to create your own place to belong (https://discord.com/why-discord-is-different)."

On Discord, one starts building a community by first introducing a "server." Discord provides tools to craft and design "your community" with templates, giving the community founder the possibility to build audio-visual or text-graphic channels of group and sub-group interaction. Thanks to Discord's tools of constructing hierarchies of privilege, it is possible to build a modular community interaction platform on a single communication infrastructure. Electra has many communities on Discord, and only those who introduce and develop the community—or, as it is called by Discord, a "server"—can distribute these rights.

Electra's "parliament" is located on Discord. Unlike all other forums, such as Twitter or Bitcointalk platforms on which one is only a click away from membership, it is difficult to get accepted onto Electra's Discord. One needs to be invited; then the invitee has to prove that they are who they say they are. After the invitee enters, they become an ordinary member of the assembly, with no privileges other than reading and posting general messages.

Discord's internal architecture illustrates the distribution of powerful actors better than any other platform. At the top of the hierarchy sits the core team. Its membership changes, depending on the availability of participants and their engagement levels. Unlike the *representational* leadership in the Twitter community, the *administrative* leadership of Electra as we see it on the Discord Forum carries the most power in shaping community decisions. They decided to move the community away from Electra (ECA) and to introduce Electra Protocol (XEP), the same community money under a new name. They are the members who decided the timing of the upgrades, the nature of changes, and the future direction of the community.

Yet, Discord chat is not sufficient to serve the core team members' self-assigned duties as the administrators of community affairs. Taking time away from their families, they meet every Sunday over Discord's audio and/or visual core team channel, at times with the participation of an invitee or two, to discuss and carry out decision-making.

In addition to their own take on community money affairs, it is the general Discord discussions, private WhatsApp group chats, Telegram correspondence, and other things that they read and discuss over a myriad of forum channels that inform their decisions. The professional life of a core team member of such a voluntary initiative draws on everyday research, analysis, and decision-making. The deliberative process of Electra's Discord forum draws on careful moderation and management, carried out by specific actors such as discussion moderators, coordinated by a head moderator. They are responsible for the "order" of the community discussions, trying to control for "impulsive reactions by mostly anonymous and too excited community members," as one moderator explained his job.

- What do you do if a member disrupts the order in the community?
- First, we contact the unruly member via private chat; if it doesn't work, we call or try to meet anonymously. If this fails, we have sticks to use.
- Sticks?
- I mean punishment. I can sanction a member by preventing him from posting any messages. We can even throw him out from Discord.
- How many times have you sanctioned anyone?
- One or two times. It doesn't happen often.

Actors and agency change as one changes the interaction platform. Twitter's influential actors and their groups are different from those on Discord. As actors and their groups change, so does their agency. The agency

of actors on Discord is so powerful that they can even induce a digital-material migration of the community. Yet, such a migration would not be successful if the actors of the Twitter platform did not find the same necessary. To be able to pursue different forms of agency, actors use and build a variety of platforms that maintain a distributed yet hierarchical placement of agency. The smaller and the more controlled a platform is (such as Discord), the more powerful is its actors' governing agency. The larger and the less controlled the platform is (such as Twitter), the less powerful is its actors' governing agency. Yet, as we also see in Figure 5, it is not necessarily the number of followers on less controlled platforms that make for stronger agency, but who you follow and who follows you. Representational power and the effectiveness of one's communication depends on their place in a cluster and the way in which they bridge clusters.

5 | CONCLUSION

Drawing on a variety of research strategies, such as computational text and big data analysis, ethnographical field-work and sociological survey, this paper aimed at describing and analyzing a cryptocurrency community whose members are dispersed across all time zones and continents. Such a global community operating a decentralized financial infrastructure has immediately invisible centers and hierarchies. Run by a predominantly Western, well-educated, and male membership, the very organization of the community represents centers and concentrations of power and leadership as articulated in different ways on different platforms. Twitter data analysis shows us the distribution of the representational power of a handful of actors who have a more effective communication potential, not because of the number of their followers, but as result of their location in a cluster and their bridging role between different clusters.

Yet, power distribution shifts toward a less anonymous, more easily identifiable ground when we change the platform to be analyzed. Discord brings together a tool kit and a digital-material space that helps the community build hierarchies and specialized groups of leadership that can imagine and organize an effective division of labor among themselves. We observed that none of these central actors with administrative power had been among the actors with the largest representation power in the Twitter community.

Located on changing platforms of power and with varying degrees of outreach potential, these actors also carry out everyday research to make (sense of) the world around them. The volatility of data-money prices and the novelty of the financial infrastructure (in which) they operate pushes them to be agile researchers on economic developments. They listen to talks, meet people, attend scientific and professional conferences, read, and write social and economic scientific papers, mobilizing research as an important instrument of their everyday activity.

Informing a new form of performativity, I call everyday performativity, whatever they learn can promptly be turned into a prototyped new interaction with the world around them. The research that informed this paper is no exception. Learning about the power asymmetries surrounding their community, Electra's core team decided to address them by planning an outreach drive to increase its diversity and inclusion.

