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# Blockchains and the “Chains of Empire”: Contextualizing Blockchain, Cryptocurrency, and Neoliberalism in Puerto Rico

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**ABSTRACT** Although blockchain is often posed as a revolutionary and disruptive technology, its politics and socio-technical configurations often align with aims to maintain the status quo, and/or aims to concentrate wealth and to make existing powers more efficient. I empirically describe how colonial-contingent, neoliberal economic policies in Puerto Rico have incentivized the techno-capitalist industries of cryptocurrency and blockchain. Portions of the archipelago are being re-made into a so-called “crypto-utopia” to satisfy the desires of new settlers in a new form of crypto-colonialism. Puerto Rican government organizations, institutions, and businesses are also engaging blockchain technology with differing intents, all using rhetoric as a covert design

**tool. In this paper I will focus on blockchain and cryptocurrency as neoliberal and libertarian technologies adopted by governmental agencies, businesses, organizations, and individuals, as well as efforts of resistance through alternative, decolonial design.**

KEYWORDS: Settler colonialism, punitive neoliberalism, cryptoeconomics, technopolitics, decolonial design

### **Introduction**

Recent neoliberal policies have incentivized cryptocurrency investors and blockchain businesses to move to Puerto Rico from the United States and other countries, offering the opportunity to design their own future for the archipelago. Some are looking to establish a “crypto-utopia” and are engaging in a type of settler colonialism with founding myths of Puerto Rico as a blank-slate after Hurricanes Irma and María. Naomi Klein’s recent focus on this as an instance of “disaster capitalism” has raised awareness of Puerto Rico’s contested future within a system of colonialism designed to “strip colonized peoples of their culture, confidence, and power” (2018). However, what is missing is an examination of the varied groups of Puerto Ricans who are actively engaging with cryptocurrency and blockchain with different ideological positions and design approaches. In this paper, I focus on blockchain and cryptocurrency as neoliberal and libertarian technologies adopted by governmental agencies, businesses, organizations, and individuals, as well as efforts of resistance through alternative decolonial design.

Most academic literature on cryptocurrency and blockchain is generalized, theoretical, and global. Fewer academics have undertaken empirical, *sited* research (Howson et al. 2019; Evans 2015). Accordingly, I argue that by understanding technology’s role in a sited context, researchers can anticipate future outcomes. If anticipated outcomes appear inequitable, researchers can highlight alternate design strategies in contestation or resistance. I thus contextualize the socio-technical relationships of cryptocurrency and blockchain in Puerto Rico – where there is most at stake for those who do not have a stake in crypto – with these aims in mind.

“Cryptocurrency” is a digital representation of economic value. Bitcoin was the first popular cryptocurrency, presented as “peer-to-peer electronic cash,” and not tied to any one country or nation-state (Nakamoto 2008). Bitcoin has since been pegged to the U.S. dollar and has been bought, traded, and speculated. The Bitcoin blockchain acts as a digital ledger, accounting for all Bitcoin transactions. Rather than being held in one central bank, a copy of the ledger is distributed across all computers that participate on the Bitcoin network.

The launch of the Ethereum blockchain in 2015 opened source code for developers to create their own cryptocurrencies or

decentralized applications (‘dapps’). With Ethereum, blockchain is not just a record of transactions but also a database or service platform. The data that can be represented on blockchains via cryptocurrencies or “tokens” is virtually limitless, from digital pets like CryptoKitties, to health records, land rights, even voting stakes. Due to their cryptographic protocols, blockchains are purportedly more secure, harder to hack, and reduce the need for third-party intermediaries. This is the draw for banks, corporations, and institutions looking to increase efficiency (Vigna and Casey 2018). There are many types of blockchains, but in the most common – a Proof-of-Work blockchain – one can elect to put one’s computer to work computationally confirming transactions. Owners are rewarded for their energy expenditure by earning cryptocurrency, which is one way of “mining” bitcoin.

