Crypto communities as legal orders

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Abstract: Several crypto communities have claimed to have revolutionary potential and to present a possible alternative to the state legal order. In this paper, we first mention three different generations of crypto communities, revealing their shared narrative, before focusing on the Silk Road dark web marketplace. Based on the qualitative content analysis of the Silk Road forum, we look into whether this platform should be understood as a legal order, a revolutionary movement, or simply a capitalist marketplace. Lastly, the article includes a short discussion of the question whether or not an online platform such as the Silk Road poses a serious challenge for state sovereignty.

'A specter is haunting the modern world, the specter of crypto anarchy.□

Tim May, *The Crypto Anarchist Manifesto*

1. INTRODUCTION

'A revolution has been born'. This is how Dread Pirate Roberts, the pseudonymous alleged founder and administrator of the Silk Road dark market (hereafter: Silk Road) described the role of the platform towards its users in a forum post back in 2012 (Dread Pirate Roberts, 2012).

In the same post, he wrote: 'Silk Road was never meant to be private and exclusive. It is meant to grow into a force to be reckoned with that can challenge the powers that be and at last give people the option to choose freedom over tyranny. We fundamentally believe that people can thrive and prosper under these conditions and so far tens of thousands have done so in the Silk Road market.' Yet, one wonders, could an online platform like the Silk Road indeed be understood as a revolutionary group challenging the (partially offline) 'powers that be'?

Historically, as the internet grew, so did the occurrence of virtual communities (Lessig, 1996). Facilitated by the advent of microcomputing, these spontaneous groups have been popping up unrestrained on both the visible internet indexed by traditional search engines, as well as on the deep web, invisible to general use (Bergman, 2001). While evangelists of internet independence thought of cyberspace as 'the new home of the mind' (Barlow, 1994), it is the deep web's darker layers, inaccessible through standard web browsers, where alternative political, social and economic orders thrive, hiding away from state laws designed to control human behaviour: out of sight, out of reach of state sovereignty (May, 1994).

The progress made by computer cryptography in the 1970s, and more specifically public key cryptography (Gardener, 1977), is one of the defining forces enabling these spaces. Tools based on strong encryption algorithms act as a cloak of secrecy and their uses for the protection of individual privacy are diverse, yet two particular characteristics stand out. First, the architecture of virtual communities entails that cryptography is used to ensure the security of identity, communication, currency, or more recently, value. Second, in these spaces, political ideologies are built around cryptography, arguably employed as a way of 'displacing conventional notions of nationhood' (May, 1994). In this paper, we refer to communities defined by these two features as 'crypto communities'.

The Silk Road is one such crypto community. Generally labelled as a den of dealers (Christin, 2013), the Silk Road brought together people who rejected surveillance. Whether driven by personal creed, financial gain, casual needs or simple curiosity, its users formed a space where state-based regulatory limits were rejected. To enter this realm, users would go through The Onion Router browser (Tor) acting as the gatekeeper to a network of hidden addresses. Given its complex encryption, users could browse the dark web without being tracked (Gruber, 2013). Within this space, financial cryptography enabled users to engage in trade. Back in the 1980s, when David Chaum was writing about digital transaction systems (Chaum, 1981, 1985; De Filippi & Wright, 2018), cryptocurrencies had not gained too much traction, as academic interest on this topic mostly focused on the mathematics behind it and not so much on the financial potential (May, 1994). Enter the Bitcoin era circa 2008, and trade became a common occurrence in virtual communities on the dark web, as they started developing more mainstream, consumer-oriented market characteristics. As the biggest market to ever use a blockchain-based cryptocurrency (Bitcoin), the Silk Road connects the past and the future of crypto communities: the cypherpunks of the 1980s, and the decentralisation projected for the next internet era.

Though initially believed to be a Wild West by its creator,[1] throughout its existence, the Silk Road matured into an ecosystem with its own elaborate set of rules and enforcement mechanisms. Our paper examines whether or not this ecosystem had the constitutive elements of a legal order, as well as whether or not this order had the revolutionary potential described by Dread Pirate Roberts.[2] Our goal is to use these insights to contribute to the long-standing academic and regulatory discussion regarding the rule of law in cyberspace and the legitimacy of state intervention (Suzor, 2010; Sunstein, 1995; Hardy, 1994; Perrit, 1997; Menthe, 1998). The

first iteration of the Silk Road left behind a large footprint of social interactions, in the form of forum posts, now also made publicly available.3 Essentially, this article uses qualitative content analysis to look into these interactions, in search of the constitutive elements of a legal order as follows.

Section 2 of this paper maps three different generations of crypto communities, and reveals their shared narrative. This part also describes the Silk Road and clarifies methodological questions regarding the qualitative content analysis. Using a legal philosophical framework, in section 3 we engage in the qualitative content analysis of randomised forum threads from the first iteration of the Silk Road. In this part, we explore whether or not the Silk Road can be understood as a legal order - a minimal condition for its revolutionary potential. Section 4 reflects upon three specific models resulting from the analysis of the Silk Road data set, and explores the implications of these findings for the governance of crypto communities in general. Lastly, the conclusion includes a discussion of the question whether or not an online platform such as the Silk Road poses a serious challenge for state sovereignty.

2. CRYPTOGRAPHY AND VIRTUAL COMMUNITIES

What was the original ideology of crypto communities, and how did it evolve? As indicated above, in this paper we consider crypto communities to be virtual communities that use cryptography for their architecture, as cryptography becomes an integral part of the community ideology, whether expressed in a political form, or showing features common to religion.

