Ethnographers as Intermediaries: Plurality as a Double-Edged Sword in Web3

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This paper addresses a misalignment between market motivations and community needs in Web3, arguing that comparative ethnographic work can identify strategic opportunities in the industry. Comparing findings across different design research projects, we show how Web3 builders and founders are driving a plurality of projects and products and enabling cross-chain operability to build diverse blockchain-based ecosystems. Although this plurality is generative for innovation in the industry, it de-prioritizes fully fleshed out, end-to-end Web3 solutions to urgent social problems, and is increasingly displacing community-centered perspectives. We found that users desire a different kind of plurality—interoperable financial instruments across traditional banking and blockchain-based platforms.

Introduction

Web3–the industry that formed around the newest iteration of the World Wide Web using blockchain distributed ledger technology to enable novel transaction layers–is emerging from the most recent so-called "crypto winter." The anticipated crypto spring serves as a timely opportunity to address some key challenges underpinning potential growth and popular adoption of industry technologies and use cases. In this paper, we compare findings from three Web3 design research projects realized through industry-academic partnerships. We argue that builders and founders in this space contribute to—and strive toward—an expansive landscape full of projects and products constructing diverse ecosystems interconnected by new digital economic infrastructures (Crypto Research & Design Lab 2022). A significant increase of interest in the space over the last five to ten years produced an uncountable number of projects. This *plurality* is a highly sought after and admirable ambition for Web3 builders seeking to keep the industry diverse and decentralized. However, many of these projects remain disconnected from each other. Blockchain infrastructural projects emerging within the industry have begun to cohere around a direction of enabling cross-chain interoperability, or the functionality of digital assets such as cryptocurrencies and other digital tokens to move between various blockchain networks, which may eventually address some of the fragmentation undercutting smooth user experiences with Web3 tech. Meanwhile, as solutions develop to connect the patchwork of projects and networks, we find the plurality

frenzy ends up distracting from fully fleshed out end-to-end Web3 solutions to urgent social problems. The blockchain stack continues to grow more complex and further from on-the-ground experiences with the technology. While focusing on plurality is generative for more holistic exploration and innovation in the industry, it is also increasingly displacing user-centered or community-centered perspectives, as these agendas continue to be driven by a small number of people (Crandall 2019; Nelms et. al 2018), largely disconnected from users' most pressing needs–plurality is hence a double-edged sword. In 2024, industry market signals point to new use cases, such as DePIN–decentralized physical infrastructure, the application of decentralized technologies to run networks of physical hardware like IoT sensors, wireless infrastructure, or energy grids–further expanding the plurality of projects and accompanying networks and tokens that constitute the Web3 industry. Yet, end-to-end solutions remain un- or under-developed at key junctures in the user experience, often falling short of delivering on promises of lasting social, economic, or environmental impact for communities (Amirebrahimi 2016).

Our work compares findings across research projects we have conducted on blockchain and cryptocurrency at the Crypto Research & Design Lab (CRADL) (https://www.cradl.org/), the Crypto Council for Innovation (CCI) (https://cryptoforinnovation.org/), and Portland State University.[1] Both CRADL and CCI drive ethnographic research of industry participants to generate rich insights of human-centered experiences in the Web3 space. With the mission of "putting people at the center of crypto" CRADL has produced narrative research translating nuanced understandings of the complex realities of Web3 communities, from builders to people using products.[2] The Crypto Council for Innovation (CCI) too has conducted extensive primary research and created, a first of its kind, Center for a Digital Future: Impact Base (https://centerforadigitalfuture.squarespace.com/impact-base), a collection of Web3 projects actively creating social impact. In our work we have done research with crypto founders, builders and investors as well as end-users using a host of ethnographic methods—interviews, participant observation, financial diaries, payment mapping—to understand the alignments and departures in market motivations and community needs. Based on this comparative work, we propose viewing ethnographers as intermediaries "*who can sit between and at specific nodal points or critical junctures* to bridge, negotiate, translate, or convert different kinds of value" (Tankha and Dalinghaus 2020, see also Latour 2005; Lindquist 2015) for diverse Web3 stakeholders. Considering ethnographers as intermediaries entails thinking

