UNIVERSITY OF AMSTERDAM

UvA-DARE (Digital Academic Repository)

The value of crypto?

Sociotechnical imaginaries on cryptocurrency in YouTube content

De Keere, K.; Trans, M.; Milan, S.

DOI
10.1093/ser/mwae081

Publication date
2025

Document Version
Final published version

Published in
Socio-Economic Review

License
CC BY-NC

Link to publication

Citation for published version (APA):
De Keere, K., Trans, M., & Milan, S. (2025). The value of crypto? Sociotechnical imaginaries on cryptocurrency in YouTube content. *Socio-Economic Review*, *23*(2), 759–785. Article mwae081. https://doi.org/10.1093/ser/mwae081

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: https://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the library of the University of Amsterdam (https://dare.uva.nl)

Download date:18 Jan 2026

Socio-Economic Review, 2025, Vol. 23, No. 2, 759–785
https://doi.org/10.1093/ser/mwae081
Advance Access Publication Date: 2 January 2025
Article

OXFORD

Article

The value of crypto? Sociotechnical imaginaries on cryptocurrency in YouTube content

Kobe De Keere *, Martin Trans and Stefania Milan

Sociology Department, University of Amsterdam, Amsterdam, The Netherlands

**Correspondence:* k.dekeere@uva.nl

Abstract

In less than two decades, cryptocurrency has transformed from being an object of interest for an obscure online community to becoming a digital asset of global appeal. By acknowledging the importance of fictional expectations in the creation of economic value, this study addresses the question: How is the value of crypto imagined? Through quantitative and qualitative coding of 1921 YouTube video transcripts, combined with Exploratory Factor Analysis, this article maps out the sociotechnical imaginaries that attribute value to crypto, that are being disseminated on YouTube. This study identifies four distinct imaginaries that project a value on cryptocurrency: investment, utility, digital metallism, and infrastructural mutualism imaginary. This explorative analysis sheds light on the potential value consumers attribute to cryptocurrencies while opening new research avenues toward a better understanding of the market and its mediation by platform algorithms as potential market devices.

Key words: finance, technology, economic sociology, value, markets

JEL classification: G10 general financial markets, Z1 cultural economics, economic sociology, economic anthropology

1. Introduction

From February 2024 onwards, the total market capitalization of cryptocurrencies has remained consistently above 2 trillion USD, and by the end of that same year, it even surpassed 3 trillion USD (CoinGecko, 2024). While we lack reliable data on the global adoption of cryptocurrency, credible sources estimate ownership between 10% and 30% of the adult population in countries like the UK (10%), The Netherlands (14%), and the USA (between 17% and 30%) (HMRC, 2022; DNB, 2022; PEW, 2023; Littrell *et al.*, 2024). For such a young market, this represents a remarkable spike in interest and value.

© The Author(s) 2025. Published by Oxford University Press and the Society for the Advancement of Socio-Economics. This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (https://creativecommons.org/licenses/by-nc/4.0/), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact reprints@oup.com for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site—for further information please contact journals.permissions@oup.com.

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

The cryptocurrency market revolves around the exchange of a variety of digital assets that are based on blockchain or distributed ledger technology, without a centralized institution overseeing transactions. Crypto assets include crypto tokens (issued and hosted on existing blockchain platforms such as Ethereum), crypto coins like Bitcoin (which operate on their own independent and public blockchain networks) or stable coins like Tether (designed to have a stable value and usually pegged to the USD or gold). In this article, to refer to these digital assets, we indistinctively use 'cryptocurrencies' or the shortcut 'crypto', in line with vernacular.

This article integrates perspectives from economic sociology, media and science and technology studies to explore the question: 'How is the value of crypto imagined?' Speculation on profit always relies, to some extent, on unpredictability and a lack of information on the part of one or even both sides of a transaction. If the exact value of goods and services were predetermined, fixed, and fully knowable to all market participants, extracting surplus value would become impossible. For this reason, future value must always be culturally imagined. Otherwise, economic investment is not only stagnant but simply pointless (Beckert, 2016). Whether selling intangible goods such as search terms (White, 1981) or material commodities like cotton (Çalişkan, 2010), cultural work is necessary to marketize things and produce a belief in their future value. This holds for cryptocurrency as well. The imaginative work to attribute meaning and value to cryptocurrency is in full swing because this is still an emerging and shaky market, offering a novel and multisided product. Determining the value of cryptocurrency proves challenging, especially for non-professional end-users. While some view it as a novel currency poised to underpin a future stateless economic system, others dismiss this optimistic view, labeling it merely a speculative gamble or 'fool's gold.' Potential market actors thus face an acute question: Why is crypto valuable?

By examining imaginaries, this study maps out the diverse range of values attributed to these crypto assets. More specifically, it investigates the 'crypto sociotechnical imaginaries' as they are disseminated through the popular video-sharing platform YouTube. Given its high accessibility, YouTube serves as a primary entry point for anyone seeking to understand the value of crypto. Our empirical analysis entails a qualitative–quantitative coding of AI-generated transcripts of 1.921 YouTube videos (2013–2022) followed by a data-driven Explorative Factor Analysis of the most prevalent and meaningful keywords.

The article is organized as follows. First, we present the building blocks of our argument, exploring the literature on fictional expectations and the sociotechnical imagination of economic value. Second, we review the existing studies examining crypto's cultural meaning. We then argue why YouTube is an essential source of information in contemporary society, particularly for those seeking information on cryptocurrency. Subsequently, we describe methods of data gathering and analysis. Next, we illustrate our findings, identifying four imaginaries—investment, utility, digital mentalism and infrastructure mutualism—associated with cryptocurrencies as they circulate on YouTube. Finally, we conclude the article, including a discussing on the role of YouTube and its algorithm as a possible market device in mass retail markets.

2. The sociotechnical imagination of economic value

In contrast to (neo-)classical economic thinking on value, we view economic value as not derived from ready-made individual preferences. Hence, prices are not determined by

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

simply crossing supply and demand vectors but emerge out of culturally mediated aspirations, market devices, intermediaries, and moral constraints that together determine how goods, services, or products are evaluated (see Callon, 1998; White, 1981; Çalişkan, 2010; Beckert, 2016). To grasp the cultural nature of economic value, Beckert (2016) encourages us to pay attention to how fictional expectations through *imaginaries* produce market engagement.

Social theorists such as Anderson ('imagined communities', 2006) and Taylor ('social imaginaries', 2003) have yet mobilized the notion of imaginaries. These notions pinpoint how actors construe a collective identity, collaborate, and attain a sense of shared direction by envisioning how things *are* and *ought* to be. Imaginaries are always simultaneously descriptive and normative. Imaginaries here serve a specific economic purpose: they allow economic actors to '"transfer" uncertain future into probable futures' (Beckert, 2016, p 73). Because the outcome of any economic transaction or investment is never fully knowable or calculable, market actors need to bridge this uncertainty through imagination. As Beckert argues, fictive expectations are powerful imaginative constructs that encourage people to coordinate their decisions by providing them with the information they need to act. They serve as self-fulfilling prophecies out of which new value emerges.

While Beckert's interpretation of imaginaries as fictional expectations helps us understand how imaginaries produce future economic value, cryptocurrencies possess uniqueness by virtue of their integration with digital technology. To consider the performative power of technology, we rely on the concept of *sociotechnical imaginaries*. Similar to the notions reviewed above, these 'collectively held visions' (Jasanoff, 2015, p. 4) reference the desired future but also underscore how technological developments are important catalysts in creating this future. Sociotechnical imaginaries imply a double dynamic. Not only do they encode and depict what technologies could allow us to do (i.e. which futures they render possible), but by doing so, they also assign a value to those technologies. Technologies are not merely passive 'props' supporting people's imagination but evoke possibilities in their own, thus allowing new desired futures to be imagined while shaping them in the process. Translating this observation to our area of concern, we note how cryptocurrency is seen by holders, users, or investors as valuable, not only because they inscribe it into a certain vision of the future but because the technology behind it (such as blockchain, peer-to-peer networks, decentralized validators) also permit for a different future to be imagined altogether. In turn, these imaginaries make these technologies and the possibilities they produce economically valuable.

Hence, by watching YouTube content on crypto projects and their underlying technologies, market actors are exposed to sociotechnical imaginaries, potentially convincing them to take the leap of faith (or not) into the uncertain crypto world. Before framing YouTube's role as a prime site of information, we review how cryptocurrency has been imagined so far, according to extant literature.

3. The value(s) of crypto(s)

The crypto market is an exemplary case of how markets involve *definitional practices*, meaning that multiple actors are always actively involved in determining what the good or commodity is, how it can be exchanged and under which conditions it acquires value (Smith, 2007). Taking as a starting point the white paper that launched Bitcoin, published

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

in 2008 under the pseudonym Satoshi Nakamoto, which presented crypto as a 'peer-to-peer electronic cash system', that is, digital cash intended for payment. This longing for a new monetary system did not appear out of thin air. It emerged from the so-called cypherpunk movement, an online anarchist movement inspired by libertarian and Austrian economic ideas with shared interests in cryptography. These loosely connected individuals tested out several new payment methods that could produce a separation between money and the state while safeguarding individual privacy (Golumbia, 2016; Swartz, 2018; Dodd, 2018; Brunton, 2020).

There were fierce debates within the early Bitcoin community on how to imagine the worth of Bitcoin. Shaw's (2023) computational analysis of posts on the BitcoinTalk and Reddit fora, two popular online outlets for cryptocurrency advocates, showed how the community shares a dislike of a centralized monetary system based on fiat money and saw Bitcoin as the only alternative. However, the analysis also revealed that the discussions have since 2013 slowly moved away from these political-economic debates about the nature of money towards a focus on adoption and usability. The fictional expectation was that once people start to understand Bitcoin's utility value as a currency, it would become more valuable by the mere fact that more people would use it.

Within academia, the definition of the nature of Bitcoin (so far, the most studied crypto) is a moving target. According to Butler (2022), Bitcoin has partly succeeded in its objectives and should be imagined as actual public money. Others, however, doubt whether cryptocurrency is fulfilling (or will ever fulfil) its role as money due to a 'promissory gap' (Vidan and Lehdonvirta, 2019). Although originally intended as a trust-free and decentralized system, centralizing power dynamics are evident (e.g., 0.01% of the wallets hold about 60% of all Bitcoin) while it appears that Bitcoin principally rests on a relatively small group of very committed and trusting devotees (Dodd, 2018; Çalişkan, 2023).