The internet knows a plethora of virtual communities, either past or present: early Usenet forums (Bartlett, 2015, p. 15), social media networks such as Facebook, Twitter or even WhatsApp, or gaming worlds such as Second Life are a few examples. Many of these communities use some encryption functions, authentication being perhaps the most recognisable. Crypto communities are different from other virtual communities because of two main features. First, they use strong cryptography to secure identity, communication, currency and/or value (Arora & Barak, 2009), and this is vital to their architecture. Second, cryptography goes beyond its architectural usefulness, and becomes a tool for the expression of socio-economic or even political ideologies. In this section, we use these two criteria (architecture and ideology) to identify and discuss three generations of crypto communities. In doing so, in section 2.1 we first outline a brief history of computer cryptography. Section 2.2 focuses on the first version of the Silk Road as one such crypto community, to explain its birth and demise.

2.1 KEEP YOUR HANDS OFF MY STUFF - THREE GENERATIONS OF CRYPTO COMMUNITIES

As a field of computer science, cryptography has been dubbed the art and science of encryption (Ferguson, 2011, p. 5; Bauer, 2013). The encryption of information is supposed to guarantee its confidentiality, and generally entails 'an algorithm called a cypher and a secret value called the key' (Aumasson, 2018, p. 1). According to Kessler, the primary functions of cryptography are privacy/confidentiality, authentication, integrity, non-repudiation and key exchange (see table 1 below).

Before the 1970s, cryptography was the monopoly of governments, and used mostly for the benefit of intelligence services (Greenberg, 2012, p. 62). This paradigm shifted with the introduction of publicly-available cryptography, particularly the symmetric Data Encryption

Standard (DES) cipher (Schneier, 1994; Greenberg, 2012, p. 86), the asymmetric Rivest–Shamir–Adleman (RSA) cipher, and the Diffie-Hellman key exchange (Narayanan, 2013; De Filippi & Wright, 2018, p. 14). With the effort of many academics, hobbyists and civil liberties organisations, cryptography moved from being considered a highly dangerous asset – back in the 1990s, it was labelled as 'munition' for export purposes by the US government – to becoming a basic tenet of online communication (Freier et al., 1996; Levy, 2002). Cryptography as a translation of privacy from the analogue world to the 'Information Superhighway' is referred to as 'Pragmatic Crypto' (Narayanan, 2013).

Table 1: Primary functions of cryptography (Kessler, 2019)

Privacy/confidentiality	Ensuring that no one can read the message except the intended receiver.
Authentication	The process of proving one's identity.
Integrity	Assuring the receiver that the received message has not been altered in any way from the original.
Non-repudiation	A mechanism to prove that the sender really sent this message.
Key exchange	The method by which crypto keys are shared between sender and receiver.

Among the computer scientists focused on cryptography was May, a self-proclaimed free-market warrior, who argued that the state should 'keep [its] hands off my stuff; out of my files, out of my office, off what I eat, drink and smoke. If people want to overdose, *c'est la vie. Schadenfreude*' (Greenberg, 2012, p. 52). Together with fellow techno-libertarians like Hughes and Gilmore, who equally believed the state should have no involvement in the affairs of its citizens, May started the 'cypherpunk' group in 1992, which he described as 'a loose, anarchic mailing list and group of hackers' (May, 1994), leading to the birth of the first generation crypto community (see Table 2). The group rallied up a lot of support for its aim to build on and practically implement earlier theoretical cryptography, which crystallised the 'doer' nature of the group. As Hughes declared in 1993, 'cypherpunks write code' (Hughes, 1993). This code was the backbone of a small-scale online infrastructure, where cryptography was used at the level of securing *identity* and *communication*. Many of their meetings were held in person, and their online presence comprised of several mailing lists and bulletin boards/forums. But cypherpunks did more than write code, they also propagated a mission, labelled as 'Cypherpunk Crypto' (Narayanan, 2013, p. 3). Their development and use of mass-distributed cryptography was a means to an end. The goal was to fundamentally alter the social, economic and political status quo. As self-proclaimed crypto-anarchists (May, 1992), 'where they saw authority, they attacked it' (Greenberg, 2012, p. 122).

Table 2: Three generations of crypto communities

Cryptocommunities/uses of cryptography	Identity	Communication	Currency	Value
1st generation (Cypherpunks)	☐☐	☐☐		
2nd generation (Dark markets)	☐☐	☐☐	☐☐	

Cryptocommunities/uses of cryptography	Identity	Communication	Currency	Value
3rd generation (Dapps)	☐☐	☐☐	☐☐	☐☐

In 2008, Nakamoto shared his white paper on May's cryptography mailing list (Nakamoto, 2008), leading to the creation of the second generation of crypto communities, which include dark markets (see Table 2). In itself, the idea of a market where people can exchange goods or services, including those prohibited by state law, was not a new concept: in the early 1990s, the so-called BlackNet, a marketplace for information, or the 'Assassination Politics' crowdfunding and gambling assassination scheme had been shared around the cypherpunk community (Bartlett, 2015, p. 11). Yet, as one of the earliest markets to combine libertarian principles with cryptography, the Silk Road achieved something its predecessors did not: scale. The main reason why in its heyday, the Road grew to have up to 150,000 active customers (Christin, 2013, p. 9) is because in addition to *identity* and *communication*, it also used cryptography as *currency*. Tor provided more privacy for more functionalities than sending emails using anonymous remailers. In addition, cryptocurrencies enabled transfers of pecuniary value for illegal transactions, and Bitcoin reduced the risk of being tracked by law enforcement (Narayanan et al., 2016).