Blockchain is fundamentally a new digital economic technology focused on transactions between individuals.<sup>1</sup> How design intersects with blockchain and cryptocurrency is dependent on the place and groups involved. In Puerto Rico there are three main groups and design approaches: (1) businesses and tech startups; (2) governments; and (3) individual investors. For businesses and tech startups, the design of blockchain systems is linked with rhetoric around “innovation” and “entrepreneurship.” It has much in common with methods of Design Thinking originating from Stanford University in the 1980s and 90s, and reintroduced with d.school. Government concerns around economic development intersect with Silicon Valley ideation. However, the Puerto Rican local government’s interest is also about how blockchain can pose solutions to existing problems or to create more efficient governance. For individual crypto-investors in San Juan, however, design of their own “crypto-utopia” is enacted both with government cooperation and through insular digital networks. For the more libertarian-minded, the notion of design may be disavowed entirely, instead advocating for an *ad hoc* means of appropriating space as the market dictates. In addition to these three pro-blockchain groups, I feature practices in contestation or resistance. These engage decolonial design methods<sup>2</sup> that seek to raise awareness of current issues (Bonilla et al. 2019) and/or propose alternate economic strategies that are more communal, cooperative, and culturally minded than those imposed from the outside.

As an academic and an architect from New York who has managed hurricane recovery projects in Puerto Rico, I came to this research in the middle of the processes about which I write. I began as an outsider to both Puerto Rico and to the world of blockchain technology. From the beginning of my research, this has demanded self-reflexivity and, above all, listening to and learning from lived experiences that are not my own. Because I was not directly impacted by the crises in Puerto Rico, I was able to take the necessary time to decipher blockchain rhetoric from observed actualities. Across the media, the “blockchain revolution” (Tapscott and

Tapscott 2016) is posed as having the potential to radically “transform the public sector” (Deloitte 2017), to “disrupt nearly every industry” (Marr 2018), and more broadly “change the world” (McKinsey 2016). Proponents of blockchain espouse a narrative of “transparency” (Shrestha 2019), yet blockchain whitepapers are filled with jargon that is opaque to most people, even to those with technical backgrounds (Greenfield 2017). Interested parties must place their trust in technologists who are able to describe blockchain’s potential. These narratives spread via the internet, generating a mimetic transmission. So is born the blockchain-buzz; the crypto-craze.

Here, I view rhetoric as a covert design tool – the act of speaking or writing with the intent to persuade or gain consensus so that a desired goal can be reached in the future. In addition to encouraging technological adoption, rhetoric is often used to construct illusions – illusions that are easily shattered when a disaster occurs. This was particularly so for Puerto Rico after Hurricane María in 2017. Klein’s *The Shock Doctrine* (2007) reveals how crisis becomes an ideological tool by which corporations and free-market ideologues can pursue their agendas under the guise of altruism. In such disaster capitalism, crisis is operationalized to implement neoliberal policies, characterized by privatization, deregulation, and cuts to government spending and to public services.

I respond to Janet Roitman’s call to question which possibilities the concept of crisis enables and which it forecloses (2013). For Puerto Ricans, crisis shattered the illusion of themselves as equal Americans and revealed them to be disposable second-class citizens (Cortés 2018; Ficek 2018). For Puerto Rican scholars, the crisis is unpacked as a “relational, transcolonial reconsideration of the historical interplay between the forces of US imperialism and neoliberal capitalism in Puerto Rico” (Fusté 2017). Certain governmental representatives operationalize crisis to blame Puerto Ricans for their own problems and to implement neoliberal austerity measures. For private companies and investors, crisis is used in narratives of benevolent capital. In Puerto Rico after María, a lack of adequate federal government response left a gap to be filled. But it also shone a light on collective action. To solely view Puerto Ricans as individual economic actors with their own self-interests at play (which are common narratives in both neoliberalism and cryptoeconomics, and will be discussed) is counter to the cultural reality of Puerto Ricans coming together as communities of care.

### **Techno-Economic Transformations in Puerto Rico**

Puerto Rico is bound by what Julian Go refers to as the “chains of empire,” by which other colonial contexts are linked under US territorial expansionism (2000). By design, various technologies, ideologies, policies, and rhetoric have acted as chains over the last century to secure the U.S. empire. Puerto Rican scholars have written about

how these technologies have been negotiated, adopted, or resisted by residents in various ways (Hernández-Acosta 2015; Colón-Warren 2003; Pérez 2000).

Rhetoric is combined at times with symbolic legal action; for example, the ratification of the Constitution of the Commonwealth of Puerto Rico in 1952. This document granted enough local autonomy for the UN to remove Puerto Rico from its list of non-self-governing countries in 1953. What did not change was its status as an “unincorporated territory,” under which the protections of the US Constitution only partially apply, and under which U.S. Congress retains sovereign control. Puerto Rico is a land *owned by* but not *part of* the United States (Mercado-Vázquez and Democracy at Work). This is the “Puerto Rican paradox” (Pantojas-García 2005), also referred to as a “postcolonial colony” (Dávila 1997, 2, 33–38; Duany 2002) with U.S. imperial logic that considers Puerto Rico to be “foreign in a domestic sense” (Burnett and Marshall 2001).