across ethnographic projects, as we are doing in this paper, that can be invaluable in revealing silos, missed opportunities, misunderstandings, and the synergies and tensions in what different communities find valuable. Without industry ethnography, highly specialized spaces like this one are more likely to develop in chaotic echo chambers, where impact is idealized though rarely fully realized in substantial ways. Industry adoption of user experience research is a welcome tool to building more empathetic products. However, without rich ethnography it is insufficient to fully grapple with the broader scope of lived realities *beyond* the lens of the product. The blockchain industry would hence benefit from a reckoning and re-prioritization. Grounding research in understandings of individual and community ecosystems (Youngblood et. al. 2021) instead of just *incentives* is more likely to deliver impact—as opposed to endless design tweaks in pursuit of product-market-fit. Applying ethnography to the Web3 industry can provide pause and redirect our gaze away from technological hyperscaling to help generate precise points of intervention in the lived realities and financial pain points of communities. In doing so, ethnography could in fact help steward the crypto industry back to its initial commitments to disrupting the foundations of traditional banking and ensuring financial inclusion for marginalized and unbanked communities.

Plurality but out of Focus

Our ethnographic research with Web3 founders, builders, and people using products across the United States demonstrated an industry driving force embodied as a passionate exploration of plurality. Participants in the industry demonstrated holistic thinking about how to develop layered, multifaceted ecosystems spanning nearly every conceivable aspect of the pre-blockchain-existing world. This plurality manifests at different levels, shaped by the motivations and imaginations of industry participants and shaping the technologies and outcomes affecting individuals accessing these products; plurality of *projects and products*; plurality of *tokenomic design*; and a unique interconnectedness and plurality of *communities and ecosystems*, intertwined with developments towards cross-chain interoperability. Plurality in and between these levels however, produces a chaotic combination of possible outcomes. A still yet to mature industry lacking standards and best practices produces variety at each level that remain disjointed from each other. The infinite number of possible combinations between product direction, underlying tokenomic design, and community of participants being experimented with can be difficult to keep track of. Reliable metrics for measuring a project's potential sustainability are still being developed, and many unforeseen consequences have emerged from the

experimentation taking place. Without prioritization of concise, targeted use cases, potentially beneficial social, environmental, and economic tools are drowned out by hype-cycles that die in the trough of disillusionment.

Plurality of Projects and Products

An exceptional variety of projects was apparent from the beginning of participant observation fieldwork. An annually held Web3 conference in Austin, Texas provided the space for dozens of presentations, with speakers touching on all conceivable aspects of the industry. Predictably, many sessions focused on decentralized finance, blockchain governance, and technological design structures of blockchains and their accompanying tools. Sessions on the potential social impact of blockchain cited projects attempting to improve access to financial tools, remittance capabilities, and financial literacy of marginalized communities, such as the formerly incarcerated or experimentation providing indigenous communities with access to carbon asset markets. Although the projects in that particular session appeared to embody goals of equitable "financial inclusion," many other projects appeared to adopt this language without demonstrating a proven ability to deliver on those impact goals through last mile services. Other sessions featured networks boasting ecosystems with over 600 projects in development and ambitious goals of becoming the "largest on-ramp in Web3 history," or pointing to their communities exceeding half a million members. Blockchain gamification—the application of game theory and design along with tokens to incentivize activities such as learning objectives or industry participation–mining, social reputation tokens reimagining digital data management, and UI and Web design projects, like that of Brandon Eich, the creator of Javascript and founder of a web browser with data harvesting protections and crypto integration, all attracted audiences eager to learn about the future of Web3.

Our research also took us to Manhattan, where we attended an industry social event and observed projects sharing the Web3 dedicated coworking space to develop disparate projects side-by-side. There, Web3 gaming startups applying tokens to in-game exchangeable 'skins'—personalized character components—developed their visions alongside former traditional finance folks who identified the need for treasury management among Web3 projects, starting their own company to fill this need. While seeking research participants in the San Francisco Bay area we encountered a founder who, after immigrating to the United States, was working to establish his micro-tasking startup which utilized its own internal crypto economy to facilitate payments between participants. Analyzing industry publications and media

highlighted projects experimenting with derivatives in the DeFi sector and others committed to reconfiguring digital identity to provide individuals with more control over their data. Throughout the research process we heard industry participants voice concerns over centralizing effects, such as individual network dominance, calling for "strong competitors" they saw as keeping the industry diverse and innovative. Plurality seemed to emerge naturally as the industry expanded and participants discovered emergent needs, implementing legacy processes such as treasury management mentioned earlier and novel ones, like that of transaction ordering technologies, or MEV bots—computer programs coded and deployed to order transactions in the most efficient and value-return maximizing fashion.