To make sense of the multiple meanings and definitions that give worth to Bitcoin, Swartz (2018) distinguishes between two contrasting imaginaries: *digital metallism* and *infrastructural mutualism* (see also De Keere and Novokreshchenov, 2024). *Digital metallism* refers to how Bitcoin is partly built on the blueprint of Austrian economics, arguing that the money supply should not be set by the state but determined by a free market mechanism–money based on a gold standard figures as a better example than state-run fiat money. Within the Bitcoin community, the metaphor of gold is often utilized to illustrate mechanisms behind the Bitcoin protocol, with 'mining' (i.e. the process of validating transactions and securing the network through computing power in return for coins) being the obvious example (see also Karlstrøm, 2014; Dodd, 2018; De Keere and Novokreshchenov, 2024). *Infrastructure mutualism*, on the other hand, sees value in how Bitcoin contributes to a society that fosters sovereignty, privacy and 'mutualistic self-help organized through 'writing code' (Swartz, 2018, p. 10). We see this more anarcho-cooperativist stance in practices such as voluntarily running network nodes (that do not immediately offer a direct benefit), the use of open-source technology, and the promotion of self-custody of coins (counter to having a central party holding coins for you).

Bitcoin is, however, only one of the now about 10 000 coins listed on Coinmarketcap (the most popular online multi-crypto asset dashboard). To understand the shared logic behind this array of projects, Çalişkan (2023) analyzed the white papers of the 100 most valuable cryptocurrencies, which offers a bird's eye view of the associated sociotechnical imaginaries. Most white papers appeared to persuade, prove and educate the reader about

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

the usability, workability and value of the projects. One-fourth of the papers imagined their projects as a part of a new futuristic information age, which they contrasted to an older industrial era with a flawed monetary system to be left behind. On the other hand, Çalişkan's (2023) ethnographic study of Electra01 (pseudonym), a new crypto project launched in 2018, showed how it started as a community project. Electra01 is seen as a collective marketization endeavor characterized by the possibility of collaboratively steering the project's direction through digital participatory infrastructure, echoing Swartz's infrastructural mutualism. Similarly, the work of Dylan-Ennis and colleagues on the imaginaries of the Ethereum project (2023) shows that their crypto seems to be primarily envisioned as a collaborative project to build a 'new internet together'. Instead of the gold metaphor, ETH (the Ethereum coin) is seen as 'gas', more like a fuel that makes an engine run. Here, coins are imagined as 'productive money' (Dylan-Ennis *et al.*, 2023), supporting developers in building this new internet as a public good.

This cursory overview demonstrates how definitional struggles are central to the emerging crypto market. However, most studies have analyzed core market actors, such as Bitcoin devotees and Ethereum developers, representing a small proportion of crypto owners worldwide. Furthermore, most analyses focused on specific crypto projects (e.g. Bitcoin, Ethereum, Electro01) and their more specialized sources of information, such as BitcoinTalk, specialized Reddit fora, or closed Discord Channels. On the other hand, exploratory research indicates that many retail buyers see cryptocurrency as merely a lucrative investment, albeit volatile and risky (Glaser *et al.*, 2014; Steinmetz *et al.*, 2021). For many, crypto engagement is a type of gambling that, despite the huge risks, holds the promise of getting rich quickly. Nevertheless, any reference to this type of gamble-like imaginary seems absent within the existing literature on the meaning of cryptocurrencies (as exception see De Keere and Novokreshchenov, 2024). In contrast, Shaw (2023) surprisingly discovered a sort of 'investment agnosticism' among the early Bitcoiners active on the discussion platforms. On top of that, it can be expected that the retail side of the market is not necessarily sold to only one coin, nor are retail buyers usually relying on these specialized sources of information to understand the value of crypto.

Hence, this study addresses these research gaps by shifting focus from specific projects to the broader concept of 'cryptocurrency' as the generic genus encompassing the entire market, while also figuring as the public vernacular term for describing digital assets built upon blockchain. Second, our objective is to grasp which sociotechnical imaginaries make out the wider discursive universe on cryptocurrency. Therefore, we turn to YouTube as a more accessible source of information that caters to a larger audience. In contrast to the more specialized information platforms (Reddit, Telegram, or Discord), content on YouTube, as we demonstrate later, is not exclusively produced by crypto enthusiasts but by a diverse range of creators, including news media and educational institutions.

4. YouTube users, creators and algorithms

With over 2.7 billion monthly users in 2023, YouTube became one of the most popular content and information-sharing platforms (Statista, 2024a). In the USA alone, about 81% of its citizens use YouTube, and 54% of them use the platform daily (PEW, 2024). YouTube also has an exceptional global reach, with almost half its users coming from India, the US, Brazil, and Indonesia (Statista, 2024b).

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

Most viewers turn to YouTube for leisure, with categories like entertainment (24%), music (17%), and gaming (13%) attracting more than half its viewership (Bärtl, 2018). Nevertheless, research shows that, next to entertainment, a search for information is the second most important driver behind YouTube engagement (Khan, 2017). A US survey, for example, shows that a quarter of the population (26%) turns to YouTube for daily news (PEW, 2020). This popularity of YouTube as an information source became especially evident during the COVID-19 outbreak when its news viewership spiked by 75% because people were seeking updates on the pandemic (Berger and Chang, 2020), despite most content being of low quality or even containing medical misinformation (Chen and Wang, 2021).

For many users, YouTube is also the place to find an answer to 'how-to' or 'what-is' questions: we can safely say its content plays a role in influencing consumer behavior. People turn to the platform to get advice on products and services through tutorials and review videos, impacting the consumption of, for instance, music, lifestyle items or traveling (Cayari, 2011; Thelwall, 2021; Silaban *et al.*, 2022).

Hence, in the case of cryptocurrency, YouTube is also an important and accessible source of information, helping people to answer the question at the core of this paper: What is the value of crypto? When examining trends in relative popularity in YouTube search terms, as depicted in Figure 1, we observe that 'cryptocurrency' and 'crypto' have seen a significant rise in popularity since 2017 and have stabilized around 2020. In contrast, searches for 'COVID' show two clear peaks and then rapidly declines, reflecting only an intense interest during the pandemic's early stages. For comparison, 'travel' has consistently been a common search term, and today, cryptocurrency has reached a similar popularity level.

But the success of the YouTube platform is not only dependent on viewers but also on content creators. While YouTube restricts harmful, violent and sexual content, it otherwise remains an open platform where anyone can upload videos, no matter what the content is. However, regarding viewership, most videos are largely ignored by viewers, with about 85% of all views going to just 3% of all channels (Rieder *et al.*, 2023).

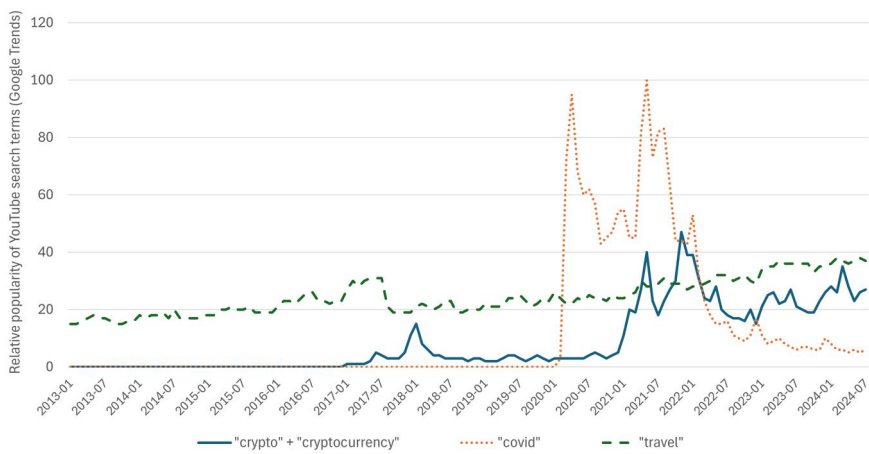

Figure 1. The relative popularity of YouTube search terms (*Source*: Google Trends).

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

Content creators have various motivations for uploading videos, from anonymously sharing information to personal branding or advertising company products or services. Some creators aim to generate income by gathering subscribers and viewers through, for example, clickbait videos, thereby directly earning advertising revenue from the platform. However, little is known about the overall monetization of YouTube content and the revenue generated by and for the creators. According to a study by Rieder and colleagues (2023), to earn even as little as $2000 a year, a channel needs at least between 10 000 and 100 000 followers, a milestone most content creators never achieve.

While the vast majority upload content for free, they may still have other vested interests in publishing their videos. Some content creators, often labeled as influencers or microcelebrities, use social media platforms to promote their own services or goods or are paid to promote sponsored content as a new and effective form of advertisement (for a literature review, see Hudders *et al.*, 2021). Also, in the financial market, including the crypto market, content creators on social media promote investment products. While much remains to be investigated regarding the impact of such 'finfluencers' (finance influencers), early research reveals that less than one-third of influencers offer 'valuable' investment advice (Kakhbod *et al.*, 2023). Consequently, it is conceivable that some influencers spread misinformation to deceive viewers for their own benefit. Several cases of finfluencer-based scams have already been uncovered in the crypto space (Stanford, 2021).

Finally, next to the users and the content creators, there is also the platform itself. YouTube is not a neutral medium; all content reaching viewers is algorithmically curated. About 70% of all YouTube watching time is determined by its own recommendation system (Solsma, 2018). It is challenging to unpack the nuts and bolts of YouTube's proprietary algorithm (Airoldi *et al.*, 2016). However, it is known that YouTube relies on syntaxial (through keywords) steered co-viewership, which is constantly updated by machine learning (Bryant, 2020). It is safe to say that the goal is to generate more watch time and increase the click-through rate (basically keeping users glued to the screen). By concealing how content is algorithmically curated, YouTube creates the illusion of platform neutrality (Gillespie, 2014). Yet, as research demonstrates, algorithms strongly influence viewer behavior through the creation of 'filter bubbles' (Bruns, 2019) leading to a narrowing of information, biases, and potential polarization.

