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Cooperativism as Contestation
to Crypto-colonialism in Puerto Rico

This article builds on ethnographic research on crypto-communities first begun in Puerto Rico while doing hurricane recovery work in 2017; continued research on the evolving behavior of crypto-colonialism in Latin America and the global South; and ongoing research into the legal policy ramifications of cryptocurrency and blockchain technology as applied to economic cooperatives in Puerto Rico. Our combined methodology intersects critical blockchain studies and urban digital geographies with qualitative research in alternative economies and empirical sited research in Puerto Rico from the position of cooperative law. We explore how digital technology can be used within cooperatives to contest the more overt colonial behavior around cryptocurrency in Puerto Rico, and pose alternatives to neoliberalism, venture capitalism, and US imperialism.

New forms of human settlement are emerging as a result of and in service to cryptocurrency. While some crypto-proponents seek to abscond from taxation and existing government regulation, others are working *with* existing governments in neoliberal collaborations, as seen in El Salvador and Puerto Rico (Crandall 2019). It is unsurprising that Latin American countries with colonial ties are being used as “guinea pigs” (Ottenhof 2021) in crypto-economic experiments, which are often set up to primarily benefit outside interests—CEOs of the crypto-wallets, exchanges, and issuers of the tokenized bonds—exposing citizens to financial risk and placing added demands on already strained electricity infrastructure. While President Bukele and crony blockchain companies aim to transform El Salvador into the “Singapore of Latin America” (Engler and Reynolds 2021), Puerto Rico is

poised to become the “Silicon Valley of the Caribbean” (Delgado 2019). There is much buzz about crypto and blockchain having emancipatory potential, but Puerto Rico has a history of economic experimentation imposed from the outside that gives reason for pause.

Puerto Rico’s economy has been systematically reshaped by colonial experimentation, notably with “Operation Bootstrap” (*Manos a la Obra*), which began in the 1940s and continued on as a US imperial project of industrialization (Berman Santana 1996). In 2016, under Puerto Rico Oversight Management and Economic-Stability Act (PROMESA), Congress established the federally appointed Fiscal Oversight Board, locally known as *La Junta*, tasked with limiting the government’s budget and cutting public services in punitive neoliberal austerity measures (Bonilla 2020). In recent attempts to spur economic development, the local government is initiating a techno-economic turn toward exporting digital services and is courting cryptocurrency investors, blockchain businesses, and other fin-tech venture capital.

The local Puerto Rican government has opened the door to crypto- and blockchain-oriented development. This is evidenced by the government’s attendance at the Blockchain Unbound and CoinAgenda conferences, the creation of the Government Blockchain Advisory Committee of the Department of Economic Development and Commerce (DDEC), and the Government Blockchain Association. Puerto Rico is undergoing a coordinated experimental economic shift toward digital technology and the fin-tech industry. As a result of Act 60 (formerly Acts 20/22), many crypto-enthusiasts and other fin-tech companies have moved to Puerto Rico to become bona fide residents for the tax incentives (including zero capital gains on crypto assets). These incentives are not available to existing Puerto Rican citizens, and new businesses are only eligible if exporting their services *outside* of the archipelago.

Some crypto-entrepreneurs like Brock Pierce have come to establish their own “crypto-utopia” dubbed “Puertopia,” viewing it as a blank slate to remake in their own image. Crypto-colonialism is the act of coordinated groups of tech-savvy individuals leveraging their wealth, which is often but not always generated by cryptocurrency investments, to settle in and exploit lands and laws favorable toward continued crypto activities (Ottenhof 2021). Local resistance to the more overt colonial behavior around cryptocurrency in Puerto Rico ranges from protests at crypto-conferences to the creation of a paper-based community currency project called Valor y Cambio explicitly antithetical to Bitcoin (Negrón-Muntaner and Santos Negrón 2019). Other forms of resistance attempt to leverage the blockchain buzz. A community-based

cryptocurrency project called Coqui Cash was launched in 2018, but it has yet to become widely used. After Hurricane María, Fabián Vélez Vicente and Guillermo J. Aviles launched the TokenFund ICO as a crowdfunding platform geared toward the diaspora. Vélez (2019) said the implementation did not take off, citing uncertainty and the digital divide as main inhibitors. Vélez and Aviles went on to establish the nonprofit Link PR, dedicated to broader tech education and digital literacy in Puerto Rico for Puerto Ricans. Vélez, Aviles, and their peers take the position that continual efforts toward digital innovation can empower marginalized communities. By extension, one might consider distributed ledgers as just another tool that can offer emancipatory potentials if equitably owned, operated, and managed.