Plurality of Tokenomic Designs

Tokenomics: Novel Assets and a Driving Force for Plurality

Cryptocurrencies are digital asset tokens created specifically for a particular blockchain network. Transactions in the network are carried out and recorded in these assets. In legacy electronic credit and debit processing a centralized authority, such as the Automated Clearing House, holds the sole responsibility for processing and verifying transactions. In Web3, community members volunteer to participate in this process with the possibility of being rewarded in cryptocurrency for their efforts. While various blockchain networks approach coordinating community members participating in this process somewhat differently, for a blockchain to be a decentralized technology this process is always carried out and confirmed by community participants and not a central intermediary. At the center of this process is tokenomics—a portmanteau of 'token' and 'economics'—the process by which these behaviors and functions are designed and incentivized through the application of digital tokens and blockchain ledgers.

Tokens, in this fashion, have no physical representation and exist solely as digital assets tracked on the blockchain. By rewarding specific behaviors with tokens, blockchain networks are able to incentivize the necessary functions to maintain a blockchain ledger through community participation. Although digital tokens like these make claims to monetary qualities, the reality is due to few opportunities for digital tokens to be accepted as a means of exchange beyond the limited sphere of the blockchain network they are native to, they only aspire to be considered as money in the way that fiat currency achieves. Blockchain ledgers, advocates point out, are cryptographically secure, transparent, and offer efficient economic and monetary control levers. As a public, decentralized technology the transaction history on the ledger is visible to anyone with a computer and internet connection.

Designing tokenomic systems is a complicated and intricate process. Designs vary significantly, from aspirational digital cash systems–like that of the Bitcoin network–to digital carbon asset representations. Bitcoin, while complex as a technology, functionally intends only to serve as a pseudonymous–accounts in the Bitcoin ecosystem are tied not to identities but to alphanumerical addresses–digital form of cash or cryptographically-secured currency. The public nature of decentralized blockchains and an industry motivation toward open-source technologies facilitated the creation of thousands of other cryptocurrencies to enter the market after Bitcoin, either by copying the design of Bitcoin directly or iterating on it in some way. Some of these projects have even surpassed Bitcoin according to certain metrics. Ethereum, for example, surpassed Bitcoin as the most used blockchain network over four years ago.

While conducting research into Web3 builder experiences, we encountered a multitude of blockchain network designs. Systems developed since the launch of Bitcoin intend to serve innumerable different purposes. Some of the tokenomic designs we observed during research included 'tokenized–represent as a digital token recorded on a blockchain ledger–carbon assets, wireless connectivity credits, complex investment vehicles, community membership, and certificates of ownership over real-world and digital assets like art or property, among many others. While the majority of ethnographic research examining the blockchain industry focuses near-exclusively on the 'gold-standard' crypto, Bitcoin, the truly expansive and far richer nature of the broader Web3 industry and its diverse participants and objectives are missed entirely.

Tokenomics Enables Plurality

The future imaginaire of Web3 promised to deliver a version of the World Wide Web characterized by 'decentralized' digital economies liberated from the control of centralized intermediaries and their monopoly over individual data and use of technology. Our research revealed significant challenges standing in the way of realizing this vision. Among the experts designing tokenomic systems, however, Web3 still held the possibility of far more than the popularly observed use of cryptocurrencies as speculative investments. These participants expressed nuanced, and seemingly counterintuitive, approaches to achieving the decentralized vision. A tokenomics consultant working with a popular firm articulated these considerations:

> It's important for projects to consider why they want to be decentralized
> and what their optimal level of decentralization is, and how important it is

> to reach a certain point of completion of the project before taking on the
> risk of opening it up to a wider group.

In working to achieve the Web3 imaginaire, passionate industry professionals viewed tokenomic systems and their accompanying communities as the key tools to realize a new, economically integrated and individually sovereign, World Wide Web.

Leveraging tokenomics enables Web3 builders to offer unique mechanisms through which communities can form and interact. Novel tokenomic incentives and touch points–such as NFTs–have given Web3 founders the ability to produce a plurality of ecosystems and communities through their various projects. Research revealed a number of challenges in effectively developing a sustainable tokenomic system. These challenges involved design considerations, community and individual actor behavior, and institutional influences, all of which complicate Web3 claims of decentralization and equitable access. Research involved participants from all over the world and included field sites on nearly every corner of the United States, where we observed Web3 participants pursuing 'plurality' and diversity in nuanced and unexpected ways.