While YouTube data do not offer insight into how it could eventually influence consumers' behavior toward buying crypto or does not directly reveal the motivations of the producers, examining YouTube content still allows us to explore the universe of possible imaginaries that the (potential) market actors can draw. In this respect, the claim is not that these are the only possible imaginaries nor that all market actors will utilize them; instead, they represent the variety of imaginaries readily accessible to a broad audience and created by a diverse range of producers with varying motivations and interests.

5. Methods

Previous studies on YouTube have either qualitatively analyzed small samples of videos or focused solely on formal features such as networks ties of titles, subscriptions, or views. To approach our research question, we formulated an original method that we now describe. To our knowledge, this is the first study to analyze YouTube video content quantitatively. Table 1 gives an overview of our analytical procedure.

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

Table 1. An overview of the analytical procedure

Analytical step	Description
Step 1: Sampling the data corpus	Using YouTube Data Tools, we sampled 50 videos per year between 2013 and 2022, selected through a 'clean' YouTube algorithm.
Step 2: Automatic transcription	Using the AI Whisper model, we automatically transcribed the videos into text files.
Step 3: Transcription accuracy	Based on a random sample of 100 videos, we manually checked for transcription errors and confirmed high accuracy.
Step 4: Abductive coding of random sample	We randomly selected a new set of 100 video transcripts and two coders independently conducted an abductive analysis, combining theory and insights from previous research. This produced a list of 218 concepts they both agreed on as being meaningful keywords.
Step 5: Descriptive quantitative analysis	Using word counts and RankFlow, we mapped the prevalence of each meaningful keyword. We eventually identified 13 keywords that appeared, as minimum, in more than 5% of the videos and remained prevalent across the studied period (see RankFlow).
Step 6: Exploratory Factor Analysis (EFA)	To uncover latent structures in the complete dataset, we performed EFA on these 13 meaningful keywords. This yielded four factors with eigenvalues above 1, explaining 50% of the variance.
Step 7: Bivariate analysis between factors and remaining keywords	To validate our interpretation of the four factors as imaginaries, we calculated co-occurrence (based on Pearson correlations) between the factors and other variables such as other keywords, views, or likes.
Step 8: Qualitative analysis of high-ranking videos	To provide thicker qualitative descriptions of each factor as separate imaginaries, we analyzed the 10 highest-ranking and thus most archetypical videos based on scores for each factor.

5.1 Sampling and corpus collection

To construct our primary data corpus, we utilized YouTube Data Tools (YTDT) (Rieder, 2015a). Within digital methods, an approach popular in new media studies, tools like YTDT allow researchers to 'follow the medium' (i.e. exploit the features of a platform) and 'think along' with the object (e.g. YouTube videos) to explore socio-cultural dynamics (Rogers, 2024). In practice, this approach supports the investigation of social media

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

through their Application Programming Interface (API, to access and manipulate YouTube data programmatically).

In formulating our search query, we selected the keywords [crypto cryptocurrency] as they would give us the broadest possible reach. In this way, any video that has the word crypto or cryptocurrency in the title, description, or list of keywords is eligible for our sample, whether it promotes, criticizes, or is neutral about cryptocurrency. This approach aimed to achieve a balanced perspective, aligning with a neutral stance (Rogers, 2024), by being open to all potential imaginaries while not favoring any in particular.

We retrieved results for videos published between 2013 and 2022 on a year-by-year basis. Not enough crypto-related videos were identified in the results before 2013. By using YTDT, we select through a 'clean' algorithm, which means that our sampling through the YouTube algorithm is not influenced by previous watching behavior. We conducted four iterations (i.e. retrieved the equivalent of four pages of results if using YouTube's interface) of searches for each year, obtaining up to 50 videos per iteration. Results are ranked by relevance, meaning that the resources are sorted based on their relevance to the search query, as determined by the algorithm. The tool queried YouTube's API, prioritizing English content and setting the Netherlands as the region, reflecting our team's location. The ranking of these results reflects the time of data collection (May 2023) and the results a user would be confronted with using YouTube's own interface at the point of capture. This means it is likely that a small amount (potentially popular) of videos may have disappeared between publishing and our collection, either through deletion, content moderation, or by being toggled as private.

Although YTDT uses the official and sanctioned YouTube API, we essentially encounter a 'denominator problem' as we do not have access to—and thus cannot analyze—the entire scope of YouTube's complete collection (McGrady *et al.*, 2023). Due to the vastness of YouTube and its constant state of change in content (Arthurs *et al.*, 2018), it is near impossible to account for all possible imaginaries related to crypto present on the platform. However, we believe our sampling strategy gives way to a comprehensive analysis whilst not claiming to be exhaustive. Above all, it offers a strong indication of what the algorithm would offer to viewers.

We used the open-source AI Whisper model on a local server to transcribe our videos. This approach ensured high accuracy, particularly in capturing cryptocurrency-specific terminology. For instance, Whisper correctly transcribed 'DeFi' (Decentralized Finance), often misinterpreted as 'D5' by YouTube's built-in models. To enhance Whisper's performance, we incorporated domain-specific vocabulary and non-dictionary terms commonly used within the crypto community, as identified in previous studies (refer to the literature review above). This list of words was injected through a specific and consistent prompt. This approach ensured that Whisper recognized and accurately transcribed these specialized terms, which may not have been effectively recognized by standard automatic speech recognition (ASR) models. To validate our transcription method, we comprehensively evaluated a randomly sampled subset of 100 videos (5% of the total corpus). Two independent annotators manually checked the transcriptions by listening to the audio of each YouTube video while closely reading the corresponding transcript. We looked for transcription errors such as spelling errors, missing words, incorrect words, and extraneous words (i.e. misinterpreting jargon or colloquial words) and found hardly any significant errors, confirming high accuracy. To enhance reliability, the dataset of transcripts is available upon request.

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

5.2 Method of analysis

Given the explorative nature of the study, we adopted an iterative approach involving qualitative and quantitative rounds of coding and interpretation. In the first round, we randomly selected 100 YouTube videos for in-depth analysis, using in vivo coding by two independent coders. Here, our coding was neither strictly inductive nor purely deductive. Instead, guided by theory and previous literature, we simultaneously allowed codes and themes to emerge organically from the data, following an abductive approach (Tavory and Timmermans, 2014). The coders, already knowledgeable about cryptocurrency, applied their understanding to interpret emerging patterns. This approach enabled us to ground our interpretations in existing theoretical frameworks while remaining open to new insights. We also rigorously searched for counterexamples that could challenge prevailing narratives or reveal overlooked aspects. Based on this analysis, we jointly created a list of meaningful keywords with variations (n: 218; Supplementary Appendix C for an overview), which was used for a second round of quantitative coding.

In the second round, we mapped out the prevalence of meaningful keywords over time using word count and the RankFlow tool (Rieder, 2015b). Additionally, we aimed to uncover latent structures that explain the interrelationships between these keywords. For this purpose, we chose Exploratory Factor Analysis (EFA), a method designed to identify dimensions underlying initially unobserved patterns in the data. EFA gauges degrees of correlation among variables (in this case, the identified keywords) and groups them into factors. EFA allows for empirical and independent determination of interrelations between different variables based on factor loadings (Kline, 1994). Interpreting the significance and conceptual meaning of these factors, on the other hand, is always left to the researchers. While EFA is commonly used for attitudinal survey data, it has successfully been applied to interpret large amounts of textual data and relationships between keywords (Sinnreich *et al.*, 2021).

We chose EFA over the more commonly used topic modeling approaches since the latter did not yield meaningful results. This is likely due to the relatively low number of transcripts for such an analysis and YouTube videos' natural, unstructured language. Additionally, as Nikolenko and colleagues (2017) point out, topic modeling can encounter sparsity issues when vocabulary sizes fluctuate in the corpus documents over time. This is the case with our corpus spanning over a decade, including very long and short transcripts.

Finally, these factors were used to rank YouTube videos so that we could identify the top-10 highest ranking and thus most archetypal videos of each sociotechnical imaginary. These were then used to qualitatively validate and illustrate the factors that emerged from the EFA, offering a 'thicker' description.

5.3 Description of the dataset

Our data set includes 1921 YouTube videos across 15 video categorizations, totaling over 338 h uploaded by 1214 different YouTube channels and more than four million transcribed words. Some channels in our data set are solely devoted to cryptocurrencies, such as Altcoin Daily (1.5M subscribers) and Binance Academy (158K subscribers), but there are also channels belonging to popular finfluencers like the Pushkar Raj Thakur (12.6M subscribers) or Lark Davis (580K subscriptions). Next to that, the sample contains many educational channels such as TED (41.1M subscriptions) or Explained (105K subscribers) and news media like CNN (16.6M subscriptions), NBC News (10M subscribers) or CBS News

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

(6M subscribers). Finally, there are several university-based channels, such as MIT Tech Review (92K subscribers), LSE (246K subscribers), or University of Sydney (40K subscribers).

Regarding self-assigned video categories, about one-fourth of our sample contains science and technology videos, followed by blogs, educational videos, and news and politics (these three categories together comprise 68% of the sample) (see Supplementary Appendix A). Again, there is significant variation in audience engagement regarding viewership, likes, and comments (see Supplementary Appendix A). On average, the videos garner 283 000 views, with one video reaching up to 17 million views. This video, titled "How Cryptocurrency Works," is published by the popular comedy channel Dednahype and makes fun of people falling for crypto investment scams.

In Figure 2, we observe that popularity, measured by average views per year, remained relatively stable until the last two years of our sample. Since 2021, despite the videos being posted most recently, there has been a significant surge in viewership—in 2022, about four times more than the average. This rise in interest largely coincides with the crypto bull market during the pandemic years.

To further illustrate the nature of the content of the sample, we examined the 20 most viewed videos in our dataset (see Supplementary Appendix B). These videos span a wide range of channels, including news media (CNN, LastWeekTonight and Vice), educational channels (TED, Explained and SciShow), and crypto-specific channels (BitcoinMiningCom and 99Bitcoins). Notably, none of these top-20 videos are produced by what would be called 'finfluencers'. Instead, most videos are either journalistic, highly critical (often using humor), or provide purely technical explanations about blockchain, coding and cryptocurrency.