Therefore, one of the three motivations behind working for free for a new money project is "knowledge." The other two are the "hope" to make money and "enjoyment." Also located by other researchers (Brunton, 2019; DuPont, 2019b; Swartz, 2020), such overdetermined motivations are the emotional fuel of making a new money community possible. Hope to make money and the fear of losing it render this community similar to other every-day trading communities.[18] However, the element of "joy" makes them quite different. All the core team members and all the actors in the community told me how much they enjoyed designing, making and building things eco-nomic on the ground. Of the survey participants, 21.1% cited enjoyment as the main reason behind their partici-pation in the Electra project, and 91% located it among their top-three reasons.

"Building a new economic thing," as Jenova, one of the core team members described it to me, was new in the sense that, despite the infrastructurally passive agency of a day trader who uses an already existing trading platform, Electra community actors take pride and joy in designing, developing, or using everyday instruments

of new economization. Michel Callon and I had defined economization as the assembly and qualification of actions, instruments, and representations as "economic" by actors who are active in the sciences and/or economies (Caliskan & Callon, 2009). Electra community members use a variety of instruments of new economization—such as various forms of voting, scientific and non-professional research, announcements, games, campaigns, gifts, and tokenization—on a variety of platforms such as Twitter, Signal, WhatsApp, Bitcointalk, and, of course, Discord, in order to make and maintain their data money making community.

One would imagine that whatever they do is all about money. Surprisingly, in their everyday life, they talk very little about money and its value. In contrast to the global hype about the sky-rocketing or collapsing value of popular cryptocurrencies such as Bitcoin and Ethereum, active members of the Electra community are not too much preoccupied with the immediate value of their or other people's data monies. As we saw before, a great majority of them do not necessarily invest in cryptocurrencies, and even when it comes to Electra, they keep only 38% of their assets in their own money.

Predominantly occupied with making economic things possible in a new way, Electra community members and their activities present the social sciences with a unique window to investigate how cryptocurrency-maker communities make monies and their transaction infrastructures possible. Despite the empirical findings of this study, we are still far away from making sense of the vast new economic terrain of more than 10,000 traded cryptocurrencies, in thousands of centralized markets and hundreds of decentralized exchanges. We still do not know how these new data money making communities of non-sovereign fiat currencies will interact with old financial institutions that control sovereign fiat currencies, how old and new money making devices will produce hybrid forms and instruments, and finally how these new communities will shape and are shaped by centralized and decentralized cryptocurrency exchanges.

CONFLICT OF INTEREST

There is no conflict of interest.

ETHICS APPROVAL STATEMENT

The research has been in compliance with the guidelines of The Human Research Protection Program (HRPP) at The New School, USA, the author's institution.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in "GitHub" at https://doi.org/10.5281/zenodo.4618865 and https://github.com/sibirbil/ElectraThread.

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ENDNOTES

[1] For a detailed discussion and definition, see Caliskan (2020a).

[2] Electra Protocol is the financial and infrastructural reincarnation of Electra, proposed by the same community who had maintained Electra. This paper observes a continuity from Electra's to Electra Protocol's community and treats them as the same community. The old Electra was left behind and now has neither a significant community nor monetary value.

[3] These languages, in order of the most to least frequently used, are English, German, Russian, Chinese, Spanish, Dutch, Korean, Turkish, Italian, French, and Portuguese.

[4] For ethical reasons, I did not own any cryptocurrency as I carried out research between 15 March 2018 and 15 March 2021, except for a portfolio of data money that I traded for research purposes; its collective worth never exceeded 100 USD. Following an unprecedented surge in cryptocurrency prices, the positions I closed in March 2018 were worth around six million USD in May 2021.

[5] I removed 2 outlying responses from the calculation because they located very active membership to be 10,000 and 50,000.

[6] I removed 21 outlying responses from the calculation because they located moderately active membership to be more than 1,000,000 or less than 11.

[7] I removed 31 outlying responses from the calculation because they located less active membership between 1 and 101 or at more than 1,000,000.

[8] Yet, these very active members are also more dedicated to the project and may tend to imagine their community to be larger than it actually is.

[9] For a detailed discussion of data monies and their differences from metal, paper, and other digital monies, see Caliskan (2020a).

[10] I used the terms from Calhoun's popular social science dictionary because it also defines and/acknowledges technical terms that are used in the technical sciences (Calhoun, 2002). For the data and R code on which this and previous plotting is based, see Birbil and Caliskan (2021).

[11] Although rarely, good is also used to refer to a commodity.

[12] These performativities at times take the shape of fictional performativities that draw on changing the way in which they see their past and future according to their interest, much like institutional actors do, such as the Bank of Italy; cf. Polillo (2020).

[13] For an analysis of the white papers of the top 100 cryptocurrency projects as of 1 June 2018, see Caliskan (2020a); for its data and R code for frequency analysis, see Caliskan and Birbil (2020). For the data and R code to analyze the terms of service agreements of the exchanges that provide a platform for data money trading see Birbil and Caliskan (2020).

[14] For a discussion of economization and its practical modalities such as marketization, see Caliskan and Callon (2009, 2010).

[15] For the data on which this analysis is based, see Simsar and Caliskan (2021).

[16] This visualization was carried out with the support of Burak Arıkan who helped me visualize the interactions via graphcommons.com, an open-source tool in network visualization.

[17] For a detailed theoretical discussion of these dynamics, see Arıkan (2016).

[18] See, for instance, Caliskan (2011) for a review of ethnographies of trading.

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