Plurality of Tokenomic Designs

As blockchain networks expanded beyond the initial 'digital cash' use case they have become increasingly more complex. So, too, has the tokenomic designs behind these systems. The growth in complexity and number of individual token systems can make it difficult for participants to engage in these systems and move between them efficiently. Ecosystems featuring multiple tokens, each with specific utilities and characteristics, significantly increases the complexity and approachability of these systems for Web3 participants. Even the single token ecosystem of Filecoin, a decentralized blockchain network for file storage services, imbues their token with multiple functions. $FIL, the native asset of the Filecoin ecosystem, is used to pay for goods and services, retrieve stored data, reward validators for securing the network, and functions as a yield generating asset when 'staked'–the temporary forfeiture of exchanging the token. Tokenomic design attributes may catch traction and be adopted by other communities for their perceived success, while others seek to create functions and designs that improve upon established models.

In an example of the potential for tokenomic complexity, our field research led us to an early-stage carbon credit startup still in the midst of developing their tokenomic design. Their initial tokenomic system was to include three separate tokens to account for different stages in the carbon cycle. The complexity of this system included mandatory token holding periods, overlapping spheres of exchange,

and participant specific token uses. Mapping out this system with their team helped us to better understand the objectives and intentions behind the design, which appeared at first unnecessarily difficult to navigate. Tokenomic experts continue to explore the bounds of tokenomic design, refining and innovating an industry role that is central to the goals of the community at large.

Plurality of Communities and Ecosystems

Plurality is central to the future Web3 imaginaire. Achieving this vision, however, is complicated by the inability of digital assets to move seamlessly across various blockchain networks. Industry participants in our research were passionate about addressing these challenges through cross-chain interoperability—or the technological capabilities of blockchain networks to communicate with each other and facilitate the transfer of assets between them. Interoperability featured prominently across all research domains, from numerous sessions at the convention in Austin to podcasts and articles surfaced during discourse analysis. Convention speakers articulated frustrations with "siloism" and argued for interoperability as a means to reduce "tribalism" they characterized the industry by. One speaker called for greater measures in the security of interoperability technologies stating matter-of-factly: "We all know [the future is] going to be cross-chain." In another instance, a podcast guest explained the constraints of a single blockchain project attempting to be the sole processor of transactions globally:

> There is a misunderstanding that there is ever going to be a single chain that is going to manage all of the world's capacity or demand for blockspace. There is no such thing—[blockchains have] a finite amount of [available space to record new transactions].

Web3 'plurality' for industry builders and participants is not a singular goal, but rather, it is functional, even predicted to be technologically necessary for scaling the industry; it is experimental, with complicated and intricate technologies stretching the boundaries of what is possible; it is entrepreneurially savvy in that a greater variety of projects being built leads to greater involvement from the public, and thus more individuals participating, adding value, and strengthening Web3's goal of embedding itself in the future of digital environments; it is also an honorable goal for the genuinely equitably-minded; and it is sometimes a social signal for the performative actors destigmatizing their projects by riding the coattails of more altruistic endeavors. Industry builders clearly recognize friction exists. Whether the solutions

they produce are ultimately framed through user needs or company needs is yet to be seen.

The User in Focus

The dizzying levels of plurality in the Web3 industry seem to be increasingly out of touch with the large-scale urgent problems it initially purported to address. Providing speedy, transparent and unlimited cross-border payments and remittances have been one of the most critical use cases for blockchain and cryptocurrency, for instance. The industry has largely neglected to account for last-mile processes in cross-border payments, falling conveniently short of delivering the impact promised. This is in part due to regulatory constraints but also, due to a hyper focus on building a blockchain based ecosystem de-linked from existing banking infrastructure. Interoperability with the existing banking infrastructure is not a priority for Web3 developers and continues to be either non-existent or extremely expensive (Maurer et. al. 2013; Nelms et. al. 2018; Swartz 2018). Or as others have argued and our research confirms, cryptocurrency rails rely on more informal local networks for off-ramping, thereby hardly providing a new alternative global financial system (Rodima-Taylor & Grimes 2019, Tankha 2021). In the case of cross border payments, some Web3 founders also commented that it is hard to pitch the story of remittances to US investors that do not recognize market opportunities that don't reflect their experiences. For instance, in conversation with a startup providing blockchain based remittance services to Latin America, the founder described challenges in securing venture capital funding for the project due to lack of relatability. He noted:

> I pitched to 100 American funds, and probably 90 of them just didn't really have the full understanding of what we're doing [remittances for Latin American immigrants in the US] and why that matters. Because we get questions like 'Why don't they use Venmo?' If I have to explain why you cannot use Venmo to send money to Mexico then there's really no point in [trying to pitch this person]. Instead of a pitch it should be a classroom session. And my realization was, if you have never faced that problem, it's really hard for you to understand it…if you've never had to send money to someone in another country, then it's hard to understand why that matters.

In two user focussed projects on financial exclusion with tech entrepreneurs in Cuba and immigrant families and business owners in South Florida, we found that cross border transactions were in fact one of their main challenges. Our largely immigrant interlocutors in South Florida, used a host of financial services from traditional banking services (checking/saving accounts; credit and debit cards; Zelle)

to apps (Venmo, Cash App, Apple Pay) and formal and informal remittance services (Western Union, Moneygram, *mensajerias* or money couriers). Though they all encountered frictions with banking institutions in their everyday lives that made their trust in traditional banking fairly fragile, the most attractive use case for cryptocurrency was for making cross-border payments rather than for their daily expenses or as an investment, given its volatility. Many of them incurred high fees and had experienced fraud and delays in receipt of cross border payments. The alleged transparency and timely settlement of crypto money transfers was therefore promising. As part of the research design, the participants in South Florida were given money to load onto a cryptocurrency wallet to test out what value it would add to their existing financial ecologies. At the end of the study, we found that for our participants, off ramping or cashing out of the crypto infrastructure was necessary but expensive and inconvenient when making cross border payments and therefore did not make using cryptocurrency a viable option.

For instance, one of our interlocutors, Mariana, is a single mother of three children. Originally from Belize, she moved to Fort Lauderdale 10 years ago but has not held a steady job. She joined a community college to start the process of entering a nursing program, but had to quit when the pandemic hit. She has a terminal mother in Belize and has many medical bills she has to pay for her. She uses Western Union to send money to her brother in Belize who is in charge of her mother's care. She struggles with the high fees Western Union charges as well as the daily limits it sets on money transfers. Due to her mother's costly hospital bills, she often needs to transfer amounts of money much above the daily limits and since she is unable to send the entire amount, it causes disruptions in her mother's care. When she has attempted to send amounts above the daily limit, Western Union has flagged her payments and has to go through a long drawn-out process of proving that she isn't, in her words, "a scammer or fraudster." With no limits on daily transactions and purportedly less fees, cryptocurrency seemed like a great solution. The global cryptocurrency wallet being tested by the participants also came with a Visa debit card that was only issued to persons in the United States and not to users in other countries. Mariana had her brother in Belize open the same crypto wallet that she was using in Florida. She sent him money using the wallet and he received it almost immediately. She was pleasantly surprised at how fast the transaction was completed, unlike with Western Union where she sometimes had to wait for several hours or even a few days for her brother to receive the money. However, for the money to be used for payments in Belize, her brother had to cash out of the crypto wallet by

linking it to his bank account and in that transfer, he incurred high fees and taxes. To avoid these charges, Mariana thought about opening a crypto account for her brother registered in the US so that he would be issued a debit card which he could use in Belize. But he would then face a less favorable exchange rate as well as international transaction fees to withdraw cash from an ATM in Belize, leaving them back at square one. Hence, while the transactions were faster, the end-to-end processing of crypto payments ended up being more costly than sending money via Western Union.