We position ourselves alongside scholars who are critically analyzing the implications of distributed ledgers for urban governance (Gloerich et al. 2020). We agree that ceding technological decision-making power to venture capitalists and the neoliberal status quo is “defeatist at best, and dangerous at worse” (Balaguer Rasillo 2021a: 182). Echoing Hardt and Negri (2017: 111) we call advocates for alternate economies to “immerse ourselves into the heart of technologies and attempt to make them our own against the forces of domination that deploy technologies against us.” We argue that *who* is doing the coding has everything to do with the values that are being encoded, and to what end.

In Puerto Rico, the goal is not to have digital technology supersede the sustained, committed work on the ground by feminist and grassroots organizations and solidarity networks, but rather to supplement and support these efforts, make connections to mutually beneficial cooperative networks, and link the diaspora together across greater geographical distances. Engaging the digital via cooperativism is one way for Puerto Rican-born citizens under Act 239, the General Cooperative Associations Act (2004, *OSL*), to stake claims counter to exploitative outside interests under Act 60. Some Act 60 decree holders reject the crypto-utopian narrative and seek more integration with local communities, posing blockchain and NFTs as tools for empowerment for young Puerto Ricans. Blockchain training workshops were held at the Metaverso summit as part of Puerto Rico Blockchain Week (2021). But we question how this blockchain education is framed. The digital divide in Puerto Rico must first be addressed. Rather than relying on tech companies to pitch a technology, digital literacy training and education on various digital tools should come from within trusted community organizations including cooperatives. Cooperatives have education as a required component of

their operation, and it may be time to address digital technology as a core component of education. This includes a critical look at the inherent politics of certain technologies to determine if they are inherently incompatible with cooperative principles (e.g., Bitcoin and speculative behavior around crypto-mining).

Aside from the speculation around cryptocurrencies, we can look at blockchain as a cryptographically secured distributed digital ledger that accounts for and facilitates transactions. In what ways could this technology assist the management of cooperatives and help extend their reach? We must look critically at the claims of a project to identify co-optation and avoid techno-fixes. We pose the seven-principles test (referring to the seven cooperative principles) and engage the recent platform cooperative movement in its efforts to enact “alternatives to extractive sharing economy” (Scholz and Schneider 2016). Ultimately, we question how leveraging digital technologies can help alternative economic projects “take back the economy” and “interrupt its capitalocentric imaginary through logics of sharing and being-in-common” (Gibson-Graham, Cameron, and Healy 2016).

Technology and Alternative Economies

Puerto Rico has a strong history of decolonial engagement toward working-class struggles through commoning practices, from the work of Misión Industrial in the 1960s to the fisherfolk movement in Vieques in the late 1970s (McCafrey 2006). The “commons” can be understood as the communal land, energy, digital spheres, and other resources produced through cooperative labor (Hardt and Negri 2009). Commons are often managed utilizing Elinor Ostrom’s (2015) eight principles—rejecting privatization and capital accumulation and reproduced through collective practices of *commoning* and mutual responsibility (Bollier and Helfrich 2015). As Gustavo García López (2021b) explains, commons were central to Puerto Rico’s working-class struggles to “defend, or reclaim, their historic ties to land and communal subsistence livelihoods, their identity and autonomy.” Contemporary environmental justice efforts in Puerto Rico center commoning, as seen in the work of COPI (Piñones Integrates Corporation); IDEBAJO (Initiative of Eco-Development of Jobos Bay); Coqui Solar; and Casa Pueblo. Since comanagement strategies necessitate ongoing effort and labor, they can benefit from technological innovation, under the condition that use is determined from within. As Naomi Klein (2018) cautions:

If Puerto Rico's people's movements are going to have a chance to provide this kind of global leadership, they will need to move fast. Because they aren't the only ones with radical plans about how the island should transform after Maria. Central to a shock doctrine strategy is speed—pushing a flurry of radical changes through so quickly it's virtually impossible to keep up.