With Congress failing to acknowledge its own contribution to the debt crisis, and with the establishment of *La Junta* (the Fiscal Oversight and Management Board appointed in 2016 under PROMESA), Puerto Ricans have been deemed unfit to make their own economic decisions. Instead, “punitive neoliberalism” (Davies 2016) has been proposed as the answer – justifying austerity measures by non-elected, undemocratic bodies as corrective action (Bernabe 2017).

Rhetorics of technological progress have been used to program U.S. imperialism onto Puerto Rican land, infrastructures, and bodies. Technological and ideological shifts were linked with major political-economic transformations by U.S. Congress to increase Puerto Rico’s dependency on U.S. capital investment – from agricultural to industrial/manufacturing under Operation Bootstrap (Fusté 2017; Berman Santana 2000; Dietz 1986). Over the last decade, digital information technologies feature in the newest economic transformation in Puerto Rico. Acts 20 (Export Services Act) and 22 (Individual Investors Act) have attracted technologists, venture capitalists, and recently, cryptocurrency and blockchain proponents. These Acts were passed in 2012 under then Governor Fortuño. Acts 20 and 22 offer tax incentives for new residents and businesses coming in from outside of Puerto Rico. The stipulation for new businesses, however, is that their services must be exported to serve people anywhere outside of Puerto Rico (see Sotheby’s 2013–2018). The premise is ostensibly to engage global markets, while avoiding local competition with existing U.S. service providers. Blockchain-proponents are not only financially incentivized to establish their own business, but due to the *Promoter Services* clause in Act 20, they are also incentivized to encourage *other* crypto-proponents to come to Puerto Rico (Porto Capital 2014).

This techno-economic turn toward exporting *digital* services is not without reason. Due to the Jones Act, imports and exports of

physical goods in Puerto Rico that originate from or arrive at ports other than those of the U.S. are subject to significant markups (Valentin-Mari and Alameda-Lozada 2012). Digital services, however, can be exported without shipping costs or physical entry to the country of export. Blockchain and cryptocurrency are particularly relevant here with their penchant for cross-border exchange.

### **The Innovation Economy and Neoliberal Technology**

Although blockchain is often posed as “disruptive,” its politics and socio-technical configurations often align with aims of neoliberalism. I refer to David Harvey’s description of neoliberalism as the “theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade” (2005, 2). These are also core tenets of right-libertarianism. Bitcoin’s creation stems from more extreme right-libertarian and cyberlibertarian views: Central banks and “third-party middlemen” are not to be trusted; any regulation should be avoided; and the gold standard should return (Golumbia 2016). At the same time, blockchain narratives around “decentralization” have attracted people on the political left, some hoping to break up tech monopolies. These contradictory political aims get pushed aside in favor of the rhetoric of blockchain as a bringer of progress and innovation.<sup>3</sup>

Innovation is expected to emerge from the market-driven “freedom” of individual entrepreneurs as they benefit from economic incentives. This parallels what Bob Jessup (1993) refers to as the “Schumpeterian Workfare State.” Here, we should note the rediscovery of Schumpeter’s theories on innovation as key to capitalist production and economic development, through which the State promotes innovation and competition in economic policy.<sup>4</sup>

In this “innovation economy,” emerging digital technologies, programmers, and tech companies have increased agency in governance and design. Code is increasingly linked to the production of space (Kitchin & Dodge 2011), and to the design of more efficient supply chains, logistics networks, transportation systems and urban planning (Mattern 2015, Posner 2018). As Mezzadra and Neilson write, “new strategies of urban governance intertwine with software and database techniques that intersect with the booming world of logistics” and are linked to processes of extraction and financialization (2019).

Blockchains are now proposed as *the* digital databases on which these systems operate, turning every transaction into blocks of data to be stored, recorded, and financialized. Blockchain’s “revolutionary potential” is continually redefined by its endorsement from some of the biggest tech companies, including IBM, Microsoft, and Facebook; with the largest banks, ING, Bank of America, JP Morgan;<sup>5</sup> and multinational economic and political institutions like the

International Monetary Fund, World Bank, and the United Nations. Cryptocurrency and blockchain have become techno-capitalist industries. Cryptocurrency facilitates faster, more fluid capital exchange, and with less regulation. Blockchain facilitates the ultimate financialization of data. Here, capital accumulation may become far more efficient. While several outside tech companies have landed in Puerto Rico, Puerto Rican entrepreneurs are also designing blockchain projects in spaces of innovation that are in synergy with neoliberal governmental policies.<sup>6</sup>

### **Blockchain Governance and Cryptoeconomics**

Neoliberalism considers the market as the greatest “information processor,” and even as an arbiter of truth (Mirowski 2013). Zook and Blankenship assert that, “the faith in the superiority of algorithmic governance has injected a powerful discourse in economies that has proven more important and disruptive than the actual practices of Bitcoin or blockchain” (2018). Blockchain technology, in a similar context of governance, has been touted as a “truth machine” (Vigna and Casey 2018).