Another one of our research participants, Terrence is a small business owner residing in Miami, Florida. He is a lawyer by trade but doesn't practice anymore. He moved to Miami to start a tobacco importing business and more recently diversified into chocolate, coffee and liquor. A majority of his suppliers are based in Latin America and Miami is the first port of entry. He talks passionately about dark chocolate and gadgets. His businesses took a hit during the Covid-19 pandemic due to supply chain issues, but they have now mostly recovered. Terrence tracks his finances very closely. This was something that he picked up from his mother. "My mother always said, 'check what you got and then see what you made.' I do it every day. I know what's gone out and what came in," Terrence told us. As a small business owner making regular cross border payments to suppliers in Latin America, he finds himself paying several fees. The simplest thing for him to do are wire transfers and the most complex is letters of credit. His experience with traditional banks has not been the most pleasant. "They charge a lot of fees! I can tell you stories. I am a small business man and these sums can put you out of business." Terrence would hence welcome an alternative to traditional banking in his business life. Because Terrence has several businesses that require transactions both domestically and internationally, he has issues with sending money overseas and also the naming structure of his entities. For instance, he has a cigar company with the word "Havana" in its name. Due to U.S. embargo restrictions against Cuba, every 3-4 months his transactions get flagged and Terrence has to produce evidence confirming that he is not sending money to Cuba. With his chocolate business too, the international wires he makes are often routed through Panama that he says is the "kiss of death" because Panama has a notorious reputation for money laundering. Transactions get held up for 30-45 days. To avoid these risks, he has several entities through which transactions are routed. For instance, he uses a family trust as a distributor for the chocolates so that "it looks like it's a nice little family-owned business." He also uses letters of credit when he doesn't have an existing relationship with the vendor. These letters of credit too are expensive to produce, sometimes they charge more than one percent of the transaction. Despite all the challenges

Terrence faces with making cross border payments he doesn't think cryptocurrency is the solution since there isn't a developed ecosystem. While he acknowledges that transacting in cryptocurrency could make global payments easier, he doesn't think he could convince his vendors in Latin America to open crypto wallets. He says that it is a question of getting comfortable with and trusting the technology and being able to convert more easily to more accepted forms of payment. Until then he doesn't see how cryptocurrency can be useful in his transactions. Letters of credit from banks, while cumbersome and expensive, guarantee and insure transactions and people trust them. For Terrence, there is a higher chance of "seeing whales with wings" than people having that level of trust in cryptocurrency.

Similarly, another small business owner Javier, originally from Colombia, is starting a business importing gold from a small network of miners in Bolivia. He co-owns the business with his father and some of his father's friends. He is very tech savvy and already has several crypto wallets and other money transfer apps. He needs to send large volumes of money to Bolivia for his business but is finding that this is becoming more difficult with completing transactions to pay his miners. Much like Terrence's case, his payments repeatedly get flagged for fraud and "suspicious activity." He then has to provide detailed explanations about where the money has come from and where it is going and if he doesn't the money is frozen. Unlike crypto transfer, banks and even Western Union are not operational 24 hours or on the weekend, so delays in processing that goes to the following business day do not capture the real time price of gold and exchange rates in a transaction. The miners he works with also live in remote areas and have to travel long distances to the nearest bank or Western Union. Another issue is that much of the gold business still operates in cash, both for the suppliers in Bolivia as well as the buyers in the US. As a result, Javier says that he would like to use cryptocurrency, especially to pay his miners, but since they don't live in cities, they often don't have reliable internet infrastructure, so getting them to transact in cryptocurrency is a non-starter. Moreover, these miners would need to cash out of the crypto ecosystem in order to pay for their other needs and as mentioned before this involves incurring high fees and taxes. Even though Javier is extremely keen on using cryptocurrency and understands its potential, there isn't a fully operational end-to-end solution to support his needs.

In their financial lives, people juggle multiple financial services and tools to meet different needs. The paired concepts of monetary ecologies (assemblages of instruments and technologies that together make up the world of value and exchange

in people's lives) and monetary repertoires (the diverse ways people might use, deploy and move between the different components of their monetary ecology) capture the complexity and plurality inherent in the lived experiences of finance (Maurer 2015; Tankha 2016; Tankha and Dalinghaus 2020). For people then, plurality is about having multiple interoperable financial tools between which they can, easily and cheaply, move, convert and generate value. Creating a blockchain based ecosystem with a plurality of tokens and products that are just interoperable across different chains, and not with existing financial services, falls short of addressing people's most pressing needs. Yet there is generally a lack of motivation for offramping when addressing strategies behind token implementation. For instance, a panelist at a Web3 conference illustrated the somewhat unspoken truth that for many companies in deploying tokens, the solitary goal of that asset is to drive and retain users *within* the network, describing tokens as "your customer acquisition strategy," and a "mistake [to think] the token is the business model." This sits starkly in contrast to remittance communities who are most in need of cash or other avenues to procure basic necessities. There is, therefore, a misalignment between how developers and investors are thinking about plurality and the kinds of plurality people and users desire in their financial lives. How then do you build ecosystems without users and how do you increase users without use cases for their existing challenges?

