Hybrid Governance in Online Drug Distribution

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Abstract
A growing share of illicit drug dealing occurs on online platforms. Technological innovations, such as encryption and anonymous payments, have enabled new and more complex ways of organizing transactions. This conceptual essay advances the study of online drug dealing by describing how governance mechanisms from markets, networks, and hierarchies are combined to reduce transactional uncertainty. Based on published research, I argue that cryptomarkets and social media drug distribution prioritize prices, trust, and rules differently, and that this can be understood as hybrid governance. In cryptomarkets, networked reputation scores are important, but their reliability is interdependent of administrators’ sanctioning capacity. Similarly, the open advertisement of prices and products relies on the ability to expose fraudulent vendors. On social media, buyers prioritize easy access and fast delivery and characteristics of market governance, while hierarchical rules are absent, and networked reputations play only a small role. Existing typologies of drug dealing organization do not capture these combinations of governance mechanisms. Hybrid governance and the interdependence of several governance mechanisms better capture the empirical reality of new and emerging modes in online drug distribution.

Keywords
online drug distribution, illicit drugs, economic sociology, hybrid governance

Introduction
The online trade in illicit drugs has increased markedly over the past 10 years. Technological innovations have reduced the risks and enabled new complex organizational forms to develop. Drug distribution on cryptomarkets alone is worth an estimated $315 million annually (UNODC, 2021) and while this is still less than 1% of all illicit drug transactions, the trend is upward (Martin et al., 2019). Recently, sellers and buyers also use clearnet social media platforms such as Facebook and Instagram, to establish contact (Demant et al., 2019; Moyle et al., 2019). Online drug distribution constitutes a “transformative” way to coordinate illegal exchanges (Aldridge & Decary-Hétu, 2014), that is not

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captured by conventional drug distribution typologies. In this conceptual essay, I draw on published research to detail how various online distribution modes reduce transactional uncertainty by combining governance mechanisms associated with ideal-typical models of organizations—markets, networks, and hierarchies. My main findings are that cryptomarkets rely heavily on hierarchical governance, directly and indirectly, and that hybrid governance provides a conceptual framework to capture this organizational complexity.

Illegality limits the ways in which drug distribution can be organized because the state actively suppresses the trade. Drugs are not sold in open markets with advertisements, binding contracts, courts to settle disputes, and so on. These conditions create uncertainty about the quality of the product and the reliability of one’s transaction partner (Beckert & Wehinger, 2013). Drug distribution therefore occurs in networked, ephemeral organizations (Benson & Decker, 2010), where transaction partners learn to trust each other over time (Moeller & Sandberg, 2015). Networks reduce the risk of law enforcement interventions and “rip-offs,” but are less economically efficient than open markets because the number of trade partners is limited, and there is less competition on prices and products (Uzzi, 1997).

Seen over a 30-year horizon, a substantial share of drug transactions has moved away from overt public street-level marketplaces to indoor and covert social networks (Caulkins & Reuter, 2010; Curtis & Wendel, 2007; May & Hough, 2004). Several drug distribution typologies distinguish between openly accessible street-level markets with face-to-face transactions between strangers and closed sale in social networks between acquaintances (Eck, 1995). Somewhere in between, there are semi-public markets in bars and similar locations that retain features of both the network and the market (May & Hough, 2004). Some typologies include a hierarchical component, and reflect the fact that the social network can have more top-down leadership than others (Curtis & Wendel, 2007). Murji (2007, p. 794) described drug distribution in terms of three organizational modes—market, network, and hierarchy—and noted that these ideal-type organizational forms are “well-established ways of looking at the coordination of social life.” Technological innovations played a role in this organizational displacement. Pagers and mobile telephones facilitated “ring and bring” delivery services (May & Hough, 2004; Søgaard et al., 2019), and internet-enabled smartphones are used in “county lines” drug dealing (Coomber & Moyle, 2018). Moyle et al. (2019) noted that these innovations reintroduced features of open markets because buyers did not need to know the seller personally beforehand.