The premise of the blockchain as a “truth machine” is based on a new form of Logical Positivism, whereby consensus is computationally verifiable, and Methodological Individualism whereby individual human economic behavior is rationally predictable. This is ‘cryptoeconomics,’ a neologism coined by Vitalik Buterin, co-founder of Ethereum. Cryptoeconomics is design by another name – programming, coding, software development, digital architecture.<sup>7</sup> Cryptoeconomics draws from game theory and mechanism design – a mathematical approach to designing economic incentives in strategic settings where individuals are “rational decision-makers” (Legros and Cantillon 2007). According to Buterin, cryptoeconomics is about “building systems that have certain desired properties,” and “[using] economic incentives defined inside the system to encourage desired properties to hold into the future” (2017). The assumptions of cryptoeconomics point not to a representative or direct democracy, but rather to an algorithmic meritocracy where certain behavior is economically incentivized and rewarded.

Blockchains are digital platforms with protocols designed with coded intent. Instead of allowing interpretive flexibility as in legal codes and policies, blockchains cannot work outside of the way they are coded. As Caliskan writes, “like constitutions, protocols constitute relationships by imagining rights, subjects, objects and trajectories of actions and inaction. But unlike constitutions, one cannot disobey them, for they make action impossible, if one does not follow the trajectories of movement that they define” (2018).

In neoliberal and cryptoeconomic logics, citizens are not constituents, but rather are individuals to be managed as resources and datapoints. In the U.S., the rhetoric of individualization is a neoliberal strategy, equating freedom with free markets and freedom of the



individual, such that every citizen can become the agent of their own destiny. These narratives deliberately seek to disband collective power and atomize the population into isolated individuals motivated by their own economic self-interest. To achieve financial success in a neoliberal capitalist system, one must participate in tasks deemed more valuable.

Local Puerto Rican government has become involved with blockchain for economic development. The “Blockchain Unbound” conference was a three-day event held in March 2018 with the goal of “connecting Puerto Rico with visionary entrepreneurs and investors in blockchain and cryptocurrency.” The keynote was entitled, “How Free Markets and Blockchain Can Make Puerto Rico the Hong Kong of the Caribbean” (Brook 2018). The conference was supported, in part, by the Puerto Rico Department of Economic Development and Commerce (DDEC), in conjunction with Blockchain Industries, whose mission includes “innovation that can help governments streamline their processes, rebuild struggling economies, transform legislative practices” (Blockchain Industries Inc 2018). A new “Blockchain Advisory Committee” was launched by the Secretary of the DDEC, Manuel Laboy, at the conference (Costa 2018).

Local Puerto Rican government interest in blockchain goes beyond economic development. Ideological discourses linked to blockchain have filtered into the discussions of local groups. This follows what Zook and Blankenship write, citing Cockayne (2016) that “the discourse surrounding Bitcoin and the blockchain systems it has engendered has proven more important than the actual practices of these technologies” (2018).

For example, the Puerto Rico Government Blockchain Association (GBA) is a self-formed meetup group of people who work for public agencies and who are “interested in promoting government understanding and use of blockchain technology” (2019). A GBA event held May 2019 titled, “The Economic Impact of Blockchain, Consensus Paradigm and Digital Currency,” cites Schumpeter as their ideological touchpoint. In terms of blockchain use cases, the GBA is considering “money without fractional reserve banking; crowdsourcing government in lieu of taxes; digital citizenship; law as code,” and more. This corresponds to what Ong (2006) conceptualizes as a new interactive mode of citizenship – one that orchestrates people according to their marketable skills and assigns rights and services according to their market value rather than their belonging to a geographical nation-state. There is a risk of a new, privileged class being formed – the technologist class – and those who can pay them.