Regarding subscription rates, about 30% of our sample has fewer than 1000 followers, while only 13.6% have more than 1 million subscribers. According to Rieder and colleagues' calculations (2023), 68% of our sample does not have enough followers to generate substantial direct revenue (more than $2000 annually) from advertising. Those with sufficient followers to achieve such revenue threshold are primarily institutional channels, such as news media and educational platforms.

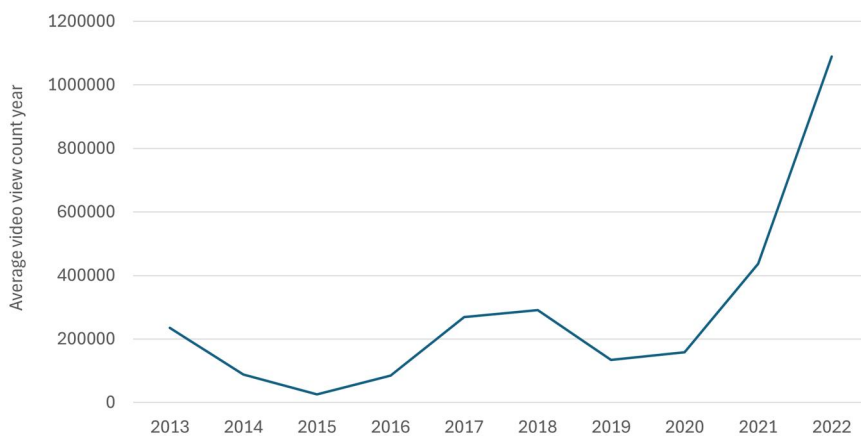

Figure 2. Average viewership per year of the videos in our sample.

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

6. Findings

Here we first review some main descriptive statistics, which offer insight into the data and the prevalence of the codes on which the EFA eventually is based. Next, we give an overview of the dimension of meanings, which we interpret as imaginaries, that the EFA eventually yielded: crypto as (a) investment, (b) utility, (c) digital metallism, and (d) infrastructural mutualism.

6.1 Explorative factor analysis

A systematic overview of our data's content was obtained through a double-blind coding of 100 randomly selected video transcripts, yielding 218 separate codes (see Supplementary Appendix C). The two coders quickly observed a substantial variation in video types, topics, and vocabulary. This diversity poses a challenge in identifying the most prevalent sociotechnical imaginaries that shape the economic value of cryptocurrency. Hence, we had to delineate the discursive universe we encountered in our data by only focusing on the most dominant codes. A descriptive analysis based on keyword frequencies revealed that almost 90% of our codes were idiosyncratic to the subsample. Therefore, attention is directed towards keywords mentioned in at least 5% of videos in the entire corpus. Table 2 presents an overview of the 13 most meaningful and commonly used keywords, which we use for the second part of the analysis.

Given that our sample covers 10 years, we can observe the evolution of this discursive universe of crypto over time through a flowchart depicting the frequency of each keyword per year (see Figure 3). Notably, there is considerable variation in keywords. For instance, 'Gold' was a central concept in the early years (the most common keyword in 2013 and 2015) but experienced a steady decline in popularity, mentioned 382 times in 2015 compared to 41 times in 2022. Conversely, keywords like 'investment', 'profit' and 'asset' show an upward trajectory. 'Decentralization', despite some fluctuations, consistently remains part of the conversation throughout the decade. While in the earlier years, 'decentralization'

Table 2. An overview of the most commonly used meaningful keywords in the entire corpus

	% videos mentioned at least once	Maximum count per video	Mean
1. Investment (Invest*)	33	46	1.2932
2. Decentralization (Decentral*)	27	53	1.1570
3. Fiat	23	16	0.35
4. Gold (excluding gold standard)	20	59	1.0323
5. Asset (Asset*)	16	76	0.9776
6. Profit	13	70	0.8399
7. Anonymous (Anonym*)	12	26	0.2958
8. Privacy	10	37	0.28
9. Inflation (Inflat*)	8	26	0.1899
10. Open source	8	10	0.1810
11. Adoption (Adopt*)	8	17	0.1701
12. Use case	7	23	0.2066
13. Debt	5	14	0.1341

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

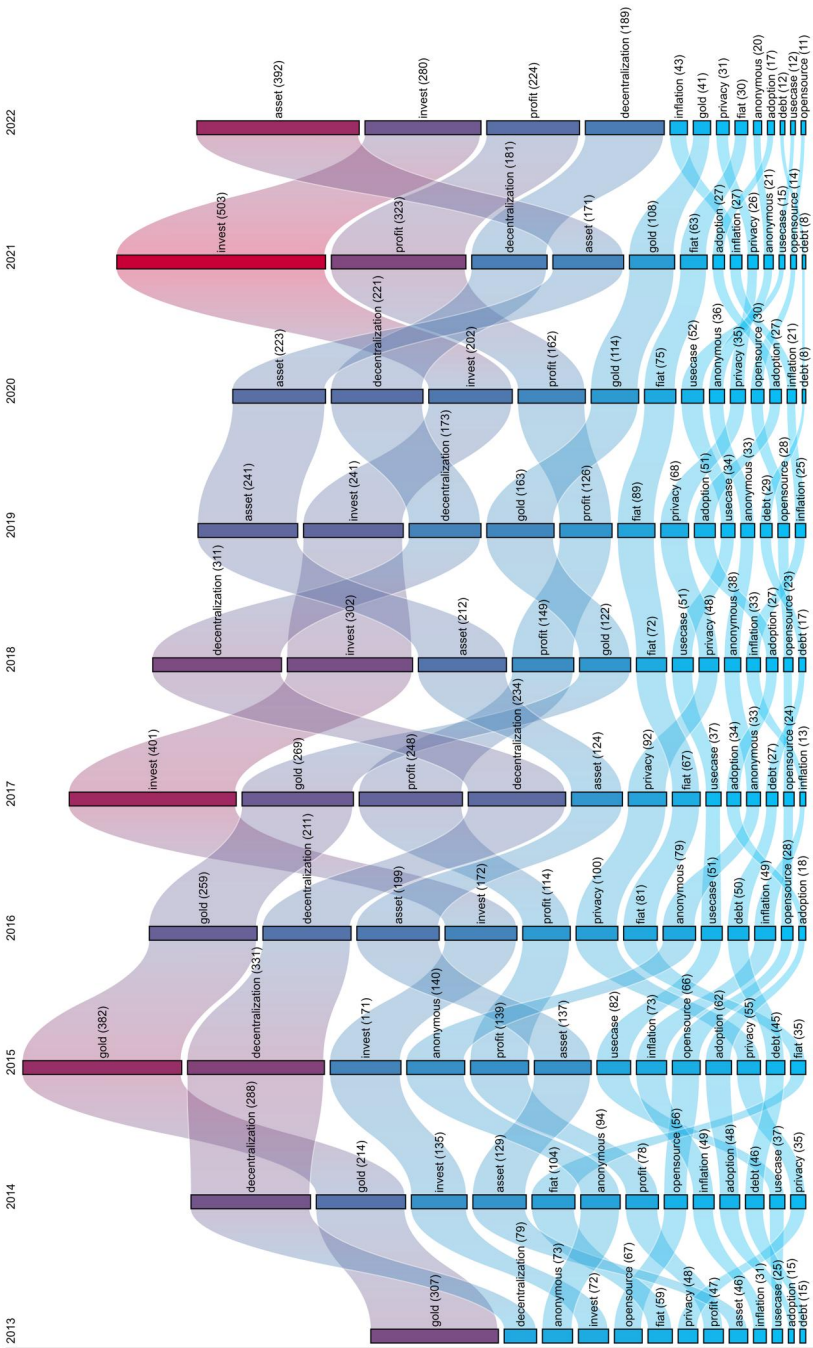

Figure 3. Flowchart of the evolution of keywords over 10 years.

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

seems to mainly correlate highly with other more cypherpunk-related keywords such as 'open source', 'voting' or 'cryptography', from 2016 onward becomes related to an increasingly wider set of keywords such as 'assets', 'use case', 'meltdown' or 'Security and Exchange Commission (SEC)' (for a more detailed analysis, see Supplementary Appendix F).

These descriptive analyses offer a limited understanding of how these keywords cluster into distinguishable imaginaries that attribute (future) value to cryptocurrency. To explore whether these keywords group together meaningfully, we turn to findings from the EFA. By retaining only those factors with an eigenvalue over 1, this analysis yielded four robust, interpretable dimensions that capture more than half of the total variation (see Table 3).

For the most dominant factor (explaining almost one-fifth of the total variations), we observe that 'investment', 'asset' and 'profit' have the highest factor loadings. This investment factor suggests that cryptocurrency is imagined as a financial asset with a profit potential. Second, there is a factor that has both 'use case' and 'adoption' as the highest loading keywords, pointing us in the direction of a utility image centered around how crypto can be useful for people. The last two dimensions echo the two earlier identified imaginaries: digital metallism and infrastructural mutualism (Swartz, 2018). Digital metallism is recognizable in the clustering of keywords related to monetary policy and the meaning of money ('debt', 'inflation', 'gold' and 'fiat'). Finally, Infrastructural mutualism emerges from grouping keywords that are also central values of cypher punks, namely 'decentralization', 'anonymity', 'open source' and 'privacy,.

To check whether some imaginaries are characterized by higher audience engagement than others, we calculate the correlation between the four factors and views, likes or comments (Supplementary Appendix D). The only significant correlations (although very small)

Table 3. Explorative factor analysis: structure matrix

Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.