In Puerto Rico, speed is a strategy for crypto-colonialists leveraging the blockchain hype to influence policy in their favor, and to institute techno-fixes. The techno-fixes and technological solutionism should be cautioned against (including “Blockchain for Social Good” narratives); they run the risk of posing technical Band-Aids to systemic problems without addressing the root causes, or by framing citizens as future consumers (Irani 2019). Too often technology serves the few over the many, further entrenching inequality (Noble 2018; Benjamin 2019). As a result, there is a tendency particularly within the degrowth movement to reject modern technology entirely. However, a fully primitivist approach fails to acknowledge how digital technology has been used to support grassroots movements and may be necessary to enact alternate economies (Howson, Crandall, and Balaguer Rasillo 2021). Digital technologies are a tool that can supplement existing indigenous technologies of working with the land, strategies for self-management, climate action, food, and energy sovereignty, interweaving (*entreteter*) movements in mutually supportive techniques for “making life in common” (García-López 2021a). In order to ensure digital technology equitably intersects these movements rather than co-opts them is contingent upon legal policy frameworks and ground rules.

Puerto Rico's legal system is a delicately balanced structure that has had to evolve under a colonially contingent political framework. Cooperativism has provided one avenue for Puerto Ricans to engage in some form of economic autonomy. Democratic ideals have been tied to the foundational principles of the cooperative movement since its inception by the Rochdale consumer cooperative. Puerto Rico's cooperative sector is divided into two general categories: credit unions¹ on one side, and every other type of cooperative on the other. Credit unions are vitally important to the archipelago's economy. According to a report published by the Public Corporation for the Supervision and Insurance of Cooperatives of Puerto Rico (2021), 110 credit unions are currently operating in the archipelago, with a total of 1,095,833 members. Despite the undeniable importance of credit unions, it's the cooperatives that *do not* fall under this category who are our main concern. This category is governed by the General Cooperative Associations Act (2004).²

As a result of the cooperative movement's development, the archipelago's cooperative sector follows the main principles observed by most cooperatives throughout the globe (ICA 2021). These are established as follows:

1. Open and voluntary membership
2. Democratic control by the members
3. Economic participation of the members
4. Autonomy and independence
5. Education, training, and information
6. Cooperation between cooperatives
7. Social responsibility³

These principles function as guideposts and are essential to measure against for any project claiming cooperative values.

Cooperativism offers legal benefits to Puerto Rican-born citizens that are not offered in Act 60. Some of the key benefits and incentives in Act 239 include income and property tax exemptions for Puerto Rican cooperatives (Act 239, Section 23). Other acts that benefit cooperatives in Puerto Rico include the Cooperative Savings and Credit Association Act (Act 255, October 2002) and the Youth Cooperatives Act (Act 220, August 2002). Supporting groups include the Cooperative Bank (Act 88, June 1966), the Cooperative Institute at UPR, Río Piedras, and the Liga de Cooperativas. Despite these resources, there are still challenges that need to be addressed. In a comprehensive study recently conducted by Marinés Aponte and Marta Alvarez (2017), it was found that despite the existing “comprehensive framework for the support and development of the cooperative sector” from the regulatory side, there are still key areas of improvement to increase involvement in cooperatives. These include “1) education and training in cooperative entrepreneurship on the primary and secondary levels; 2) financial support; and 3) commercial and legal infrastructure (legal and professional support in the process of cooperative startups).”

The emerging platform cooperative movement poses a way forward for some of these challenges while intersecting with Puerto Rico's techno-economic shift, offering an alternative to the crypto-utopian and technocapitalist development model. Platform cooperativism is a growing international movement focused on building a fairer future of work—digital platforms with collective ownership and governance by and for those who need it most (Scholz and Schneider 2016). Platform cooperatives cast a wide net, as an alternative to venture-capital funded models, to cooperatively owned online marketplaces, to cooperative ride-sharing platforms alternate to Uber or Lyft. Platform cooperatives are about creating a more equitable digital economic ecosystem.