### **“Crypto Utopia” as Settler Colonialism**

Some crypto-proponents, such as those who traded illegal goods on the Silk Road marketplace (Alder 2018), actively seek to escape government involvement and regulation. However, others are coming to Puerto Rico precisely to work *within* favorable legal frameworks and

neoliberal policy incentives. This includes a group of primarily white males from the United States referred to as “Puertopians” (Klein 2018) who have the intent to turn Puerto Rico into a new “crypto-utopia” (Bowles 2018).

Two months after Hurricane María, Brock Pierce (widely acknowledged as the spearhead of the Puertopians) said, “I’m working on building kind of a city. [...] I’m moving there with a bunch of my friends” (2017). He believes their aims are altruistic. Pierce says, “when you experience great loss, it creates an opportunity to upgrade [...] because you’ve basically lost everything, so you have to start over. And when you start over from scratch you would do it very differently than if you have this big thing that has been building on top of itself for ages and ages” (2017). Although Pierce and his supporters see Puerto Rico as a blank-slate, Puerto Rico is *not* starting over from scratch. The “big thing” that has been building on top of itself is serial colonialism, which has dominated the archipelago for over 500 years – first from the Spanish, then from United States, and perhaps now with crypto-colonialism. This scenario was featured in a *New York Times* article (Bowles 2018) published four months after Hurricane María finally dissipated after making landfall in Puerto Rico in September 2017.

Most investors and businesses that engage in cryptocurrency and blockchain are complicit in massive extractions of power with huge electricity demands. Based on a projection from Digiconomist, I calculated that the amount of carbon emissions produced in one bitcoin transaction is equivalent to driving four round trips around the perimeter of the main island of Puerto Rico. As of March 2018, roughly 150,000 homes and businesses were still without power, or about eleven percent of PREPA customers (Florida 2018). In March 2018, the average energy consumption of the Bitcoin network was 54.2 TWh. That is nearly three times (2.87×) the total annual energy consumption of Puerto Rico (World Data 2018).

During the second RestartWeek in Mayagüez and Rincón, there were protests at some of the panels (Washington 2018). The Puertopians think resistance is misguided and will fade over time. They believe they are here to fix the inefficiencies of the government. “Clearly we’re not conquering Puerto Rico,” Pierce says (Chaparro 2019). Entrepreneur Joshua Boles takes a more messianic position, saying “This isn’t about going down there to make money, although that’s always a primary focus to establishing a foundation and keeping things going for the long-term. It is more so about the spreading of a new religion [...] the religion of peace, of economy, of all things that are beauty and all things that we want for this world” (Chaparro 2019). The we in this case is a specific group of outside settlers looking to bring about a New World for Puerto Rico, replacing its existing culture and religion with that of their own crypto-empire.

Settler colonialism has been understood as the discourses and actions related to the displacement and dispossession of Indigenous

populations. Audra Simpson (2014, 70) has called attention to settler origin stories as foundational myths on which new sovereignty is gained for the colonizers. Puertopian foundational myths are that Puerto Rico is a blank slate, Puerto Rico is responsible for its own debt, and Puerto Rican resistance is misguided. Calling the Puertopian project “utopian” privileges these men as futuristic visionaries rather than settler colonists.

Other crypto-proponents have found a way to form a right-libertarian enclave via the Security Token Offering (STO). The STO combines typical venture capital with cryptocurrency to create a “tokenized venture capital fund” tied to real assets, such as ownership rights in a new company, or real-estate (Ortiz 2018). One such STO in Puerto Rico is the “Viejo San Juan Comunidad Re-Fund.” Though its name is in Spanish, the organizers are from New York. In true “crypto” style, their sought-after properties (including key pieces of real estate – a headquarters, office buildings, apartments) are *distributed* throughout Old San Juan to extract rent and do business. According to their InPortal website, there is even a farm in Las Marías where food is intended to be harvested and sold at the Old San Juan farmer’s market, with prioritized access to the VSJ “community.”

Blockchains at times act as “gated platforms for payment, accounting, and exchange” (Nelms et al 2018). Although there are no physical walls gating the crypto-utopia in San Juan, there are digital walls and gates that keep anyone out unless they are high net-worth “accredited investors” (according to the VSJ Re-Fund Token Sale Agreement 2018), *and* on the inside in the “blockchain space.” This is similar to the process of redlining and gatekeeping loans and mortgages, yet different because the STO does not require the intentional coordination of banks and governments – rather, it investors can do it via exclusive digital frameworks.