	Factors			
	Investment	Utility	Digital metallism	Infrastructural mutualism
Investment	**0.752**	0.224	0.277	0.112
Asset	**0.486**	0.256	0.248	0.250
Profit	**0.453**	−0.001	0.110	0.023
Use case	0.129	**0.716**	0.140	0.338
Adoption	0.139	**0.587**	0.184	0.170
Debt	0.154	0.118	**0.598**	0.196
Inflation	0.154	0.195	**0.545**	0.148
Gold	0.164	0.076	**0.481**	0.216
Fiat	0.242	0.130	**0.387**	0.184
Decentralization	0.275	0.301	0.196	**0.512**
Anonymous	0.017	0.105	0.211	**0.451**
Open source	0.110	0.245	0.205	**0.413**
Privacy	0.053	0.122	0.101	**0.408**
Eigenvalue	2.66	1.43	1.33	1.14
% variance	20.40	11.04	10.23	8.775

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

we find are with digital metallism (0.06) and investment (0.12) factors and amount of comments. Overall, the four imaginaries are very similar in terms of the viewership and engagement they generate. When examining the factor scores of the top 20 most-viewed videos (see Supplementary Appendix B), we observe a relatively balanced pattern, with each imaginary having three to four videos scoring high (above 0.5 standard deviations) on the respective factor. This indicates that the videos garnering the highest number of views do not disproportionately represent a particular type of imaginary.

The following sections validate these four dimensions and arrive at a 'thicker' qualitative description of imaginaries. We analyze video transcripts by paying particular attention to the 10 highest-ranking videos for each dimension (Supplementary Appendix E offers the finds links to the referenced videos). Additionally, we show how these dimensions co-occur with other keywords that emerged out of the qualitative coding process, which were not used for the EFA (see Supplementary Appendix C for an overview of keywords).

6.2 Four imaginaries

6.2.1 Investment imaginary

Examination of videos scoring high on the investment factor reveals a focus on explaining how crypto investing and day-trading can be done. Titles such as 'The Ultimate Cryptocurrency Trading Course for Beginners', or 'Crypto Traders for Beginners' characterize these tutorial-style videos. Produced mainly by individual vloggers or finfluencers, who identify as 'day traders meet crypto nerds', they offer practical guidance on earning profit in the crypto market, often presented in US dollars. These content creators, often with backgrounds in traditional finance, legitimize their advice by highlighting their expertise in finance and longstanding interest in technological innovations. While most videos avoid providing explicit investment recommendations, as offering unlicensed investment advice is illegal in many countries—a regulation repeatedly emphasized—a careful viewer can still infer the crypto projects the finfluencers favor and have profited from, allowing financial advice to seep in.

Overall, the archetypal investment videos are formalistic, mainly concentrating on the trading process rather than the specifics of what is being traded. This is evident in the definition of crypto as a 'tokenized asset that represents value and not much more than that' (Supplementary Video 1). Hence, the perceived value of crypto is imagined only in terms of its trade-ability and volatility. Additionally, the exceptional accessibility of the crypto market is highlighted: 'Low barrier to entry for trading, especially for us retail investors here, there are very low barriers. You can sign up with an exchange, get trading straight way and with very low fees. This is definitely a positive for trading crypto over something like forex or even stocks 24/7' (Supplementary Video 1).

The formalist perspective, characteristic of this investment imaginary, primarily centers on the price or *exchange value*. This is evident in the popularity of tutorials focusing on *technical analyses* of market fluctuations to make profit in the crypto market. Keywords related to technical analysis (e.g. candlesticks, stop loss, Dollar Cost Average investment) are mentioned in about 14% of videos scoring above average on the Investment factor.

These finfluencers explain to their viewers how to predict future price movements by examining support and resistance levels, volume analysis, or price consolidation. The YouTube tutorials offer practical advice to capitalize on intra-day price fluctuations, such as reading technical graphs (resistance triangles or chart patterns), identifying breakouts,

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

determining stop-loss points, and creating investment revenue trackers. Additionally, considerable attention is given to explaining how different trading platforms work, setting up accounts, and comparing trading fees. Some vloggers even train viewers in what they call 'scalping,' where trades focus on very small price gaps to make a profit. In this sense, as one finfluencer states, it is even better not to care about what you are trading because it distracts from focusing on what the market is doing:

> Traders flow because you don't care really what you're trading, you don't care about long-term investments or how it's going to perform, you know over many decades. What you're really saying is, and I'll show you here, you know, is there a market moving event has the market got volatile because some piece of data has come out this and this would be, you know, scalping. (Supplementary Video 2)

In sum, the investment imaginary primarily centers on swiftly converting dollars into crypto and, just as quickly, turning them back into more dollars. This focus on volatility and immediate profits gives this imaginary a short time horizon. When these videos touch on long-term projections, they are often about the inherent innovation of technology, notably blockchain protocols. Alternatively, they discuss how Bitcoin can serve as a safe store of value: '[Bitcoin] is not a business with profits that are passed back to shareholders but it is store of value asset and actually indexes everyone that uses it to store and spend value. A very large market asset that is like an index. It is indexing the economy' (Supplementary Video 2).

Despite attributing a longer-term value to crypto, particularly Bitcoin, this value is tied to its relationship with financial markets or the broader economy rather than any inherent feature of cryptocurrency itself. Instead, the imaginary revolves around how crypto can serve as a vehicle to accumulate capital. In this respect, more than one-third (36%) of videos scoring above average on this factor explicitly mention becoming rich (measured through keywords such as 'getting rich', 'becoming wealthy', 'be a millionaire', or expensive and high-status cars such as 'Lamborghini').

6.2.2 Utility imaginary

The analysis of the video transcripts scoring high on the second dimension reveals an emphasis on the use or *utility value*. The videos that score the highest on this factor are typically in the form of panel discussions, often recorded during crypto conferences or expert presentations. It centers on how the masses will eventually adopt cryptocurrency. A common point of reference here is comparing it to how people eventually embraced internet use. Often, these videos contrast the rate of adoption of both technologies, with the message that crypto is surpassing internet adoption in speed during the first decade.

Videos mobilizing the utility imaginary often do so by identifying barriers that impede adoption. One of the highest-scoring videos on this factor features a talk by the founder of Ethereum in 2015 about the future of Bitcoin. On one of his slides (Supplementary Video 3), titled 'A Reality Check', he succinctly outlines the adoption problem that the utility imagery is supposed to overcome. He identifies three main issues: (a) due to high price volatility, crypto can never become a unit of account; (b) not all people share the same level of interest in decentralization; and (c) there is no added value for those who live in countries with a well-functional payment system.

While the previous investment imaginary focuses on short-term and immediate profitability due to high volatility, the utility imaginary seeks long-term stability. The hope is for

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

cryptocurrency to become a reliable means of payment eventually. However, before the public embraces crypto as a means of payment, the argument continues that it must function as a unit of account, achievable only when its value stabilizes. This creates a catch-22 problem, according to many videos. As a hedge fund manager and financial expert argues in Supplementary Video 4:

> What generates that speculative demand is what generates the volatility but the volatility itself is the very thing that chases away the demand from people who want to use it as a medium exchange. So, you get this paradoxical, you know, consequence that the very optimism that in future the coin is going to be adopted by a lot of people is actually what stands away from it being adopted in the first place.

A second issue is the disparity between the original ambitions of the cypherpunk movement and the needs of the public. While the latter envisioned cryptocurrency as a way to attain more privacy, decentralization of power, and sovereignty (see later), the rest of society remains agnostic about these issues. Instead, prospective buyers seek something usable to solve 'real-world problems' (Supplementary Video 5). Hence, many utility-focused videos argue for a more moderate and pragmatic approach. Once again, a comparison is drawn with the rise of the internet: everyone uses email, but few understand the protocol behind it. People gradually gained confidence in it, highlighting that mass adoption relies on trust, stability, and, therefore, regulation. In fact, contrary to the original cypherpunk message, the utility imaginary sees a future integration with traditional finance and therefore a collaborative relationship with regulators:

> I think it's a fine balance that we need to have because we do like decentralized stuff. […] But we also do need some stable forces in the ecosystem, people that operate within the management system, [which] can operate with the regulators. […] Because at the end of the day, it's when mom and pop, when [they invest in Bitcoin for] their kids' college fund. But they're not going to do that when they can't trust it. If everyone is out there having more radicalized messages, then for the people that are going to make critical adoption, for them to achieve their goal, they're not going to do it. (Supplementary Video 6)

Finally, the utility of crypto is marked particularly for countries where large parts of the population are still 'unbanked' (mentioned in 14% of videos scoring above average on this factor). As these videos argue, crypto has the potential to circumvent the power of banks while including everybody in a free payment network: 'the reality is, banks have left a large segment of the population behind, and billions of people in the world don't have a bank account' (Supplementary Video 7). This 'global' view on the utility value of crypto—especially stable coins—is illustrated by emphasizing its role in facilitating international money transfers without a 'remittance company that charges an arm and a leg just to transfer money across borders' and dealing with high inflation (Supplementary Video 7).

6.2.3 Digital metallism

The third factor from the EFA groups variables 'gold', 'debt', 'inflation', and 'fiat', evokes a monetary discussion. Here, blockchain technology's potential is envisioned as an alternative to the existing money system, primarily targeting (USD-backed) fiat currencies. Crypto is portrayed as the new digital gold upon which a new global monetary reality can be built.

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

This factor aligns with the imaginary of *digital metallism* (Swartz, 2018), confirming its cultural importance in attributing economic value to cryptocurrency.

Videos scoring high on this factor often take the form of recorded public talks (TEDx style) or talking head videos by vloggers. Advocates of this imaginary range widely, from economics professors lecturing on the history of money to libertarian public speakers, conspiracy theorists and self-help gurus. Furthermore, this imaginary is primarily connected with Bitcoin: the correlation between this factor and the number of references to Bitcoin per video is 0.54, compared to the 0.11 correlation with Ethereum.

The metaphor of scarce and valuable metals such as gold is very prevalent among videos discussing the monetary significance of crypto. Next to gold, 'silver' is also often mobilized (mentioned in 20% of the videos scoring above average on this factor) to explain and compare the value of crypto. By referencing these precious metals, the videos aim to convey to viewers that valuing crypto should be imagined in terms of its scarcity and the difficulty of acquiring it.

These digital metallist videos often lament the abolishment of the gold standard. In contrast to the monetary fiat system, gold standard-based money relies on 'natural' scarcity and is, therefore, less vulnerable to manipulation by (corrupt) political powers. These videos strongly align with the Austrian School's interpretation of money, advocating for its separation from the state but should instead function according to free-market logic. To indicate the significance of this logic, 14% of the videos mobilizing this imaginary explicitly discuss the history of money and/or mention Austrian School economics. This is strongly in line with earlier analysis of the political meaning of Bitcoin as a libertarian techno-political project (see Karlstrøm, 2014; Golumbia, 2016; Dodd, 2018).