This article proceeds as follows. First, I introduce my theoretical framework, and expand on the concepts of markets, networks, hierarchies, and hybrid governance. For each, I identify their key mechanism for coordinating economic exchanges, prices in markets, trust in networks, and authority in hierarchies, and explain further supporting characteristics. I follow Adler (2001) and refer to the combination of organizational form and corresponding governance mechanism as a “mode.” I briefly describe how these concepts are applied in the research on drug distribution. Next, I explain my methodology. In the findings, I assess the importance of the various mechanisms to the functioning of the online distribution forms. The analysis uses published research, implying a focus on cryptomarkets where there is substantially more research. Finally, I discuss how the mechanisms work together, and propose that the notion of hybrid governance is a theoretically informed and comprehensive way of understanding online drug distribution and interpreting new variations of existing organizational modes.

**Theory**

The concepts of market, network, and hierarchy are ideal-type models of organizations; abstractions to explain the empirical reality (Swedberg et al., 1987). In studies on legal economic processes from economic sociology, transaction cost economics, and organizational studies, specific governance mechanisms define these concepts. I elaborate on these mechanisms in the following after a short
introduction to the disciplinary context of studying economic organizations and illicit drug distribution.

The point of departure is the comparative study of economic efficiency in different organizational modes. Williamson (1973) argued that markets and hierarchies are “discrete” organizational alternatives. It is either one or the other. The organization that is most efficient at reducing costs associated with a particular production or distribution process will prevail over time. The baseline theory for analyzing the illicit drug trade, risks, and prices (Reuter & Kleiman, 1986) uses Williamson’s transaction cost reasoning to explain the exorbitant price levels. The basic proposition is that illegality introduces frictions, and therefore imposes high transaction costs. This creates constraints on all aspects of distribution, including the way sales are organized (Caulkins & Reuter, 2010). Williamson (2000) later introduced an organizational form “between” markets and hierarchies that economic sociologists subsequently developed using the network metaphor (Thompson, 2003). Importantly for this article, Granovetter (1985) criticized Williamson’s transaction cost economics for underestimating the importance of trust and personal relations in economic exchanges. In his economic sociology, transactions are always “embedded” in social networks, and characterized by repeated exchanges. Understanding the organization of economic exchanges in the illegal context requires a disciplinary approach that considers also relations of trust (Moeller & Sandberg, 2015, 2019).

Market, networks, hierarchies, and hybrids. Beckert (2009) provided a minimal definition of markets as “arenas in which actors exchange goods and services under conditions of competition” (see Swedberg, 2003, pp. 104–130, for a broader sociological introduction to the modern market concept). Competition implies that buyers have information on other sellers, and go where they find the best price and quality. Price is the key coordinating mechanism, and market stability therefore arises spontaneously rather than in a designed way. Sellers and buyers are relatively independent from each other, and transactions have only a short duration and limited social content (Block, 1990). Different academic disciplines tend to diverge on whether illicit drug distribution constitutes a market in this sense (Ritter, 2006). To economists, they are definitely markets, albeit imperfect ones due to the lack of reliable information (Caulkins & Reuter, 2006). In contrast, sociologically inclined criminologists and ethnographers tend to emphasize the social content and context of the exchange over price concerns (Moeller, 2018).

A “network” refers to a loose form of practical organization, as well as a theoretical and analytical device (Thompson, 2003). Networks primarily rely on interpersonal trust as their governance mechanism. A common culture and accurate communication of reputations within the network support this trust (Granovetter, 1985; Jones et al., 1997; Uzzi, 1997). Building this interpersonal trust necessitates limiting access to the network. Metaphorically, this is an invisible wall of varying thickness and height (Thorelli, 1986). The wall acts as a barrier to entry, and implies the need for repeated exchanges within a small group. The downside to the trust that this builds is high switching costs. It takes time and effort to find new trustworthy transaction partners, and the investment in the prior relationship is lost (Cuypers et al., 2021; Moeller, 2018). As a result, networks are less competitive and economically efficient compared to markets. In a context of illegality, the security of the network may be more important (Benson & Decker, 2010).