In the case of libertarian settlers, designing the future of Puerto Rico is not done by drawing up large-scale masterplans (which can be tools of the state or corporations). Rather, futures are programmed via the opportunistic coordination of markets, digital platforms, and protocols. Both in tension and cooperation with governmental regulation, these investors are settlers in new lands. At the same time, they are nomadic in their ability to find the geographical location where they are offered the greatest financial incentive. The physical borders for these nomadic-settlers are easily traversable. For some Puerto Ricans, however, the cost of a plane ticket is an unaffordable expense, even if one had the desire to move elsewhere (which is often not the case due to forced migration). As Pantojas-García writes, “for Puerto Ricans, the Island [...] provides the fulcrum that affirms Puerto Rican national identity. On the Island, Puerto Ricans are not a minority, and Puerto Rican culture flourishes” (2005, 174). This cultural tie to place is being challenged by settler colonialism.

Walking along Paseo Puerta de Tierra in Old San Juan, I notice a building for rent with a sign “CAN PAY BY BLOCKCHAIN” (Figure 1).



**Figure 1**

Office Building for Rent, Paseo Puerta de Tierra in Old San Juan. Jillian Crandall, 2018.

Perhaps crypto was making it easier for *outsiders* to transact, but are any Puerto Ricans using cryptocurrency as a means of exchange? According to coinmap.org, in San Juan and Carolina a few local businesses will accept crypto, but these places are few and far between. Many parts of Puerto Rico still operate on a “cash-based” economy and do not accept credit cards, let alone a currency that requires internet connectivity.

Acts 20 and 22 create a different scenario from earlier manufacturing tax incentives in Puerto Rico. Many manufacturing companies in the mid-1900s hired locally due to lower wages and had absentee landlords and owners of parent companies who remained in the U.S. Acts 20/22 however, require that individuals prove they live in Puerto Rico. The ability to outsource the least expensive digital labor limits the amount of local hiring needed. Under the current digital economic shift, a new population of preferred tech experts may be able to boost econometrics, but the price to pay for Puerto Ricans may be their land, culture, and identity as tied to the Island.

### **Design to Decolonize – Alternate Economic Futures**

After completing a Stanford University Innovation Fellows course in entrepreneurship and Design Thinking, Fabián Velez returned to Puerto Rico, where he would found Link PR, a non-profit that “educates, trains and supports individuals, communities and companies in STEM through education and co-creation” (2019). Link PR has held blockchain workshops and hackathons at University locations throughout Puerto Rico. They partnered with HiveCube and Libraries Without Borders to donate mobile libraries to communities

most adversely impacted by the hurricanes and budget cuts, including La Perla and Loíza (Velez 2019).

This form of blockchain engagement is more community-centered than the activities of foreign businesses or investors. However, the risk with Design Thinking is that it promises participation, but prioritizes efficiencies for businesses, by framing people as future consumers. This is what Lilly Irani calls the “entrepreneurial citizens” made by chasing innovation (2019). With neoliberal cuts to public services and federal aid slow to come after the hurricanes, it is difficult to criticize the end goals of a non-profit or company when they are filling a very real immediate need. For some this is strategic. For others, innovation has been taught as something that can benefit all.

Forms of technopolitics and technopower are often shrouded behind rhetoric that technology is neutral and that innovation is progress (Hecht 2011; Winner 1989). Academics have asserted that, more often, technology does not serve all, and is coupled with design decisions that serve to further marginalize already marginalized populations based on gender, race, class, sexual orientation, and disability (Hicks 2017; O’Neil 2017; Noble 2018; Benjamin 2019). While blockchain could technically be used in a more democratic, community-driven way, in Puerto Rico it is hard to see how working *within* this system to affect change will have any weight given corporate, capitalist, neoliberal, and libertarian dominance.

Contestation can only happen insofar as the real situation is brought to light. Awareness of this exploitative scenario has increased, but an awareness of other decolonial alternative economic visions should be raised. For this paper I focus on two decolonial design alternatives to cryptocurrency and blockchain-based businesses in Puerto Rico. The first is a project led by Frances Negrón-Muntaner and Sarabel Santos Negrón called *Valor y Cambio*, a community-based local currency attempting to decolonize money in Puerto Rico. The second is an alternate economic model – platform cooperativism – which opposes venture capital and extractive corporate tech behavior.

*Valor y Cambio* (Value and Change) was launched in Puerto Rico in February 2019 as a response to punitive neoliberal austerity measures. Central to the project is a new local currency – the *peso* – that can be obtained by users at a VyC machine in exchange for recording a short video about what they value in life. The project explicitly chose a paper currency in opposition to the virtual currency of Bitcoin.<sup>8</sup> The design of the bills feature iconic Puerto Rican figures, and a QR code on the back allows users to learn more about their history. The *pesos* are meant to be exchanged at participating businesses to promote a local economy.