While the principles of the Austrian School are presented as a perfect economic model, quantitative easing is seen as the root of all fiscal evils. According to these videos, the problem with the current monetary policies in most countries is that they hold a monopoly over issuing money. Whenever these governments need funding, they can 'print more money' and, in that way, create inflation while decreasing the value of the hard-earned money of their citizens. The main culprits in this story are the national central banks and the American Federal Reserve (Fed), respectively mentioned in 17% and 19% in the digital metallist videos.

Following these videos, the current fiat system has two major consequences: it leads to a national debt bubble and fosters inequality. First, 'government money is hyperinflated to fund activities like wars or the luxurious lifestyles of non-producing politicians' (Supplementary Video 8). According to this perspective, governments achieve this by borrowing money from central banks, pushing entire countries into collective debt. This scenario suggests that 'this zombie bank system could be with us for the next 50 years. And it's going to drive my generation deep in a debt' (Supplementary Video 9). Secondly, this monetary policy primarily benefits banks and bankers, exacerbating wider inequality gaps.

> If central banks create money and whoever is closer to central banks gets more money. So, the rich get richer, the more connected, the closer to the central banks, people get richer. The individual doesn't really get to retain any of the newly created money and government since the establishment of the Fed have a lot of control about how much currencies [are] printed. (Supplementary Video 10)

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

Eventually, as the metallist imaginary predicts, this will lead to a financial collapse (a word that appears in more than 10% of the videos scoring above average on digital metallism) and the ultimate demise of our current economic system. Fortunately, we have a technological fix ready—an alternative for a post-apocalyptic future, namely cryptocurrency, and more especially Bitcoin. This solution rests on three main features of Bitcoin: (a) its scarcity, (b) its absence of central power, and (c) its deflationary nature. Bitcoin is seen as deflationary by design and thus holds the potential to slay the inflation dragon:

> There is no company or central bank controlling bitcoin so it cannot be inflated like the dollar. In fact, the embedded code has been preset so that only 21 million bitcoins will ever be in circulation. To ensure a steady rate of distribution, bitcoin production was modeled after gold mining. Just like mining for gold grows increasingly difficult over time, so does creating new bitcoins. (Supplementary Video 11)

Crypto is called an 'anti-fragile' technology producing 'sound money' that cannot be undermined, corrupted, or controlled. As a popular Bitcoin investor featured in one of the videos, claims: 'We have elected to put our money and faith in a mathematical framework that is free of politics and human error' (Supplementary Video 12). The belief in this imaginary is so strong that many claim a 'great replacement' of fiat money by Bitcoin is inevitable. Or, as a public speaker, a libertarian and avid Bitcoin enthusiast, evangelically exclaims in one of his talks on YouTube:

> It's a beautiful thing we will not be forever kept in cages. Humanity is too creative and too innovative to be held back by these reactionary looting institutions [ie central banks] that have ruled us for a hundred years. I look forward to a future of monetary freedom and sound money thanks to the great innovation of Satoshi. (Supplementary Video 13)

6.2.3 Infrastructural mutualism

The roots of cryptocurrency can be traced back to the online cypherpunk movement (Brunton, 2020). The digital utopia this group aimed for would be a world safeguarding privacy, devoid of centralized powers, protecting sovereignty, and redefining property rights. These ideas find resonance in the way the keywords 'decentralization', 'privacy', 'anonymity' and 'open source' cluster together in the *infrastructural mutualism* factor.

The videos scoring high on this factor typically take the form of talks, interviews, or panel discussions that explore technological backend of cryptocurrencies and explore how it could reorganize society. Some are highly technical, requiring a thorough understanding of cryptography and coding. However, speakers often distill the essence of their talks and highlight the potential social impact, explicitly emphasizing the transformative powers of decentralization. On the one hand, videos talk about the *infrastructural decentralization* of crypto projects, pointing at peer-to-peer networks of computers most crypto projects rely on instead of single and central servers. On the other hand, the videos can also engage in discussing *political decentralization* through voting among network members (e.g. Decentralized Autonomous Organizations). These videos often explain how this operates by requiring 51% of the network to agree on decisions (such as transactions or changes in the protocol). To convince viewers that these systems work, many videos invoke game theory logics, emphasizing how self-interest and the collective good can coincide by realigning

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

incentives. Approximately 11% of all videos scoring above average on this factor mention game theory or consensus-based decision models.

Another crucial aspect of infrastructural mutualism is the value attributed to open source, directly tied to avoiding centralization. The videos argue that no one claims ownership over the network or the technology that emerges out of the community is crucial. Many crypto-related coding protocols are openly shared on the software repository GitHub, accessible to anyone. 'It resolved in some respects the *tragedy of the commons* problem where we're pursuing our self-interest and destroying the public good that we have' (Supplementary Video 14). The open-source operating system Linux and the collaborative encyclopedia Wikipedia are frequently cited as examples of projects lacking singular ownership yet drawing collective contributions.

A third common issue discussed in the infrastructural mutualism videos relates to privacy and anonymity. Cryptocurrency is envisioned as a technological pathway to achieve complete privacy and individual sovereignty. Blockchain-based transactions offer the ability to send and receive value without identifying oneself, thus avoiding government and corporate surveillance. As Ethereum's founder claimed in one of the videos wherein he debates an infamous crypto critic, there is a 'technological kind of cold war between people trying to evade systems of control and people trying to create them' (Supplementary Video 15).

According to the speakers in these videos (who are rarely the ones posting it), achieving this privacy utopia still faces significant challenges. One major issue is the tension between transparency (i.e. public ledger of transactions) and privacy (i.e. encrypted identifier). This trade-off is a point of contention, with crypto advocates of absolute privacy leaning toward greater privacy instead of more transparency. As one developer of a privacy coin argues in Supplementary Video 16:

> You know the argument that the blockchain has to be kept open […] means that I can't have financial privacy. The better approach in my view and the approach that delivers more security in total, is allowing people to have financial privacy that is every user in the United States and worldwide. […] Its cost will be paid but we reconcile all the time of some less access to information on the use of Bitcoin or the blockchain by criminals and any terrorist that use it. So, a trade off, a real trade off but I think the right way to make that trade-off is pretty apparent. (Supplementary Video 16)

Hence, the privacy-related issue addressed in these videos concerns the legality of crypto transactions and the problem of navigating laws on consumer identification and anti-money laundering regulations. They often discuss the connection between crypto and criminal activities on the dark web, such as selling drugs (e.g. Silk Road) or funding terrorism.

6.3 Exploring trends

Although the data do not allow us to make causal claims—we, for example, do not know whether these imaginaries are used more by creators or suggested more by the personalization algorithms due to rising popularity among viewers—it remains insightful to see how the prevalence of the imaginaries fluctuates over time. To connect it to a more macro background of the crypto market itself, we also plot the average score of each dimension on the minimum and maximum total market capitalization of that year. This indicates how imaginaries covary with the state of the market (Figure 4).

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

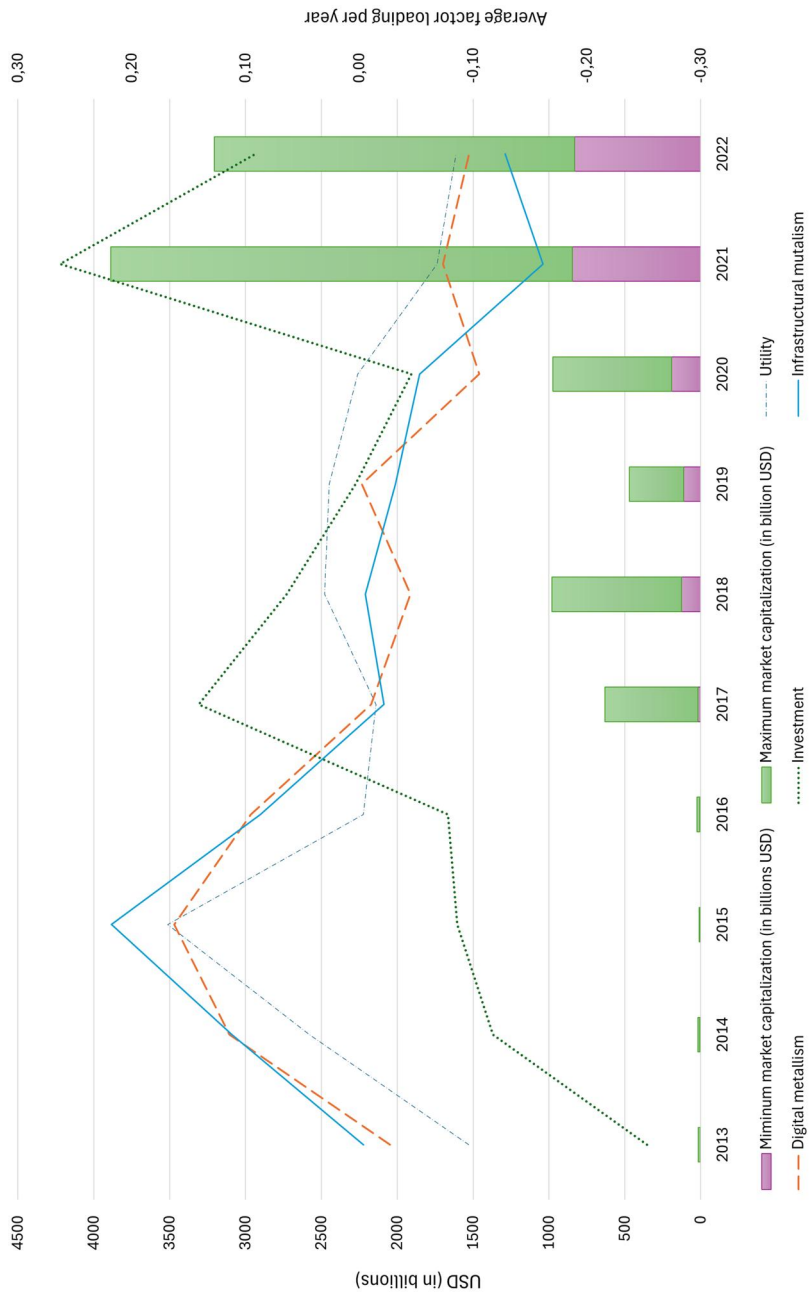

Figure 4. Average yearly scores on the four factors (right axis) mapped on maximum and minimum market capitalization in US dollars (left axis).