The commercial success surrounding Bitcoin financial speculation unleashed a wave of interest in the cryptographic technology behind it, namely blockchain, which is one example of the broader category of distributed ledger technology, or DTL (Walch, 2017; Benčić & Žarko, 2018; Ferraro et al., 2018; Popov, 2018). In some opinions, blockchain is supposed to be the harbinger of a new internet era, in the form of the decentralised internet, viewed as the solution to the increasingly complex problems posed by new ominous uses of centralised big data by both public and private actors (Simonite, 2018; Yeung, 2019). This context marks the emergence of the third and most recent generation of crypto communities (see Table 2 above). It includes groups involved in the development or use of decentralised computing platforms (e.g., Ethereum) or apps (Dapps). Unlike the earlier generations of crypto communities, this one uses cryptography at an additional level of infrastructure: exchanging *value*. This has led to the so-called 'Internet of Value', a concept which has yet to be defined in legal scholarship, social science, or computer science (Finck, 2018). This concept seems to be based on the notion that societies and markets are increasingly developing a steadier network infrastructure to transfer value, but also that such a networked reality would bring with it a new understanding of what can be valuable in virtual worlds (e.g., digital assets like cryptokitties, weapon skins or virtual land). In addition, this value would ideally be exchanged just as quickly as information (Choy & Teng, 2017), because it actually *is* information. While cryptocurrencies too are valuable, the Internet of Value encompasses a broader category of tradeable assets.

2.2 SILK ROAD V1.0

So far, we mapped three generations of crypto communities. Now it is time to shift the focus to one community in particular. In our view, the Silk Road v1.0 is an appropriate case study, as it ties earlier and later generations together using the shared narrative explored above. Moreover, it employs sufficiently sophisticated tools and systems from a cryptographic perspective, and its lifespan is concluded, which eliminates any unpredictable development in this community.

The Silk Road's appeal came from a combination of the e-commerce, customer-oriented familiarity and the surprise of its unexpected (and generally, from a state perspective, highly

illegal) listings. It was hailed as a platform providing 'some cool and edgy stuff, not just another PayPal', or an alternative Amazon, 'if Amazon sold mind-altering chemicals' (Chen, 2011). Much has been written about the marketplace in terms of its illegal activity, the trial of its founder - alleged owner and first main administrator, Ross Ulbricht - or the plethora of legal questions it brought up, ranging from the enforcement of laws prohibiting online crimes to the regulatory issues posed by the widespread use of Bitcoin (Lee, 2016; Turpin, 2014; Seligman, 2015; Hughes & Middlebrook, 2015; Ghappour, 2017; Price, 2014). While relevant, these matters are not within the scope of our paper, which instead focuses on the more social features of the Silk Road, namely how its community interacted. For cohesion purposes, we narrow down our depiction to a specific range of the Road's lifespan, namely its first rendition (February 2011 - October 2013).

The mastermind behind the Silk Road is Dread Pirate Roberts, yet the known facts relating to his identity portray an incomplete picture, as it is still unclear if he was factually the sole owner of the platform. What is, however, a fact, is that Ulbricht acknowledged to be the founder of the Silk Road, which he saw as an economic experiment (O'Neill, 2015), and he was convicted by a court of law in the state of New York for crimes associated with the creation and operation of the marketplace.[4] This paper moves on with an assumption that Ulbricht was the main operator of the Silk Road, who had absolute administrative privileges, and operated under two pseudonyms: Silk Road and Dread Pirate Roberts.

Dread Pirate Roberts had assistance in at least two ways: for programming and moderating. At least one Unix administrator was responsible for server security, reliability and performance, and was on the Silk Road payroll.[5] In addition, there was a fluctuating number of moderators who were sometimes referred to by the community active on the forum, operating on a voluntary basis and crowdfunded by the community, as can be seen in a post[6] by a user called 'dutchshop'. Some moderators demanded financial support for their help. Overall, administrators dealt with back-end issues, and moderators provided forum support for FAQs or specific transactional issues.

3. IS THE SILK ROAD A LEGAL ORDER?

3.1 FRAMEWORK: THE CONSTITUTIVE ELEMENTS OF A LEGAL ORDER

Can the Silk Road be understood as a legal order? To appreciate this question, we have to first clarify what we mean by 'legal order' (Hopman, 2019a; Hopman, 2019b). Legal orders can be understood in many ways and analysed from many angles (e.g., sociology, political science, law, philosophy, economics). This paper takes a legal philosophy angle to the understanding of legal orders, in order to contribute to the development of this concept particularly with insights from legal pluralism.

In this context, our proposed theoretical framework starts from the basic assumption that law is a social fact; laws are created by persons, they do not exist objectively and externally to human understanding. Laws exist only where there is a relation between people, a specific sort of relation that takes on a certain character, so that we define it as legal. To clearly delineate what would be considered legal and not legal, we propose that each social order, to be classified as a legal order, has to possess the following five characteristics:

1. *A sovereign*: the person, or group of people, that the (legal) community has authorised to make law over them. The community allows the sovereign to be the author of (part of) their

actions, thereby giving up part of their individual freedom, bestowing legal power upon the sovereign. The sovereign is an artificial person. According to Arendt, 'When we say of somebody that he is "in power", we actually refer to his being empowered by a certain number of people to act in their name. The moment the group, from which the power originated to begin with (*potestas in populo*, without a people or group there is no power), disappears, "his power" also vanishes' (Arendt, 1970, p. 44). Similarly, Hobbes states that: 'Since man's passions incline men to peace, out of fear of death [...] they covenant amongst themselves to submit to a sovereign. In other words; by covenant they create an artificial person, a Leviathan, and they appoint one man to bear their person of whose actions they are all the author' (Hobbes, 1996, pp. 88-91, p. 120).

2. *The basic norm:* the norm that presupposes that one ought to behave such as has been commanded by the sovereign, or that the sovereign is the legitimate sovereign (Kelsen, 2007, pp. 115-118; Kelsen, 2009, pp. 8-9; Hart, 2012, p. 100).