Hierarchies represent a designed economic order, typically firms or public administration. Administrators oversee a production and distribution process, and act as third party to transactions, as well as monitoring performance (Williamson, 1973, 1991). The administrators have the right to make decisions, and use this to settle disputes, penalize breaches, and promote collaborative behavior, respect for contracts (Adler, 2001; Bradach & Eccles, 1989; Leixnering et al., 2021; Makadok & Coff, 2009). This monitoring reduces transactional uncertainty but extends the duration of transactions because it requires additional information disclosure, thus adding administrative expenses (Beckert, 2009; Williamson, 1973, 1991).
Less research has examined drug distribution in terms of hierarchical organization. Benson and Decker (2010) noted that only few criminal organizations use a formal hierarchy. The Sicilian Mafia was a historical exception (but see Aziani et al., 2020), with a centralized and hierarchical structure. Gambetta (1988) demonstrated how they ran a protection racket, by acting as third party in economic exchanges, substituting for the formal property rights protection of the state, enforcing informal contracts, and sanctioning malfeasance. In illicit drug distribution, there is often a hierarchical component in the way the involved groups are organized, but it is rare that an “administrator” at the top is able to monitor the whole process. Hierarchical organization will draw too much attention to the leaders when it tries to expand business (Reuter, 1983).

Studies of legal organizations find considerable variation, and note that different combinations of governance mechanisms prevail. Empirical research does not reflect the notion of discrete organizational forms and ideal types (Bradach & Eccles, 1989; Cuypers et al., 2021; Makadok & Coff, 2009). The combinations are conceptualized in different ways. Block (1990, p. 51) suggested a continuum of “marketness” with the ideal market of economic theory at one end, where actors respond entirely to price, and hierarchical organizations at the other end, where an extended process and contracts imply that price is less important. Thompson (2003) similarly noted that prices influence economic activity in networks more or less, and Adler (2001) conceptualized networks with a low- and high-trust form. Hierarchies may involve loose monitoring or direct imposition of rules and sanctions (Héritier & Lehmkuhl, 2018). Franchises are an illustration because they combine market relationships with hierarchical characteristics (Makadok & Coff, 2009). The franchisor provides a business model that includes regulations and rules, which the franchisee agrees to apply. This is not a full hierarchical arrangement, but it entails a strong element of authority, differentiating it from a pure market relationship.

The hybrid approach to studying governance in organizations draws on all three governance mechanisms simultaneously, but note that they will be present to varying degrees (Bradach & Eccles, 1989; Leixnering et al., 2021). In some empirically observed organizations, the mechanisms complement each other, while in others they may be competing and working against each other. There may be a primary mechanism while the other mechanisms appear in varying proportions (Adler, 2001). Makadok and Coff (2009) proposed that hybrid governance is increasingly important in the study of economic activity.

**Method**

A diversity of methods can describe the organization of economic exchanges, ranging from qualitative sociological analysis (Swedberg et al., 1987) to formal economic analyses (Williamson, 1991). Both the sociological and economic perspective agree that structural analysis is a comparative exercise, relating two or more organizational forms to each other (Beckert & Wehinger, 2013). Studying hybrid governance involves assessing market, network, and hierarchical governance mechanisms in empirical arrangements, first separately, then in conjunction, and then between organizational modes. I apply this reasoning to illegal online drug distribution and present my analysis as a conceptual essay based on a review of published research.

In contrast to traditional drug dealing, online transactions leave a digital trace in the form of advertisements for drugs, including prices, discounts, seller and buyer accounts, reputation scores and so on. This availability of detailed transaction-level data has reinvigorated research on illicit drug distribution (Martin et al., 2019). Broadly speaking, the literature uses either qualitative netnography, interviews, surveys, or digital trace methods. So far, it is only the research on cryptomarkets, which has used quantitative digital trace methods. The resultant quantitative datasets allow time series analyses and detailed measurements of, for example, prices and reputation scores. In contrast, the research on
social media drug distribution relies mostly on qualitative methods with only few quantitative survey studies focused on the characteristics of buyers.

While only few studies explicitly address organizational forms and governance mechanisms, several contain analyses that pertain to these questions. Departing from my theoretical framework, I was interested in empirical studies that include findings on the organizational modes applied in the online distribution of illicit drugs. Specifically, I searched for analyses that examine the following key characteristics associated with the three organizational modes. For market governance the characteristics are prices, competition, information, low search costs, short duration of transactions, arms-length between seller and buyer, and spontaneous order. Characteristics of network governance are interpersonal trust, culture, quick reputation dissemination, walls, and embeddedness. Characteristics of hierarchical governance are rules, sanctions, awards, administrative costs, and extended duration of transactions.