In Puerto Rico, the potential success of platform cooperatives faces challenges due to the digital divide, disproportionately felt in rural areas where cooperatives tend to thrive. Challenges also include difficulty in securing initial funding for new platform cooperatives; however, there are increasing strategies for how nontraditional funds can be generated (Coca 2017). Critics argue that already vested corporate interest and monopolies will fight off co-op arrival (Srnicek 2017), but such a fatalistic attitude should not stop attempts toward an alternative. Some argue that while platform cooperatives can produce “impressive and ethical local projects,” that can locally beat monopolies such as Uber or Amazon, they cannot scale up to beat monopolies globally (Morozov 2016). Distributed ledgers have posed a solution for these issues, not for limitless growth but toward cooperation among other cooperatives. For Puerto Rico, this federation model can include establishing a network of geographically distributed cooperatives in the diaspora.

Existing cooperative legislation ensures outcomes that are reasonably foreseeable. This is important because, as new ways of exploiting capital emerge, volatile outcomes often follow, as is the case with the cryptocurrency craze. It is important to get ahead of regulatory policy surrounding cryptocurrency and digital ledger technologies (DLTs) through the lens of cooperativism. In order to do so we can learn from existing DLT projects that claim to intersect commoning and cooperative principles.

Cooperativism and Distributed Ledgers: Case Studies

In the sea of cryptocurrency and blockchain white papers, Initial Coin Offerings (ICOs), and DLT proposals, few claim to engage principles of commoning or cooperativism. Three projects have been identified for this paper: the Colony Network, the DisCO co-op movement, and the FairCoin/FairCoop ecosystem. A critical look at these projects’ claims, actualities, and pitfalls can help inform recommendations for cooperatives moving forward.

The Colony Network was first launched in 2017 as an Ethereum-based collaboration and governance tool for organizations (Ngo 2017). The project creators state: “The Colony Network is designed as a self-sustaining public utility: a digital commons available to all” (Colony 2021a). Because of this, Colony has gained the attention of scholars studying the platform cooperative movement, even suggesting worker cooperatives look to the Colony Network as a reproducible model (Mannan 2018). However, upon closer analysis of Colony’s technical protocols and priorities, we find that they do *not* pass the test of alignment with the seven cooperative principles.

In Colony's fifty-seven-page white paper, there is no mention of the term "cooperative" (or its derivatives), which is antithetical to the principles of *Education, Training, and Information and Cooperation Among Cooperatives* (ICA 2021). Colony's (2020) white paper makes no mention of "democracy" and indicates a "reputation-weighted" token system and voting model, explained in the white paper: "Each Colony has its own token. You own tokens by doing work. The more tokens you own, the more of the colony you own" and by extension the more voting power you have. This is antithetical to the co-op principle *Democratic Member Control*, where irrespective of how much capital a single worker contributes to the co-op, each member has one vote. As for the principle of *Social Responsibility*: if Colony claims to have concern for the community, it seems most concerned with protecting its membership from each other. The white paper states that "Internet Organizations must . . . assume the lowest common denominator: that every member is rationally self-interested and focused entirely on maximizing personal utility and profit, and given incentives accordingly" (Colony 2020). This crypto-economics approach differs from earlier distributed peer-to-peer (P2P) models due to the individual financial incentivization to participate (i.e., rewarded with cryptocurrency/tokens), over mutual respect for the commons.

While Colony may not be the model to which cooperatives should aspire when engaging digital technology, DLTs are not inherently incompatible with the principles of cooperatives. If cooperatives are interested in using DLTs run collectively by trusted organizations rather than outside parties, they may reference the recent DisCO (Distributed Cooperative Organization) (2019) movement. A DisCO is a model that draws from Ostrom's principles of the commons; the seven-principles of cooperatives; the P2P movement; and feminist economics. DisCOs emphasize lived experience, care and relations, and challenge the uses and limits of "trustless" machines. DisCOs aim not for limitless growth but rather federation—multiple nodes connected through shared directions—each with trusted local actors. The main issue with the DisCO Manifesto is that, while it poses a playful alternative to the highly technical white papers of many ICOs and DAOs, it is perhaps too open ended. There is a lack of specificity toward localized legal nuances that may make it hard to implement. Also, there is no clear position taken on computational strategies for confirming transactions and environmental impacts. Existing Proof-of-Work consensus protocols are complicit in massive energy demands (Digiconomist 2021). DisCOs that want to limit their carbon footprint might look to the new Proof-of-Cooperation consensus mechanism used in the FairCoin/FairCoop ecosystem, initiated in 2014

by Catalan activists as a self-managed financial ecosystem for a just transition as an alternative to capitalism. The Proof-of-Cooperation protocol means that “power consumption is negligible compared to mining and minting found in other blockchain mechanisms” (König et al. 2018: 1).