3. *The legal community:* the person, or a group of people, to whom the laws of the legal order apply. They recognise the basic norm authorising the sovereign to create laws.

4. *Laws:* a law is a valid legal norm, which is valid within a legal order, by virtue of the fact that it has been created by a legitimate sovereign. A *norm* is a prescriptive statement, a rule by which a certain behaviour is commanded, permitted or authorised, and *laws* can be written or unwritten, public or non-public (Hopman, 2017).

5. *Possibility of legal enforcement:* Anyone who acts against the law (commits an illegal act) is liable to legal consequences posed within the same legal order.

The *legal order* can then be defined as the legal community, sovereign and its laws taken together. Since law is a social fact, the existence of all of these elements, and ultimately the existence of any legal order, depends on the subjective belief of people. For there to be law, there has to be a legal community that recognises the legal power of a sovereign, and a sovereign who in fact makes law over this community. This point is made quite clear by Haugaard's example:

> [W]hat distinguishes the actual Napoleon from the 'napoleons' who are found in psychiatric institutions is not internal to them but the fact the former (unlike the latter) had a substantial ring of reference which validates his power. (Haugaard, 2008, p. 122)

Following this theoretical framework, the Silk Road must possess these elements in order to qualify as a legal order. Clearly, these elements have to be seen in connection to each other and can only be separated artificially. In practice, they are interdependent; for example, the possibility of legal consequences prescribed by the sovereign (e) is in great part dependent on the subjective belief of the legal community in the basic norm of the legal order (a+c). It does not, however, mean that every law has to be known by the whole legal community for it to be law. It is sufficient for the legal community to generally believe in the basic norm that installs the sovereign, and for this sovereign to declare the law – even if only a limited amount of the members of the legal community know about this law.

3.2 METHODOLOGY

To be able to determine whether the Silk Road as a platform possesses these elements of a legal order, we analysed the high amount of text available on the platform's forum. While this text was originally not available on the regular web, after the demise of the Silk Road, several users made this data public. In our analysis, we use one of these data sets, anonymously collected and hosted online.[7] We consider this data set to be sufficiently reliable, since it has also served as one of the main sources for the extensive reporting done by Bilton, who looked into more than '[...] two million words of chat logs and messages between the Dread Pirate Roberts and dozens

of his employees [...]' together with 'dozens of pages of Ross's personal diary entries and thousands of photos and videos of Ross' (Bilton, 2017, p. 323, p. 329). This information also matches independent reports written by Greenberg and Bartlett, two journalists who have extensively covered the first version of the Silk Road in their writings (Bartlett, 2015; Greenberg, 2012). Moreover, this resource is also referred to by the pseudonymous users of the SilkRoad subreddit, implying that it portrays accounts which individuals familiar with the history of the Silk Road consider to be valid, and that the collector and host of all this information is knowledgeable about the Silk Road and its development. The text available in this data included the Silk Road Charter, the Terms of Service (Seller's Agreement; Buyer's Guide; Seller's Guide), and forum threads, posts and messages. While our inquiry refers to the Charter and Terms of Service to establish the rules of the Silk Road, the main empirical focus of this study lies in the forum threads. In the data set, forum threads were labelled according to users, and each user folder accounts for thousands of posts, labelled as both threads and individual posts from each thread where users contributed. We chose to focus on threads in the Dread Pirate Roberts folder, ranging from 18 June 2011 to 26 September 2013, which included conversations of various lengths with a wide variety of users on the forum. We randomised the total of 324 threads available and selected 118 threads. After having analysed these threads, we hand-selected another 9 threads which seemed relevant based on their topic line. We subsequently looked into the selected information using qualitative content analysis (Budd et al., 1967; Hojlund, 2015). This type of analysis gives us further insights into how the Silk Road rules were applied, and most importantly, how the community perceived them. The full coding notes and further details regarding the data set are available upon request.

3.3 EMPIRICAL STUDY: THE (LEGAL?) COMMUNITY OF THE SILK ROAD

Based on our in-depth qualitative analysis of the Silk Road forum, we can now look at the following questions:

1. Do Silk Road users see Dread Pirate Roberts as the sovereign who is authorised to make law over the Silk Road community?
2. Are the laws in the formal written documents (i.e., the Charter, Buyer's and Seller's Guides) enforced?
3. Are there other Silk Road laws which perhaps are not formalised in written legal documents?

When we have answered these questions, we can answer the question of whether the Silk Road is a legal order, in the sense that it possesses the elements of a legal order indicated under section 3.1.

3.3.1. Do the Silk Road users see Dread Pirate Roberts as the sovereign who is authorised to make law over the Silk Road community?

One condition for the rules of the Silk Road, created by Dread Pirate Roberts, to be properly understood as laws, is that the relevant legal community – in this case, the Silk Road users – believes that Dread Pirate Roberts is the legitimate sovereign of the Silk Road. This means that the (legal) community has authorised Dread Pirate Roberts to make law over them, and that they believe in a basic norm that presupposes that they ought to behave such as has been commanded by the sovereign (section 3.1).