*Valor y Cambio* enacts steps toward valuing local labor. There is a tense history with local currency in Puerto Rico – including the Puerto Rican *peso* being retired at sixty cents to the US dollar in the early 1900s (Fusté 2017, 101). A community-currency can only work

insofar as it can be practically used. However, *Valor y Cambio* comes at a critical time where crisis has made many Puerto Ricans more willing to accept alternatives to the status quo. Other community-currencies have found success in the U.S., such as the Ithaca HOURS in Ithaca, New York; Equal Dollars in Philadelphia, Pennsylvania; Cascadia Hour Exchange in Portland, Oregon, and more (Ellis 2012).

Luz, owner of the restaurant Cosecha Mia explains, “to be free means changing everything, including our money” (Olavarría Gallegos 2017). In Río Piedras I spoke with Melissa Rosario, Founder of CEPA (Center for Embodied Pedagogy and Action). When I bring up the concept of a community-currency, Melissa is enthusiastic about the potentials. She believes, “replacing a concern with profit and competition for the well-being of individuals, the earth, and communities is at the center of building a cooperative economy” (CEPA 2018; Rosario 2019). Melissa is not alone in seeking economic justice. Jocelyn, a spokesperson for the activist group *Jornada: Se Acambaran Las Promesas*, argues that it is not only political, but also social, cultural, and economic decolonization that needs to occur. “We need [...] to create another economic model – not capitalist,” she says, “because this is destroying our economy, our planet and the people” (Olavarría Gallegos 2017).

If local Puerto Rican startups wanted to enact structural changes while generating an equitable local tech economy, alternative models could be engaged. Specifically, I pose the ‘platform cooperative’ model – these are digital platforms with cooperativism at the core. Platform cooperativism provides an alternative to venture capital funding and encourages democratic design methods by giving participants real decision-making power and ownership (Scholz and Schneider 2016). “Co-op members, technologists, unionists, and freelancers” join together to enact an “alternative to the extractive sharing economy” (Platform Cooperative Consortium 2019).

There are precedents for such cooperatives in Puerto Rico. In the early twentieth century, the first cooperatives were initiated through the Puerto Rico Reconstruction Administration (PRRA), including a women-owned needlework cooperative, and agricultural, industrial, and housing cooperatives (Burrows 2014). With the dissolution of PRRA programs, the cooperative movement in Puerto Rico subsided until recently. The world’s first worker cooperative, comprised solely of prisoners, was formed in 1993 in Puerto Rico – *Cooperativa de Servicios ARIGOS* (Nzinga Ifateyo 2015). Puerto Rican academic literature about cooperativism has also seen a resurgence (Mercado-Vázquez 2017; Aponte and Álvarez 2017). Some post-Maria disaster relief has even been granted to Puerto Rican food/grocer co-ops, working with *Liga de Cooperativas de Puerto Rico*.

Legislation has been approved in Puerto Rico to support cooperatives, including the General Cooperative Associations Act 239 (2004, OSL). Act 239 acknowledges, “the cooperative movement is a



**Figure 2**

Resistance mural in Old San Juan by students of the School of Plastic Arts and Design of Puerto Rico. Jillian Crandall, 2018.

socioeconomic system which pursues the enfranchisement of human beings and their integrated betterment through economic justice and social cooperation.” Members exercise decision-making power in equal standing, regardless of the amount of capital they have contributed (Act 239, Statement of Motives).

Platform cooperatives can align with the recent techno-economic shift in Puerto Rico while supporting a local economy that is collectively owned, run, and managed. They could support the community-oriented work championed by women-led and solidarity movements in the local agro-economy, or community-owned solar power. For Puerto Rican creators of art, music, textiles, and more, platform cooperatives can connect products and services to a wider audience online. New tech startups, particularly started by young entrepreneurs from the Cooperative Institute at UPR Río Piedras could benefit from Act 239, while creating a cooperative that any Puerto Rican can join. Interested donors looking to support Puerto Rico’s post-hurricane recovery could work together with *Liga de Cooperativas* and the Puerto Rico Cooperative Development Commission (CDCOOP) to fund cooperatives. This process would challenge current efforts toward making Puerto Rico the Silicon Valley of the Caribbean and could instead form a Cooperative Archipelago. This effort would take coordination and dedication to equitable and ethical frameworks and would not be without challenges, but it would be more aligned to work for Puerto Rican workers and those in solidarity with them.