The FairCoin/FairCoop project is often cited as an example of how distributed ledgers can be created, owned, and operated by cooperatives by the people, for the people. However, its implementation and continued life is not without challenges. As Xavier Balaguer Rasillo (2021b) explains, the FairCoin/FairCoop project faced significant pricing challenges, leading to irreconcilable differences among members in decision-making that caused the platform to fork. Ongoing challenges include the technological complexity and uncertainty which contributes to an overall lack of users (Balaguer Rasillo 2021a). Any cooperative engaging DLTs is going to be pioneering—challenges are to be expected, even welcomed, in order to direct a more equitable future—and more sandboxing within and directed by cooperatives is needed.

Conclusion and Ways Forward

In an interview with Dr. Pedro Santiago Torres (2021), a University of Puerto Rico instructor in cooperative education and incubation, we learned where the cooperative movement is heading, and opportunities for improvement. First, the subject of “foreign capital” and the regulatory challenges that come with it are often not considered. Additionally, most co-ops in the incubation stage are focused on rendering services, not goods. This could be useful when intersecting the platform cooperative movement, which is focused on digital services. The challenge in Puerto Rico however is that there are no discernable examples of tech-focused co-ops in operation or in development, and there is a lack of awareness of the platform cooperative movement and how to engage. However, there are several Puerto Rican startups focused on digital services that could benefit from becoming a cooperative. For creators of art, music, and clothing, platform cooperatives can connect products and services to a wider audience online. Rideshare drivers could pose an alternative to the extractive platform of Uber, which currently dominates the archipelago. Santiago Torres (2021) agreed that the following are possible use cases for blockchain or DLTs within the coop ecosystem:

1. In the case of a group of affiliated co-ops it would be feasible to place their supply chain on the same blockchain since most do business with the same suppliers. They could benefit from a shared accounting system throughout continuous updates with every transaction.

2. Currently, all co-ops must send financial reports to the regulating agencies on a recurring basis. These reports could possibly be generated automatically through the use of DLT. Time and effort spent on working on such clerical tasks could then be used for other productive purposes.
3. Under PR law, co-ops can issue preferred shares, which are considered part of the capital of the cooperative and can never exceed the total amount of issued common shares. All income obtained from preferred shares shall be exempted from the payment of income tax pursuant to state laws. These shares could be “tokenized.”
4. The creation of a co-op stablecoin that can be redeemed at any coop for any service.

An example structure of how DLTs could engage a cooperative ecosystem is as follows: As an entity supplying goods, services, or both, a cooperative will inevitably transact with a market participant in the form of an individual (natural person) or legal entity (juridical person). The co-op can theoretically utilize a system built upon distributed ledger technology through which the participant’s request can be given a digital form. This tokenization of the participant’s request would occur as soon as the “token issuing entity” receives confirmation of the participant’s purchase, triggering the issuance of the token to the participant’s wallet. This “token issuing entity” is identified as an exchange in figure 1, but this is a loose term that is subject to the emergence of new forms of exchange entities, such as decentralized exchanges. Once the order has been processed and the token has been issued, a smart contract protocol could be implemented to generate a service order that would be received by the cooperative so it may engage in rendering the good or service the co-op in question provides. At the same time, the funds originally received by the exchange would be automatically deposited into the co-op’s account, followed by an automatic distribution into different subaccounts that have predefined purposes. The use of a credit union utilizing the proper accounting technology is preferred. Lastly, once the good or service has been rendered to the participant, the token is returned and recirculated in order to maintain price stability and accounting clarity. We cannot stress enough the importance of viewing the implementation of this or any similarly constructed digital infrastructure through the lens of the seven cooperative principals already discussed. This sandboxing is a crucial *sine qua non* element that must be present throughout the design and construction of a DLT co-op.