On the forum, it seems that people generally understand Dread Pirate Roberts as the one who makes the rules. In several forum threads, users propose certain changes to the rules and wait for Dread Pirate Roberts to reply to this, or are asked by Dread Pirate Roberts for input on proposed legislation. In other cases, Dread Pirate Roberts simply announces legislative and/or user changes, yet it seems that user comments do have the potential to make Dread Pirate

Roberts change his mind.[8] Examples of such legislation are amendments of seller rating/feedback[9] and financial regulations.[10]

In these cases, users either complain about new regulations or defend/compliment Dread Pirate Roberts. While some users seem critical of the authority of Dread Pirate Roberts, no one seems to deny or seriously question his authority as legislator. Users regularly refer to Dread Pirate Roberts as 'the captain',[11] as does himself (Dread Pirate Roberts: 'Whether you like it or not, I am the captain of this ship. You are here voluntarily and if you don't like the rules of the game, or you don't trust your captain, you can get off the boat.').[12]

3.3.2. Are the laws in the formal written documents (i.e. the Charter, Buyer's and Seller's Guides) enforced?

Several instances of enforcement of laws are discussed on the forum. Insofar as these concern enforcement of formal written laws, the following rules are mentioned:

1. *Restricted items*: child porn (seemingly defined as porn involving anyone under age 18) was illegal, and users are asked to report child porn listings by contacting Dread Pirate Roberts/the admin team.[13] In general, it was illegal to sell something that would hurt others. Examples mentioned are stolen items or info, stolen credit cards, counterfeit currency, personal information, assassinations and/or weapons.[14] Listings of forgeries of government documents, such as fake identity documents, are allowed, but not forgeries of privately issued documents, such as diplomas or tickets. It is however unclear what the consequences would be, were this rule violated.[15]
2. *Customer service*: it was not allowed for sellers to leave feedback for themselves from a dummy account. However, while the Seller's Guide indicates that this would be 'sanctioned with the revocation of privileges', there does not seem to be any active enforcement of this rule.[16] Threatening a customer was illegal and the punishment was the suspension of the account.[17]
3. *Obligations relating to payment*: to prevent vendors from pretending to sell, receiving payment yet not sending the promised goods, per 9 January 2012, a new rule was introduced. This rule was sent in a message to all vendors by Dread Pirate Roberts. According to this rule, from then on selling out of escrow (the intermediated payment system mandated by Dread Pirate Roberts) was illegal. Users were asked to report vendors who would demand out of escrow payment to the administrative team. At the time, Dread Pirate Roberts argued: 'We are looking at several mechanisms for enforcing the ban on [Out of Escrow] transactions, from self-policing to bounties on offenders.' Soon after, it was decided that accounts of vendors requesting out of escrow payment would be terminated.[18] 'Finalizing early', as described in the Seller's Guide, was indeed allowed.[19] It was also illegal for vendors to redirect users to their personal, or another, darknet site. The punishment for this act was for the vendor's account to be suspended.[20]
4. *Data protection*: First, it was not allowed to share any kind of personal information of users, not even if these users were (state) police officers. It is unclear what enforcement was applied in this case.[21] Vendors had to delete buyer addresses as soon as they had either shipped the purchased good, or in case they did not intend to do so. If they did not, their accounts would be suspended.[22]

In general, it seems that although everyone is aware of the laws of the forum, policing and enforcement does not always happen. In case of a dispute, moderators act as judges, with Dread Pirate Roberts as the supreme judge. However, there are also instances when Dread Pirate Roberts mentions he will not take measures against the sale of certain types of products, such as counterfeit silver bars:

> Up to this point, we have been strict about not allowing counterfeit currency, but all kinds of counterfeit things like bullion, apparel, even fake drugs have started to be

> sold on Silk Road and we just haven't taken the time to police it or draw a well-defined line for what is and isn't allowed. At this point, you won't be stopped if you list this item, but sometime soon I will have a discussion with the community about where we want to draw the line and you might be asked to delist such items. If that's the case, anyone selling such items will get their bond refunded even if they hadn't met the requirements.[23]

3.3.3 Are there other Silk Road laws which perhaps are not formalised in written legal documents?

Before starting our data analysis, we expected that the laws would not be too meticulously formalised in the written formal documents, especially because these were so limited. However, it appears that these documents were considered very important and as indeed containing all law of the Silk Road (Goanta, 2020). The documents were often referred to, and in our qualitative content analysis endeavour we did not come across any other rules on the Silk Road.

3.4 WHAT KIND OF SOCIO-LEGAL ORDER IS THE SILK ROAD?

Above, we embarked on an analysis of Silk Road forum threads wondering whether the Silk Road can be considered a self-standing legal order, and if so, what kind of socio-legal order. These two points are elaborated upon in what follows.

(i) The Silk road as a legal order

In terms of the elements of a legal order mentioned before, all these elements seem to be present. According to the theory of legal pluralism, human beings are members of different legal orders simultaneously, of which the state legal order is only one (Mak, 2018; Tamanaha, 2008). The Silk Road can be understood as one of these legal orders, providing an alternative to the state legal order, under whose rules selling and buying drugs is illegal. In this model, Dread Pirate Roberts would be the legislator/sovereign, who refers to himself and is referred to as 'the captain', and/or the whole team of administrators whom he seems to be leading. The laws are the rules of the forum, for example the rules around selling and buying. Table 3 below gives some examples of how the constitutive elements of a legal order interact on the Silk Road.

Table 3: Examples of constitutive elements of a legal order present in forum threads

Legal norm (law)	Legislator	Legal community	Enforcement
1. Scamming is illegal. Scamming is understood as: *a) To impersonate an existing user on the Silk Road forum;* *b) To impersonate an existing Silk Road user on other forums/marketplaces* *c) Vendors who create buyer accounts, order their own product and leave feedback to boost their sales* *d) Vendors who pretend to sell a product, get paid by the buyer but never send the products.*	Dread Pirate Roberts (and Silk Road admins)	Silk Road users	Types b and c are not enforced; this is considered up to the individual responsibility of the users. For type a, the existing user can send a message to the admins who will do a password reset. For type d) there is a buyer protection mechanism (escrow system). Per 9 January 2012 selling out of escrow is made illegal (see below).