Moreover, the hype cycles of blockchain and crypto and their drive to create peer-to-peer decentralized economies divert from the fact that these ecosystems continue to be contingent on state legal institutions as well as informal local networks for off-ramping. In our work with tech entrepreneurs in Cuba, we found that many people on the island were transacting in cryptocurrency despite significant risks. Crypto exchanges based in the US or even elsewhere are bound by US sanctions and geoblock Cubans from operating on their platforms. Cubans, however, use virtual private networks (VPNs) to hide their location and IP addresses to access these exchanges. Our interlocutors explained that using crypto allowed them to access work and get paid in the global marketplace through platforms such as GitHub. Many of them used crypto wallets as an investment or store of value to protect from heightened inflation in the Cuban economy. However, transacting in crypto comes with risks because Cubans have no recourse in the event that they lose access to their accounts or forget their passwords and are asked to produce identity documents. Crypto wallets also cannot be linked to Cuban bank accounts, so Cubans either have family overseas to on-ramp or off-ramp their wallets with installments of cryptocurrency, or they sell/purchase cryptocurrency in person from local traders in Cuba in exchange for cash. Even so, crypto remittance services were started by tech

savvy Cubans but money was sent to personal crypto wallets of a network of programmers and software engineers that then made payouts to individuals or utility companies in either cash or through *Transfermovil*, Cuba's mobile application for making online payments. An entire informal network of cashing in/out of the crypto ecosystem has developed in Cuba, that is layered upon existing informal economy linkages, to complete transactions. Blockchain-based financial services do not rise above global banking restrictions and cannot provide alternate last mile services to financially excluded communities, such as those sanctioned by US geopolitics (Tankha 2021). In spite of the promise of creating more inclusive economies, crypto solutions are ridden with obstacles and risks for such communities.

Separating Noise from Impact

There are no doubt several challenges in the regulatory environment as well as in fostering trust in new financial infrastructures that impede the delivery of truly plural and interoperable solutions for pressing community needs. The lack of regulatory clarity around cryptocurrency leads to ambiguities about the legality of particular crypto platforms and tokens and therefore entails higher costs for specialized legal services to provide some assurance that they will not attract unwanted attention from the U.S. Securities and Exchange Commission or other regulatory enforcement agencies. Tokenomics is also highly complex and specialized, making it hard for companies to locate the expertise needed to design a truly sustainable ecosystem (Crypto Research & Design Lab 2022). The few that do possess the expertise command high premiums and are many times only accessible to networked and well-resourced projects. The industry also faces a serious threat from a high prevalence of scammers that impact mainstream perceptions of cryptocurrency, slowing adoption and making it difficult for honest teams to avoid destructive models that might harm their communities. Despite such frictions, we did encounter some builders working to overcome these challenges and create platforms more aligned with everyday realities and more devoted to ideologies of inclusion and shaking the foundations of traditional banking and finance. Part of this research involved creating the Crypto Council for Innovation's (CCI) Center for a Digital Future: Impact Base, a first of its kind collection of primary research on Web3 projects actively creating real world impacts. Developing this database through CCI included dozens of hours of research evaluating Web3 projects. Startups and established businesses alike were assessed by their reputations, business sustainability, and history of creating–or potential to create–positive impact, among other factors.

Founders from groups of historically excluded communities, in particular, found the tools that Web3 offers to provide opportunity to reshape their realities and those of their communities. Whereas Web2 had solidified in exclusionary ways, Web3 was seen as a promising avenue to pursue equitable access and individual autonomy. An Indigenous technologist, educator, and entrepreneur who works as a project manager for a community bank explained during an interview:

> There's such a long history of [indigenous folks] being subjected to bigger powers, and tech is one of those powers now. Figuring out a way to create an organization that has power that mirrors our community structure is incredibly important. We do have to disrupt and create something completely different that's on our own terms.