Findings

In this section, I examine how cryptomarkets, social media, and variants reflect the governance associated with markets, networks, and hierarchies. After this presentation, I discuss how the governance mechanisms may support each other to reduce uncertainty in the marketplace, and conclude with some suggestions for future research.

Cryptomarkets

Cryptomarkets are platform businesses similar to eBay, or an online version of shopping malls, or flea markets in the legal economy (Armstrong, 2006; Kas et al., 2021; Odabş et al., 2017). Purchasing drugs on cryptomarkets involves four generic stages: informational accumulation, account formation, market exchange, and delivery/receipt (Jardine, 2021). Cryptomarkets rely on three technological innovations to conceal transactions: The Onion Router (TOR) network that anonymizes web traffic, untraceable cryptocurrencies, and Pretty Good Privacy (PGP) encryption to mask emails (Basheer, 2022). A platform owner pays an administrator to serve as an intermediary to transactions, namely a third party that can bring together buyers and sellers in exchange for a fee. Overall, these devices alleviate uncertainty but simultaneously introduce new “dysfunctionalities” (Paquet-Clouston et al., 2018). Cryptocurrencies are volatile, customs may seize the products, and a variety of fraudulent behavior occurs (Bhaskar et al., 2019; Duxbury & Haynie, 2018; Moeller et al., 2017; Soska & Christin, 2015). Despite this, buyers on cryptomarkets generally perceive a “sense of security” as compared with offline drug trades (Aldridge & Askew, 2017).

In terms of market governance, the key factor that distinguishes cryptomarkets is the high transparency regarding the vendor’s product, prices, and history; that is, they have high levels of competition. Buyers can peruse sellers and choose the one with the best price, product, and more prior transactions (Van Hout & Bingham, 2014). Hardy and Norgaard (2016, p. 19) consequently described cryptomarkets as “an untaxed and unregulated marketplace; that exists as a completely unfettered free-market.” They concluded that the price mechanism stabilizes cryptomarkets because it “allow sellers to make more money and sellers are incentivized to provide quality service to their customers so that they increase their reputation and thus, make higher profits.” In a subsequent study, Norgaard and colleagues (2018, p. 878) characterized cryptomarkets as an “organization with different levels of authority where groups are ranked in order of authority and central control,” that is, some vendors exert more authority than others do.

However, other research challenges the importance of prices and competition for cryptomarkets. Paquet-Clouston and colleagues (2018) found that buyers “respond more to advertising than low prices.” The most popular vendors advertised aggressively, using multiple listings of the same type
of drugs, in different quantities, and participated in discussion forums to improve their visibility. A recent article focusing on cryptomarket pricing by Munksgaard and Tzanetakis (2022) summarized the evidence as conflicting. Several other factors than reputation and status influence prices.

The process of delivering the drugs to the buyer also works against market governance because it involves sending the drugs by regular mail, and therefore a long wait (Barratt & Aldridge, 2016). The risk of interception implies that the majority of purchases are domestic, reducing the level of competition (Aldridge & Askew, 2017; Bakken et al., 2018) and even downloading and using TOR extends the duration, and adds frictions to the process (Norgaard et al., 2018).

Most of the quantitative research on cryptomarkets uses the reputation scores as an attribute of trust, and focuses on network characteristics. In legal e-commerce, reputation scores facilitate trust in transactions (Armstrong, 2006; Kas et al., 2021) and Hardy and Norgaard (2016) refer to them as the “internal policing” mechanism of cryptomarkets. Duxbury and Haynie (2018) found that reputation scores explained: “more variation in the overall network structure than the affordability of vendor products or the diversity of vendor product listings,” that is, trust was more important than price. However, ratings on online platforms are typically highly left-skewed, with many very high ratings and only few low ratings. Bhaskar et al. (2019) found that on 1.2%–2.9% of ratings were negative, and a further 1.8%–3.7% are neutral. The lack of variation reduces the informativeness, but increases the importance of the number of ratings a user has (Kas et al., 2021; Tzanetakis et al., 2016).