2. Selling out of escrow is illegal (however 'finalizing early': finalizing transaction and releasing funds before goods have been received, is still allowed).	Dread Pirate Roberts	Silk Road users	Termination of account
3. Contact between seller and buyer outside Silk Road is not allowed unless the site is out.	Dread Pirate Roberts	Silk Road users	Termination of account
4. Child porn is illegal.	Dread Pirate Roberts	Silk Road users	unknown

In many instances, the Silk Road community is either consulted about new legislation/policy, or the community itself takes the initiative to comment on existing rules/features and to propose improvements, which often receive serious consideration by the Silk Road administrators. In this sense, it is quite an egalitarian legal order, although the leader is not chosen nor does the community have final decisional power (the Silk Road administrators decide, and there is no voting process). Some users get upset when Dread Pirate Roberts or his administrators 'legislate', calling them 'dictators', 'tyrants', 'chiefs', while others support the leadership. The authority/enforcement element is sometimes also expressed through banishment.

> It's one thing to ban listings but terminating accounts for this kind of a violation is ridiculous and dictatorial. I won't be around here much longer if it's going to turn into the 4th Reich. (RapidImprovement, 2012, January 9)

> I for one applaud and support your governance. (exodusultima 2012, January 11)

It is also noticeable that most users seem upset with Silk Road operators when they unilaterally raise their commission without any perceived benefits to the community, thereby expressing some kind of expectation alike a social contract (we follow our leader, in exchange for protection):

> @Silk Road - I simply just cannot see how any of your proposed legislation prevents scams. (Paperchasing, 2012, January 11)

Lastly, it is interesting that the Silk Road claims to operate as protecting its community against both scammers and 'LE' (law enforcement, meaning law enforcement of the state legal order), a view that is often reiterated by the users. Users of the Silk Road seem aware that while many of their actions are legal from the internal perspective of the Silk Road, they are illegal from the external perspective of certain state legal orders, of which they are also members. As moderator Libertas argues:

> People here are not criminals [...] They may be considered "criminals" under the laws of the society in which they live in but those laws do not apply to us here [...].[21]

However, upon closer scrutiny, the social environment of the Silk Road gets more confusing and complicated. While it may be argued that the Road is a self-standing legal order, potentially one that in a certain area defies the state legal order, we found that the story is not that black-and-white, because different users seem to view the Silk Road quite differently. On the basis of our analysis, we found that there are two particular types of socio-legal orders that different users consider the Silk Road to be: a revolutionary movement, and an illegal capitalist marketplace.

(ii) The Silk Road as revolutionary movement
Silk Road as a revolutionary movement is a model that seems to be advocated for by Dread Pirate Roberts himself mostly, who seems to argue that the Silk Road and its financial benefits are only a means to an end, namely to fight state control, to prepare for the war to come. Some of the users seem to strongly support this view, calling each other 'brothers in arms'.[24] You can also see that a lot of community building goes on between users and Dread Pirate Roberts, for example in the frequent love declarations and reference to trust. In his 'State of the Road Address', Dread Pirate Roberts writes:

> Silk Road was never meant to be private and exclusive. It is meant to grow into a force to be reckoned with that can challenge the powers that be and at last give people the option to choose freedom over tyranny. We fundamentally believe that people can thrive and prosper under these conditions and so far tens of thousands have done so in the Silk Road market. A revolution has been born (Dread Pirate Roberts, 2012).

He argues that the change in commission over sales, which leads to higher profits for the administrators, is necessary because of Silk Road's long term vision, which is not 'getting the most out of this thing before it gets taken down', but: 'doing everything we can NOW to prepare for the war to come'. If they do not, 'Silk Road will be a shooting star that burns out quickly and dies as little more than a dream, swallowed by the nightmare reality of an ever-expanding, all-powerful global oligarchy'. Therefore, everyone has to support this enterprise: 'Do it for me, do it for yourself, do it for your families and friends, and do it for mankind'. Some of the users seem to support this view. They call each other 'brother in arms', 'brothers of the struggle', and accept Dread Pirate Roberts as their leader, whom - as mentioned - they refer to as 'the captain'. Another argument supporting this model for the Silk Road, is the fact that a lot of love and support is exchanged between the members of the community. Dread Pirate Roberts actively builds a community with himself as a revolutionary, trustworthy leader (or captain). The main elements holding the community together are love and trust. Declarations of love are often returned from user to administrators and vice versa.

> Here's another thing that doesn't get said enough: I love you. This is the most fun I've ever had and I feel closer to the people I have met here than the vast majority of people I have to hide all of this from in real life. (Dread Pirate Roberts, 2011 January 9)

> I fucking love you. Thanks for making our lives so much better (listentothemusic, 2011, August 23).

> Hey Dread Pirate Roberts, you probably get this a lot, but you're awesome. You are my personal hero. (divinechemicals, 2012, February 28)

In terms of trust, establishing trust within the community is an important issue. In reply to the state of the road address on 9 January 2011, many users argue that Dread Pirate Roberts is pretending there is a larger goal behind Silk Road, while in fact he simply wants to make more money, which is challenged by the platform's leader:

> I am quite surprised by [...] how little faith you put in me after I feel like I have done so much to deserve it [...] if you would only do me the courtesy of believing me [...] Everyone WILL be treated fairly under the new rules just as you have been all along [...] you have to TRUST us that we are doing our absolute best and will always work toward our stated goals, which include giving people the opportunity to choose freedom over tyranny, and to trade in just about any good or service they wish, securely and privately [...] If I am greedy, I am greedy for freedom. I am greedy for power. Not force over others, but for a world where POWER resides in me and each and every individual, where it belongs. If we can get to that world, I can die happy. (Dread Pirate Roberts, 2011, January 9)