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

Examining the prevalence of investment imaginary, as represented by the average factor score for each year (keeping in mind that the overall average is always zero), reveals a noticeable upward trend (Figure 2). In the early years of our sample, this imaginary was relatively absent; however, in 2017, the year of Initial Coin Offerings and the first large bull market, it peaked and has remained popular ever since. Hence, we see it fluctuating in unison with the market value (i.e. bull market peaks in 2017 and 2021). Our data do not permit conclusive statements about cause and effect; however, it is plausible that this imagery has contributed to the rise in popularity of crypto trading among general, non-professional consumers. Conversely, while we know that the four imaginaries are similar in terms of comments, likes, and views (see Supplementary Appendix D), this tells us little about how viewer engagement is influencing producers' content. It is possible that, over time, producers also started to create more content invoking an investment imaginary, as it potentially attracted more viewers. Unfortunately, our data do not contain information at the producer level to discern such trends and relationships. Most likely, a feedback loop exists between creators, consumers, and the YouTube algorithm. Yet, regardless of the direction of the causal arrow, YouTube can have a catalyzing effect on market engagement, ultimately contributing to higher market capitalization.

Turning to the other three imaginaries, we see that they share a similar pattern, mainly mirroring the evolution of the investment imaginary. All of them rose to prominence in 2015 and then steadily declined. In terms of utility imaginary, this dovetails with Shaw's research (2023), which demonstrated that in 2015 the discussion on Reddit posts on crypto shifted away from 'what is the value of crypto' towards 'why will people adopt it'. However, the drop after 2015 can be explained by the fact that two bull runs drew in larger crowds of crypto enthusiasts, making the question of adoption among the YouTube audience, at least temporarily, less pertinent. Finally, looking at Infrastructural mutualism imaginary over time, we observe that, compared to the other imaginaries, it experiences the most fluctuations (almost half a standard deviation). So, while it was the most dominant imaginary up until 2015, it ended in 2022 as the least common imaginary.

7. Conclusion

This article addressed the explorative question: How is the value of crypto imagined? Focusing on the relation between cultural values—what people want, hope, and imagine—and economic value—what people invest in, we examined the various values that are attributed to crypto. We argued, following Beckert (2016), that people rely on fictional expectations to attribute economic (potential) value to (unknown) goods. These expectations take shape through imaginaries, and in the case of cryptocurrency, more specifically, its value is imagined in a sociotechnical fashion, meaning the technology itself plays a role in valuation.

To answer our question, we turned to one of the most widely used sources of information in contemporary society: YouTube. Relying on a 'clean' YouTube algorithm, we sampled 1921 videos that mention either 'crypto' or 'cryptocurrency' published between 2013 and 2022. With this sample, the aim was to capture a universe of possible imaginaries. Through an abductive research design, with several rounds of qualitative and quantitative analyses, we identified four distinct imaginaries prevalent within our sample of YouTube video transcripts.

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

The first imaginary, largely understudied so far, imagines crypto as valuable because it is volatile and thus holds the potential of (often short-term) profit. This investment imagination is produced by, among others, finfluencers who give practical advice on how to invest and trade in the crypto market. This imaginary, however, appears to be a-sociotechnical in the sense that it refrains from projecting any (future) value on crypto based on its technological capabilities or potential societal impact. Instead, crypto could be substituted with any other high-volatility, easily accessible asset. This imaginary has been growing in popularity alongside the crypto market itself, as measured by market capitalization.

The utility imaginary easily qualifies as sociotechnical as it is all about the social transformative nature of crypto as an actual social use value. Specifically, it imagines a value for crypto outside its original ecosystem by proposing and hoping for mass adoption. However, as many of the speakers featured in the videos point out, this also entails a more pragmatic approach to the original crypto values, softening on issues such as sovereignty and privacy. On top of that, utility imagination also tells a global story by touching on topics such as banking the unbanked and facilitating remittances.

The digital metallism imaginary emerging from our analysis has so far been the most frequently recognized by previous scholars (e.g. Karlstrøm, 2014; Dodd, 2018; Swartz, 2018; De Keere and Novokreshchenov, 2024). Inspired by the Austrian School of Economics, this sociotechnical imaginary centers on crypto's monetary potential, envisioning blockchain-based money as a future alternative to the current fiat system. The belief in crypto's capacity to create 'sound money' independent of state interference is primarily associated with Bitcoin.

Finally, among the four imaginaries, the infrastructural mutualism imaginary qualifies best as sociotechnical as it envisions a short circuit between technological infrastructure and societal organization. Crypto is imagined as more than merely an investment, payment, or money but as laying the foundation for an entirely new digital architecture. It depicts a tech-utopia based on a digital economy that is, in terms of both infrastructure and politics, utterly decentralized. It promises a more equal distribution of power through the elimination of central entities, use of open-source technologies, and coded protocols that safeguard sovereignty and privacy. Although this sociotechnical imaginary originally lies at the basis of the first digital cash projects launched by the cypherpunk movement, it has declined over time from being the most to the least popular.

These four imaginaries are not mutually exclusive, yet some intrinsic tensions exist. While volatility is part of the investment imaginary, those who embrace digital metallism or a utility value hope to reduce this volatility so that crypto can become a form of sound money with a reliable store of value. Similarly, the utility imaginary aims for mass adoption, but most potential consumers are not so committed to the core values of infrastructural mutualism. These tensions, however, do not necessarily undermine the viability of the market. Instead, dissonances in valuation are sometimes identified as economically productive (Stark, 2011).

This is the first time that YouTube content has been captured and analyzed in this manner, so it is essential to acknowledge that this method comes with limitations. First, the videos were sourced from a diverse array of creators with various motivations for publishing content, and detailed background information on them is lacking. Some creators may have vested interests in either promoting or criticizing cryptocurrency, while others produce more neutral content. However, this does not harm our analysis's validity as the goal is to

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

identify the total discursive universe on crypto, including those produced by creators such as finfluencers with such personal interests. Moreover, the data analysis also revealed that our sample encompasses a broad spectrum of content, ranging from comedy sketches to news items and conference presentations, with varying levels of popularity.

Second, and directly related to the previous point, the vast amount of data and diverse content poses a significant challenge to reliably distill it into a set of prevalent imaginaries. While we do not claim to have captured all possible imaginaries, our abductive approach, which enhances reliability by testing our findings through double-blind coding and an iteration of qualitative and quantitative analyses, allows us to confidently conclude that these imaginaries are indicative of what the YouTube algorithm would suggest to viewers seeking content on cryptocurrency.

Third, we inevitably face a denominator problem due to the lack of insight into the total content available on YouTube, which limits our ability to generalize our findings across all content. On the other hand, since our focus is on content that reaches a wider audience, we purposely relied on the YouTube algorithm as a selection tool. Knowing that the platform algorithm shapes the majority of YouTube viewing behavior, we can argue that the content we analyzed—instead of being biased by this algorithm—has broader societal relevance than a random sample.

The last point leads us to new research questions on the performativity of social media algorithms for consumer markets. Ever since the pragmatic or performative turn, spearheaded by Michel Callon (1998), the social study of economics has paid increasing attention to the role of 'market devices'. These devices are 'material and discursive assemblages that intervene in the constructions of markets' (Muniesa *et al.*, 2007, p. 2), allowing people to assess the value of objects, services, and ideas (Kharchenkova and Velthuis, 2018). At the onset, market devices exert a performative effect (*agencement*) on markets (and furthermore society at large). They do not merely mediate market transactions but enable and create them, enacting 'particular versions of what it is to be "economic"' (Muniesa *et al.*, p. 4). YouTube and its curating algorithms could be regarded as such a device. From such a perspective, the YouTube algorithm should not be conceived as a passive conduit for spreading sociotechnical imaginaries; but as a constitutive element in co-creating, through curating and assembling information, the fictive expectations that attribute value to crypto. Establishing this, however, asks for further investigation—through surveys and experiments—into how viewers receive the imaginaries on YouTube and whether they influence their behavior as (potential) consumers.

Finally, the identification of these four imaginaries also opens other new research avenues. How these imaginaries resonate with different positions within the crypto market can be explored. For example, how do volatility-loving day-traders relate to Bitcoin devotees who are into crypto for the long run? Or how do new crypto-based companies looking for private profit through mass adoption engage with Ethereum coders who might strongly endorse an infrastructural mutualist understanding of crypto? These are empirical questions that demand further empirical, in-depth, and ethnographic investigations of the crypto market as a whole. In addition, these imaginaries might be evoked differently by users depending on the phase of adoption process they are in. Early crypto enthusiast might be mostly drawn to an investment imaginary while later getting more interested in the monetary aspects (digital metallism) or wanting other people to envision the use value of it. This asks for a further investigation in how crypto value is being imagined during a the knowledge

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

transformation process of crypto devotees. What initially might start out as a simple investment for short-term gain can eventually, like a Trojan horse, turn into full long-term political engagement. As we know, technologies, such as cryptocurrencies, can have performative effects, transforming people's beliefs and behaviors.

Acknowledgements

The authors would like to thank the Theseus Center on Technology, Society and Humanity at the Polytechnic University of Turin and the Sociology Department at the London School of Economics for supporting and accommodating us while writing this paper. A special thanks goes to Ashley Mears for providing extensive feedback on earlier drafts.

Supplementary material

Supplementary material is available at *Socio-Economic Review Journal* online.

Funding

This work was supported by NWO XS Grant (406.XS.04.014), Dutch Research Council and Global Digital Cultures Seed Grant, University of Amsterdam.

References

Airoldi, M., Beraldo, D. and Gandini, A. (2016) 'Follow the Algorithm: An Exploratory Investigation of Music on YouTube', *Poetics*, **57**, 1–13.

Anderson, B. (2006) *Imagined Communities: Reflections on the Origin and Spread of Nationalism*, Revised Edition, London, Verso.