This individual was part of a team interested in developing a localized token economy that would encourage commerce and value circulation among the indigenous community while reducing potential leakage, or the tendency for value to be diverted from a particular economic system. Participants were passionate about creating new ecosystems formed by and for their own communities, not subject to the controls and exclusions they experience in Web2. Blockchain tokenomics and its ability to create bespoke economic tools was observed as a unique opportunity for founders of color to subvert the shortcomings of legacy systems: An entrepreneur and founder of a public cryptocurrency developed for the Global African Diaspora community told us:

> ...[As] Black people, we've been building a tremendous amount of social capital on platforms like Facebook and...our hands are tied—we can't really do anything with it. We're like slaves to the platform. Once we introduce the idea of blockchain...we're creating as a community...we can put our social capital there and it could get back to us in many different ways.

Through blockchain and tokenomic design, this project sought to encourage mutual support among the global Black community, fostering economic activity and building governance and collective decision-making power through blockchain voting mechanisms.

Other communities experimented with reimagining digital organizational structures without traditional hierarchies. A consultant who started one of the first decentralized organizations for designing token-economic systems for projects told us: "I always recommend starting with a community first, because then you have something proven and something tested, before you actually do the token." Careful consideration of the community emerged as such an important part of the design process that some tokenomic consultants we spoke to said the entire project might

end up being undermined without a clear community and a reflection of their values present in the tokenomic design. Sustainable applications of tokenomics to facilitate community formation emerged as a far more diverse and nuanced area than what was originally thought. When designed and deployed thoughtfully, tokenomics was revealed to be an essential tool for Web3 builders, opening up new possibilities for these projects including attracting participants to them, driving activity within the ecosystem, offering new models for project funding, and creating new forms of digital assets.

The foundations of the Web3 industry are actively being formed. Complex and intertwined relationships between the public and the various groups and individual actors involved in driving and guiding the industry mold what it will stand atop–or be perceived to be standing atop. Mainstream attention to Web3 has a displacing effect on communities and groups working toward generative and novel models of more equitable digital and economic realities for marginalized communities. Drowned-out by crypto-company implosions and token scam schemes, communities and builders (such as the ones mentioned in the previous section) are missed in mainstream or even industry self-assessments of what Web3 embodies today. Ethnographically-oriented researchers are uniquely equipped to shed light on individuals and projects working to build the foundations of more equitable systems through blockchain technology. Where impactful use cases are obscured, ethnographers can give voice to the beneficial projects unfairly grouped alongside grifts and carelessness.

Conclusions

In an industry like crypto that is innovating and expanding at a breakneck speed, comparative analysis across ethnographic projects illuminates disarticulations at different scales and between the goals and needs of diverse stakeholders and communities, but also helps chart new directions by archiving and uplifting projects geared toward lasting social impact. Ethnographers can, therefore, be valuable critics of broken systems as well as advocates of new forms of value creation. Academics and industry professionals have shown how ethnographers can serve as intermediaries translating between institutions and communities, interpreting and leveraging quantitative data toward humanistic ends (Levin 2019; Maiers 2018), bridging the "temporal mismatch" between futuristic industry thinking and the current everyday concerns of people (Van Leeuwen & Singh 2023). For the crypto industry, we have shown how comparative ethnographic approaches allow us to

critically interrogate notions of plurality in cross-chain blockchain ecosystems, celebrated by founders and builders, and show how they eclipse communities' needs for a plurality of interoperable financial instruments. Rather than stop there, however, we argue that ethnography can also be future facing in identifying where innovation can be targeted. Deep ethnographic work can be leveraged to distinguish strategic opportunities from the gale of silver bullet solutions, to deliberately and responsibly lay new foundations in the crypto industry, block by block. This work also entails addressing the role of politics and regulatory frameworks in the making of payment infrastructures, whether as protections for users or as exclusions tailored into the fabric of our global financial systems. As intermediaries then, ethnographers are tasked with not only interpreting social dynamics, critiquing institutions, and challenging power relations but also advocating for strategic innovation disrupting the existing foundations that fail to serve underrepresented communities. Such efforts could shift the tech paradigm toward developing platforms and products, not for the most economically viable customer, but for who it can benefit the most.

About the Authors

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Notes

[1] While the individual research projects we did were conducted in these organizations, our arguments in this paper zoom out and put the findings from these different projects into conversation. Therefore, the arguments presented here do not necessarily reflect the perspectives of these organizations.

[2] This research, published as a number of in-depth reports, highlights the efforts of Web3 builders towards social and community impact, including Black Experiences in Web3, Investigating Generational Wealth, and Income and Wealth Creation in Web3.

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