(iii) The Silk Road as a marketplace

However, many of the users also seem skeptical, and retain the view that the Silk Road is rather a capitalist marketplace. When Dread Pirate Roberts talks about the revolution, they are cynical and see this as simply an excuse to ask for a higher commission. They also argue that the marketplace is simply like a product you can use to buy and sell, and if you do not like it, you do not have to use it. For the users who do not see the Silk Road so much as a revolutionary project, but a capitalist marketplace, Dread Pirate Roberts is the owner, and illegal activities that take place that are 'illegal' from the perspective of the state legal order, which simply is the legal order all platform users are subject to. These users argue, in reply to the commission change on 9 January 2012:

> I have zero issues with this policy change. As a business, Silk Road has the right to do what it pleases. If you don't like it, then create/find an alternative. (keldog, 2012, January 9)

Another argument supporting this model, is that when the site is out, people are quick to jump ship and move to other illegal marketplaces to buy/sell drugs. There are relatively few discussions about the revolutionary programme of the Silk Road, with most forum threads discussing technical issues. Dread Pirate Roberts himself also seems to adhere to this view when on 22 June 2011, he starts a thread called 'Keep your guard up', in which users are warned:

> DO NOT get comfortable! This is not wal-mart, or even amazon.com. It is the Wild West and there are as many crooks as there are honest businessmen and women. Keep your guard up and be safe, even paranoid. (Dread Pirate Roberts, 2011, June 22)

This implies that there is no order that will protect the individual users, rather it is the 'Wild West', a lawless, unorganised, dangerous place, a state of nature.

Because political discussion is generally limited on the forum, it seems that the Silk Road really is more of an individual legal order, or even only an illegal marketplace. However, it is not unlikely that political debate and preparation for the revolution happened in more private spaces rather than the forum that was accessible to all users. As Dread Pirate Roberts writes in his (political) 'State of the Road comment':

> I don't like writing this kind of stuff publicly because it taunts our enemies and might spur them into action. (Dread Pirate Roberts, 2012, January 11)

It is therefore possible that only a limited part of the community, perhaps in a more private/hidden forum, were making plans for a world revolution, for which the Silk-Road-as-legal-order, in the form of a capitalist marketplace is a means to an end (to accumulate financial resources for the war to come). In this situation, it makes sense that for most of the Silk Road users, the platform was simply an illegal capitalist marketplace, while for some core users it was a revolutionary movement.

4. 'TECHNOLOGY HAS LET THE GENIE OUT OF THE BOTTLE': REFLECTING ON THE ROLE OF CRYPTO COMMUNITIES

The Silk Road is a fascinating example of crypto community self-governance. It tells the story of how a handful of individuals from around the US (and the world) managed to set up a system, whether calling a legal order (a revolutionary movement, or a capitalist marketplace) or not, and – at least for a few years – successfully govern it. In spite of its contradictions and controversy, the Silk Road left most of the writers who investigated it in depth baffled by its accomplishments (Bartlett, 2015). Whether it was the perceived atmosphere of camaraderie between utmost strangers in a hidden part of the internet, the high effectiveness of the reputational systems that mostly led to high quality services, or the vision that its users contributed to the colonisation of cyberspace, the Silk Road started out as a do-it-yourself platform with a few users and expanded to a space actively used and visited by hundreds of thousands. The nature of its activities is certainly condemnable from the perspective of a state legal order. And yet, in spite of the severity of this condemnation and its affiliated risks, the Silk Road took the tools developed by other generations of crypto-libertarians and deployed them at an unprecedented scale. Through those tools, Ulbricht and his administrators brought about a new expression of libertarianism to a community mostly free to engage in transactions otherwise considered unlawful by states. Unsurprisingly, freedom is a mission taken over by next generation crypto communities as well (e.g., decentralised platforms). Ethereum, for one, aims to 'build a more globally accessible, more free and more trustworthy Internet'.

The Silk Road as a crypto community case study is a fascinating example of how the internet has been challenging the sovereignty of nation states. While this study has not focused on comparing the Silk Road to a sovereign state, but rather to identify whether, in a legal pluralist understanding, it has the constitutive elements of a legal order, some considerations relating to

the notion of sovereignty in cyberspace can be briefly discussed. One of the leading constitutional theories under the umbrella of internet and more specifically platform governance developed during the past years is Pasquale's 'functional sovereignty' (Pasquale, 2017). Looking at the identity of digital platforms such as Amazon or Facebook that exercise juridical power over their users, Pasquale clarifies that they are no longer simple market participants, as they exert 'regulatory control over the terms on which others can sell goods and services. Moreover, they aspire to displace more government roles over time, replacing the logic of territorial sovereignty with functional sovereignty'. This phenomenon of crowding out the powers of the state (e.g., making and enforcing rules) can be explained by the influence exercised online by digital platforms, seen as private entities ordering a realm otherwise considered lawless.

Pasquale himself agrees that even the mainstream digital giants, staple brands known by consumers around the world, have roots in the early libertarian days of the internet. Reflecting on crypto communities through the lenses of functional sovereignty, it can be argued that platforms such as the Silk Road fit this identity quite neatly - not only had the Silk Road preserved the libertarian goals from the dawn of cyberspace, but because of its nature, users literally turned to it for rules in what they perceived to be a lawless realm, used the dispute resolution and remedies mechanisms of the platform, and paid fees for using it. Whether future iterations of crypto communities can also be labelled as functional sovereigns, and how mainstream platforms can be compared to illicit cyber spaces, is a matter that requires further inquiry.