From our combined research we have distilled the following recommendations for cooperatives interested in DLTs. This list is by no means comprehensive, but continually in the making.

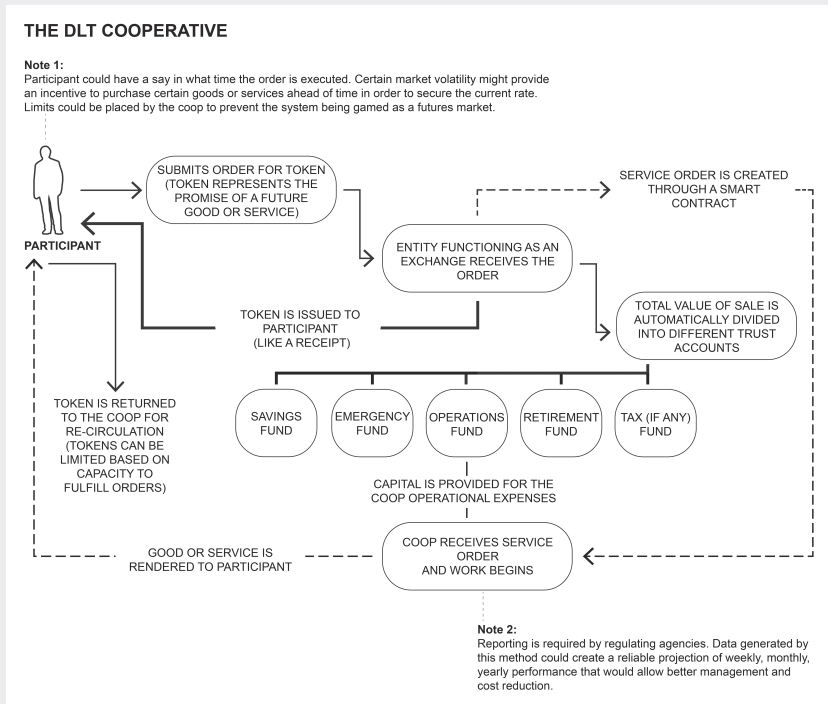


Figure 1. Possible co-op DLT interface. Source: Jillian Crandall and Andrew Mercado Vázquez

1. Start from cooperative values (seven principles), not from the claims around any one technology itself;
2. Provide digital education and training from within cooperatives to membership;
3. Divorce tokenization from individual profit-maximization models under crypto-economics and realign with commons-oriented, mutually beneficial models;
4. Implement frameworks that prevent mining and speculation of tokens as cryptocurrency or futures markets;
5. Prevent nondemocratic tokenized voting models that weigh number of votes with number of tokens owned;
6. Do not strive for 100 percent computational automated interactions; embrace hybridization, negotiation, and flexibility.

This last point is crucial. Cooperatives have key values of “self-help, self-responsibility, democracy, equality, equity, and solidarity. In the tradi-

tion of their founders, cooperative members believe in the ethical values of honesty, openness, social responsibility and caring for others” (ICA 2021). Decisions are made collectively with room for nuance and flexibility. Though distributed ledgers allow cooperatives to scale decision-making up and across wider geographical distances, there is a risk of losing a sense of community and flexibility if *entirely* automating interactions and governance via Smart Contracts on a blockchain.

Technology should be the tool that follows values, not the value-proposition in and of itself. If given the agency, cooperatives (using distributed ledgers or not) can offer Puerto Ricans the chance to design their own future rather than it being dictated by others. However, more experimentation and sandboxing from within cooperatives is needed. This effort would take coordination and dedication to equitable and ethical frameworks, and would not be without its challenges, but it would be more aligned to foster non-neoliberal projects focused on long-term socioeconomic gains instead of short-term profits through continued colonial extraction.

Notes

- 1 Under Puerto Rico law, what is commonly known as a “credit union” is actually referred to as a “savings and credit cooperative.” See P.R. Laws tit. 7, § 1361. For the sake of consistency and clarity, the term “credit union” is used interchangeably.
- 2 P.R. Laws tit. 5, § 4381 - § 4667.
- 3 P.R. Laws tit. 5, § 4388.

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