### **Conclusion**

Blockchain has often been posed as a disruptive technology. In Puerto Rico, however, from the arrival of settlers looking to establish

their own “crypto-utopia,” to tech businesses capitalizing on innovation, to local government looking to increase efficiency, blockchain is serving to make existing powers more effective through technocratic means. Each of these groups engage with design in different ways – Design Thinking of tech companies; mechanism-design and cryptoeconomic-thinking of local government; market opportunism and design of insular digital platforms by crypto-settlers; and projects in resistance and contestation via decolonial design strategies. If blockchain opens the power to dream new techno-economic futures as Lana Swartz (2017) suggests, it raises the question: who has the power and privilege to dream? It is highly unlikely that marginalized populations in Puerto Rico will have a meaningful say in cryptocurrency or blockchain. The question becomes, will cryptocurrency, blockchain, and the desires of its proponents make the existing chains of empire stronger? Will the chains of a new technocratic libertarian empire be forged under settler-colonialism, or an algorithmic meritocracy under cryptoeconomic governance? Or can resistance be mobilized under decolonial design methods, using digital technology with alternate economic models such as community-currency and platform cooperatives?

Designing preferred futures for those who are marginalized will take more than belief in technology’s emancipatory potentials. It will take structural change and a shift in decision-making power. For Puerto Ricans, it will take alliances not only with the Diaspora (see Figure 2) but as Rafael Bernabe calls, building a “shared agenda of resistance against policies that affect all working, poor and oppressed peoples in the United States” (2017). At the same time, those with the privilege to do so should question the tendency toward technocratic governance and computationalism, and the construction of blockchain architectures on top of existing unequal digital infrastructures. If any project claims to be emancipatory, the foremost step is to deconstruct the rhetoric, and direct agency to local communities and trusted organizers to design and manage their own future, rather than having outside interests, or technologies themselves, determine a future for them.

## Notes

1. Analyzing the top two blockchains/cryptocurrencies (Bitcoin and Ethereum) – the original Bitcoin whitepaper uses the term “transaction” sixty nine times. The Ethereum whitepaper (as of March 2019) uses the term 131 times.
2. See *Design and Culture, The Journal of the Design Studies Forum*, Vol. 10, 2018 – Issue 1: Decolonizing Design.
3. A report by McKinsey claims: “Digital technologies could become the engine of economic progress, and blockchain, without a doubt, could be one of them” (Gupta 2018).
4. Joseph Schumpeter was an Austrian economist who coined the concept of “creative destruction” as the “fundamental impulse that sets and keeps the capitalist engine in motion [...] the opening up of new markets”



- (Schumpeter 1994 [1942]). This concept would become central to the Austrian school of free-market economic thought.
5. By some accounts these are not considered true blockchains, since they are permissioned (not open) and use proprietary consensus protocols rather than cryptographic proofs.
  6. An example of an outside tech company is Renovatio PR that is seeking to transform the Island into the “next Silicon Valley of the fintech industry” (Renovatio 2019). However, Puerto Rican entrepreneurs are also designing blockchain projects in neoliberal spaces of innovation, such as the co-working spaces of Piloto 151, Engine4, and the startup accelerator Paralel 18. RedCat is a drone monitoring blockchain company that has a partnership with the University of Puerto Rico. Abartys Health is a healthcare company co-founded by a Puerto Rican woman. They are considering blockchain as a database for health records, and they aim to solve the “global healthcare crisis with smarter, faster care” (Abartys Health 2019). With drastic neoliberal austerity cuts to Medicaid under former Governor Ricardo Rosselló’s administration, combined with negative health consequences linked to the precarization of labor in the gig economy (Bajwa et al 2018), Abartys Health is posed to do good business.
  7. An understanding of the concept of cryptoeconomics is not required to design or build blockchain projects, but the concept has gained popularity over the last two years. There have even been higher-education programs dedicated to cryptoeconomics, including the “Cryptoeconomics Lab” at MIT, the “Interdisciplinary Research Institute for Cryptoeconomics” at WU Vienna, and the RMIT University “Blockchain Innovation Hub.”
  8. Puerto Rico has a local cryptocurrency project – Coqui Cash – also meant to be used for local goods and services. Its audience is different than *Valor y Cambio*, geared toward cryptos coming in from the outside, and those within Puerto Rico.

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