CONCLUSION

In this paper, we looked at the constituting elements of a legal order, in order to analyse whether they were present in the first iteration of the Silk Road community, as expressed by its members on its forum. We found that all these elements seem to be present, and that according to a legal pluralist view, an internet platform such as the Silk Road may very well make up its own socio-legal order. We further discussed two different labels for what kind of legal order it may be, and on the basis of the qualitative content analysis performed on the forum threads, we found that the Silk Road may be considered a revolutionary movement by some, and a mere marketplace by others, and that these findings may have implications for future crypto communities.

As functional sovereigns, internet platforms exercise some of the functions of the state, albeit to a reduced degree. The main rationale behind the constant rejection of the independence of cyberspace has been that it cannot replace the physical world, and the physical world is governed by rules, some of which have been around for hundreds, if not thousands of years. The physical world is largely governed by the state, who has a monopoly on the use of force, or on the threat over the use of force (Schrepel, 2019). If your neighbour's trees block the access to your back door, you could ask a court to force your neighbour to take down the tree. But what if the tree is instead a digital tree in a digital world such as Decentraland?

Together, different generations of crypto communities shape a common narrative of using cryptography-based computer technologies to enhance personal freedom. Their role may not necessarily be to create anarchy in the sense of lawlessness. After all, 'there are no spaces of perfect freedom from all constraints', as can also be seen in the Silk Road example, where authority still leads through law (Benchler, 2006; de Filippi & Loveluck, 2016). Instead, the

dream seems to be to adhere to a libertarian order with minimal intervention, which is still based on rules. To achieve this goal, 'Technology has let the genie out of the bottle', said cypherpunks, and back in 1994 when this sentence was originally written, it largely reflected the rich sci-fi imagination of a group of mostly computer programmers. Yet with each new iteration, crypto communities grow larger, stronger and seem to move closer to the shared vision of freedom. After law enforcement managed to take down the first rendition of the Silk Road in 2013, many other markets emerged in its stead, with far more controversial listings that were banned on the original platform (Greenberg, 2015).

Silk Road stakeholders had diverse interests, so it is not surprising that not all of them rallied around the platform's core philosophy. The physical meetings held by Tim May arguably attracted the more orthodox believers of the cypherpunk movement. However, its mailing list was free for anyone to join, without any obligation to show their zealotry towards cryptoanarchy. This is equally the case when looking at the Silk Road forum: some members support the movement behind the platform, while others perceive it as a drugs marketplace. Further on, the cryptocurrency bubble and the huge investments in various decentralised apps seem to tell a similar story. Perhaps some of the developers and entrepreneurs involved in this space truly believe in its potential for changing societal paradigms because of the vision they stand for. However, it is equally reasonable to argue that not all the members of this space are primarily motivated by this vision, but might be driven by financial gain instead.

What does this tell us about the future of crypto communities? Just like the Silk Road, internet startup HavenCo aimed to create a data haven in Sealand, a self-proclaimed independent micronation, and store content that was illegal in other countries. It too spurred 'a spirit of apocalyptic conflict between the Internet and national authority' (Grimmelmann, 2012, pp. 407-408). The blockchain hype has given new wings to libertarian initiatives such as Free Society, that claims to be in the process of 'purchasing sovereignty from a government to create the world's first Free Society'. Other examples include Bitnation, Liberland, and the Floating Island Project (Chandler, 2016). Similarly, after only ten years, Bitcoin and the alternative coins that followed led to the development of a dynamic and highly volatile market, frantically oscillating between a total worth of US\$ 831 and US\$ 186 billion only in 2018 (Schroeder, 2018; Marr, 2017). The fast pace of blockchain technological and commercial development has taken regulators by surprise. Blockchain in itself has received an overwhelming amount of attention in the past decade (Vilner, 2018), yet most of this attention ignored Bitcoin's cryptographic roots (Narayanan & Clark, 2017; May, 2018).

Whether these initiatives pose serious challenges for state sovereignty in the 21st century remains to be seen. Nevertheless, it would be unwise to discard them as criminal or entrepreneurial enterprises, as they could reveal insights into behaviours for which new regulatory incentives might be needed.

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FOOTNOTES

1. Thread 13 (see methodology section 3.2).

2. The concept of 'legal order' will be used throughout this article. This will be considered semantically equal to the notion of a 'legal system' as referred to by some cited authors.

3. Silk Road Tales and Archives, https://antilop.cc/SR/.

4. *United States of America v. Ross William Ulbricht*, United States Court of Appeals of the Second Circuit, 31 May 2017.

5. Ross' diary indicates the system administration is a user called 'SYG'; Government exhibit 240b, *United States of America v. Ross William Ulbricht*.

6. See https://antilop.cc/sr/img/2012_05_11_moderators.png

7. At the moment of writing, this resource had been last updated on 2 January 2019.

8. Threads 14, 45, 99, 100, 116, 255, 310, 315.

9. Threads 45, 116, 315.

10. Threads 36, 99, 100.

11. Threads 41, 100, 116, 122, 126, 193, 230, 299, 321. Other references to Dread Pirate Roberts as authority are 'the lord' (thread 14), 'the leader' (thread 137), 'the president' (thread 161), 'God' (thread 145), 'bossman' (thread 233).

12. Thread 99.

13. Threads 15, 78, 136.

14. While the selling of weapons was initially allowed on Silk Road, and a subject of debate among the community, on 26 February 2012, Dread Pirate Roberts announced that he had created a new marketplace for the sale of weapons called 'The Armory'. From that moment on, selling weapons on Silk Road was forbidden (Thread 122).

15. Threads 54, 78, 136, 319.

16. Threads 14, 45.

17. Thread 270.

18. Threads 99, 100, 101, 184.

19. Threads 99, 100

20. Threads 186, 242.

21. a. b. Thread 233.

22. Threads 270, 284.

23. Thread 319.

24. Thread 100.