Arthurs, J., Drakopoulou, S. and Gandini, A. (2018) 'Researching YouTube', *Convergence: The International Journal of Research into New Media Technologies*, **24**, 3–15.

Bärtl, M. (2018) 'YouTube Channels, Uploads and Views: A Statistical Analysis of the Past 10 Years', *Convergence: The International Journal of Research into New Media Technologies*, **24**, 16–32.

Beckert, J. (2016) *Imagined Futures: Fictional Expectations and Capitalist Dynamics*, Cambridge, Harvard University Press.

Berger, M. and Chang, E. (2020, April 13) 'YouTube Sees 75% Jump in News Views on Thirst for Virus Updates', *Bloomberg.com*.

Bruns, A. (2019) *Are Filter Bubbles Real*?, Cambridge, Polity.

Brunton, F. (2020) *Digital Cash: The Unknown History of the Anarchists, Utopians, and Technologists Who Created Cryptocurrency*, Princeton, Princeton University Press.

Bryant, L. V. (2020) 'The YouTube Algorithm and the Alt-Right Filter Bubble', *Open Information Science*, **4**, 85–90.

Butler, S. (2022) 'The Philosophy of Bitcoin and the Question of Money', *Theory, Culture & Society*, **39**, 81–102.

Çalişkan, K. (2010) *Market Threads*, Princeton, Princeton University Press.

Çalişkan, K. (2023) *Data Money: Inside Cryptocurrencies, Their Communities, Markets, and Blockchains*, New York, Columbia University Press.

Callon, M. (1998) 'Introduction: The Embeddedness of Economic Markets in Economics', *The Sociological Review*, **46**, 1–57.

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

Cayari, C. (2011) 'The YouTube Effect: How YouTube Has Provided New Ways to Consume, Create, and Share Music', *International Journal of Education & the Arts*, **12**, 1–30.

Chen, J. and Wang, Y. (2021) 'Social Media Use for Health Purposes: Systematic Review', *Journal of Medical Internet Research*, **23**, e17917.

CoinGecko (2024) 'Crypto Market Cap Charts', *CoinGecko*, accessed at https://www.coingecko.com/en/global-charts on February 29, 2024.

De Keere, K. and Novokreshchenov, M. (2024) 'A Crypto Way out: Cryptocurrency, Techno-Economic Imaginaries, and Crisis in Russia', *Journal of Cultural Economy*, online first, 1–19. https://doi.org/10.1080/17530350.2024.2413111

DNB (2022) *Cryptoactiva: Evolutie en Beleidsrespons*, Amsterdam, De Nederlansche Bank.

Dodd, N. (2018) 'The Social Life of Bitcoin', *Theory, Culture & Society*, **35**, 35–56.

Dylan-Ennis, P., Kavanagh, D. and Araujo, L. (2023) 'The Dynamic Imaginaries of the Ethereum Project', *Economy and Society*, **52**, 87–109.

Gillespie, T. (2014) 'The Relevance of Algorithms'. In Gillespie, T., Boczkowski, P. J., and Foot, K. A. (eds) *Media Technologies: Essays on Communication, Materiality, and Society*, Cambridge (MA), MIT Press, pp. 167–194.

Glaser, F., Zimmermann, K., Haferkorn, M., Weber, M. C. and Siering, M. (2014) 'Bitcoin—Asset or Currency? Revealing Users' Hidden Intentions', ECIS April 2014 (Tel Aviv), Available at SSRN: https://ssrn.com/abstract=2425247.

Golumbia, D. (2016). *The Politics of Bitcoin: Software as Right-Wing Extremism*, Minneapolis: University of Minnesota Press.

HMRC (2022) *HMRC Report: Individuals Holding Cryptoassets: Uptake and Understanding*, London, Her Majesty Revenue and Custom.

Hudders, L., Jans, S. D. and Veirman, M. D. (2021) 'The Commercialization of Social Media Stars: A Literature Review and Conceptual Framework on the Strategic Use of Social Media Influencers'. In *Social Media Influencers in Strategic Communication*, London, Routledge, pp. 24–67.

Jasanoff, S. (2015) 'Future Imperfect: Science, Technology, and the Imaginations of Modernity'. In Jasanoff, S. and Kim, S. (eds) *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, Chicago, University of Chicago Press, pp. 1–33.

Kakhbod, A., Kazempour, S. M., Livdan, D. and Schuerhoff, N. (2023) 'Finfluencers', Swiss Finance Institute Research Paper, 23–30, 1–57.

Karlstrøm, H. (2014) 'Do Libertarians Dream of Electric Coins? The Material Embeddedness of Bitcoin', *Distinktion: Journal of Social Theory*, **15**, 23–36.

Khan, M. L. (2017) 'Social Media Engagement: What Motivates User Participation and Consumption on YouTube?', *Computers in Human Behavior*, **66**, 236–247.

Kharchenkova, S. and Velthuis, O. (2018) 'How to Become a Judgment Device: Valuation Practices and the Role of Auctions in the Emerging Chinese Art Market', *Socio-Economic Review*, **16**, 459–477.

Kline, P. (1994) *An Easy Guide to Factor Analysis*, London, Routledge.

Littrell, S., Klofstad, C., and Uscinski, J. E. (2024) 'The Political, Psychological, and Social Correlates of Cryptocurrency Ownership', *PLOS One*, **19**, e0305178.

McGrady, R., Zheng, K., Curran, R., Baumgartner, J. and Zuckerman, E. (2023) 'Dialing for Videos: A Random Sample of YouTube', *Journal of Quantitative Description: Digital Media*, **3**,

Muniesa, F., Millo, Y. and Callon, M. (2007) 'An Introduction to Market Devices', *The Sociological Review*, **55**, 1–12.

Nikolenko, S. I., Koltcov, S. and Koltsova, O. (2017) 'Topic Modelling for Qualitative Studies', *Journal of Information Science*, **43**, 88–102.

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

PEW (2020) *Many Americans Get News on YouTube, Where News Organizations and Independent Producers Thrive Side by Side*, Washington, DC, PEW Research Center.
PEW (2023) *Majority of Americans Aren't Confident in the Safety and Reliability of Cryptocurrency*, Washington, DC, PEW Research Center.
PEW (2024) *Americans' Social Media Use*, Washington, DC, PEW Research Center.
Rieder, B. (2015a) 'RankFlow', accessed at https://labs.polsys.net/tools/rankflow/ on March 7, 2024.
Rieder, B. (2015b) 'YouTube Data Tools', accessed at https://ytdt.digitalmethods.net/ on March 7, 2024.
Rieder, B., Borra, E., Coromina, Ò. and Matamoros-Fernández, A. (2023) 'Making a Living in the Creator Economy: A Large-Scale Study of Linking on YouTube', *Social Media + Society*, **9**, 20563051231180628.
Rogers, R. (2024) *Doing Digital Methods*, London, SAGE Publications.
Shaw, L. (2023) 'The Inevitable Sociality of Money: The Primacy of Practical Affirmation over Conceptual Consensus in the Construction of Bitcoin's Economic Value', *Socio-Economic Review*, **21**, 51–78.
Silaban, P. H., Chen, W.-K., Nababan, T. S., Eunike, I. J. and Silalahi, A. D. K. (2022) 'How Travel Vlogs on YouTube Influence Consumer Behavior: A Use and Gratification Perspective and Customer Engagement', *Human Behavior and Emerging Technologies*, **2022**, 1.
Sinnreich, A., Aufderheide, P., Clifford, M. and Shahin, S. (2021) 'Access Shrugged: The Decline of the Copyleft and the Rise of Utilitarian Openness', *New Media & Society*, **23**, 3466–3490.
Smith, C. W. (2007) 'Markets as Definitional Practices', *The Canadian Journal of Sociology / Cahiers Canadiens de Sociologie*, **32**, 1–39.
Solsma, J. (2018) 'Ever Get Caught in an Unexpected Hourlong YouTube Binge? Thank YouTube AI for That', *CNET*, accessed at https://www.cnet.com/tech/services-and-software/youtube-ces-2018-neal-mohan/ on March 7, 2024.
Stanford, E. (2021) *Crypto Wars: Faked Deaths, Missing Billions and Industry Disruption*, New York, Kogan Page Publishers.
Stark, D. (2011) *The Sense of Dissonance*, Princeton, NJ, Princeton University Press.
Statista (2024a) 'Biggest Social Media Platforms by Users 2024', *Statista*, accessed at https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/ on August 29, 2024.
Statista (2024b) 'YouTube Users by Country 2024', *Statista*, accessed at https://www.statista.com/statistics/280685/number-of-monthly-unique-youtube-users/ on August 29, 2024.
Steinmetz, F., Von Meduna, M., Ante, L. and Fiedler, I. (2021) 'Ownership, Uses and Perceptions of Cryptocurrency: Results from a Population Survey', *Technological Forecasting and Social Change*, **173**, 121073.
Swartz, L. (2018) 'What Was Bitcoin, What Will It Be? The Techno-Economic Imaginaries of a New Money Technology', *Cultural Studies*, **32**, 623–650.
Tavory, I. and Timmermans, S. (2014) *Abductive Analysis: Theorizing Qualitative Research*, Chicago, University of Chicago Press.
Taylor, C. (2003) *Modern Social Imaginaries*, Durham, NC, Duke University Press.
Thelwall, M. (2021) 'Lifestyle Information from YouTube Influencers: Some Consumption Patterns', *Journal of Documentation*, **77**, 1209–1222.
Vidan, G. and Lehdonvirta, V. (2019) 'Mine the Gap: Bitcoin and the Maintenance of Trustlessness', *New Media & Society*, **21**, 42–59.
White, H. C. (1981) 'Where Do Markets Come From?', *American Journal of Sociology*, **87**, 517–547.

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025

© The Author(s) 2025. Published by Oxford University Press and the Society for the Advancement of Socio-Economics.
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (https://creativecommons.org/licenses/by-nc/4.0/), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact reprints@oup.com for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site—for further information please contact journals.permissions@oup.com.
Socio-Economic Review, 2025, 23, 759–785
https://doi.org/10.1093/ser/mwae081
Article

Downloaded from https://academic.oup.com/ser/article/23/2/759/7941930 by guest on 28 July 2025