A common culture is often a basis for interpersonal trust in networks, whether derived from ethnicity or drug-related subculture (Moeller, 2018). On cryptomarkets, a libertarian political discourse is widespread on discussion forums (Paquet-Clouston et al., 2018; see also Tzanetakis et al., 2016), and Munksgaard and Demant (2016) have argued that common political sentiment was a stabilizing factor in early cryptomarkets, but has been dampened over time in favor of non-political discussions, and lower levels of discussions. The forums still serve an important stabilizing function because buyers discuss fraudulent vendors (Moeller et al., 2017). In this way, the networked information on discussion forums supplements the reputation scores.

The metaphorical walls around networks—the barriers to entry (Thorelli, 1986)—manifest in different ways on cryptomarkets. Firstly, there is a selection effect where access is limited by the requirement of knowledge on using encryption technologies, and how to conceal and ship the product (Barratt & Aldridge, 2016; Paquet-Clouston et al., 2018). In turn, this may result in a “relatively affluent” group of buyers that put less emphasis on the price (Duxbury & Haynie, 2018). Another way of understanding the walls is in the distribution of sales between vendors. The preference for using the same vendor repeatedly (Paquet-Clouston et al., 2018), suggests that there are switching costs from having to learn to trust a new vendor. Several studies have found that “buyers rarely make purchases outside of their own community of 1–3 established vendors” (Duxbury & Haynie, 2018). The result is a network with high localized clustering, where “the majority of vendors are relegated to being mere market spectators with almost zero sales” (Paquet-Clouston et al., 2018; see also Soska & Christin, 2015). Compared to offline drug distribution, Norgaard et al. (2018, p. 877) found that cryptomarkets had a network structure “slightly more monopolistic than the network structure of the Ground market.” A top-heavy structure can suggest that the network is not very efficient (Duxbury & Haynie, 2021), and that the network may be “overembedded” (Uzzi, 1997); that is, social relations between transaction partners are too strong, and this reduces price competition.

Platform administrators have important functions in cryptomarkets. They provide authentication by verifying vendors and products, and mediate in disputes (Odabaş et al., 2017). These are hierarchical mechanisms and defining features of cryptomarkets. Only limited research focuses on these aspects, despite their importance in reducing transactional uncertainty and stabilizing the platforms (Munksgaard & Tzanetakis, 2022). This is a centrally prescribed, formal enforcement mechanism. Maintaining this function takes time and effort, and cryptomarkets charge vendors a registration fee as well as a transaction fee (Hardy & Norgaard, 2016; Paquet-Clouston et al., 2018).
If a transaction is unsuccessful, the drugs never arrive, or are of an inferior quality, the buyer and sellers can discuss what went wrong in a dispute resolution system. Here, administrators act as a third party, and help resolve the situation (Munksgaard & Tzanetakis, 2022). Mediation has two connected components: the dispute resolution system and escrow. In the dispute resolution system, administrators adjudicate between sellers and buyers. They refer to reputations scores, number of successful sales, and prior disputes as indicators of vendors’ reliability (Tzanetakis et al., 2016). In cases where they find malfeasance, they have the capacity to sanction and ban the perpetrator from the platform (Diekmann et al., 2014). This third-party function, similar to the role that the Sicilian mafia played (Gambetta, 1988), is a hierarchical mechanism. Further, it is notable how the networked indicators—reputation scores, prior transactions—have a supporting function. While this negotiation takes place, the funds are in escrow.

The escrow system is a key hierarchical device. There are different types of escrow. In a centralized escrow system, the funds are withheld from the seller, until the buyer verifies receipt of the products (Bradach & Eccles, 1989; Odabaş et al., 2017). This system resembles a contract or court, and reduces the uncertainty of potentially fraudulent vendors that do not send the product (Tzanetakis et al., 2016). However, this centralized system introduces a problem of platform moral hazard. There are several examples of platform administrators that steal the funds held in escrow; referred to as exit scams (Moeller et al., 2017; Tzanetakis et al., 2016). To circumvent this problem, a decentralized multi-signature escrow system can release funds if two of the three parties agree. Hardy and Norgaard (2016) note that this has become the norm, but Bhaskar and colleagues (2019) found that in the four cryptomarkets they examined, it was only rarely used. Surprisingly, no research has focused on the escrow systems (Munksgaard & Tzanetakis, 2022).

A few studies examine how buyers and sellers circumvent the escrow system and save on fees, by finalizing early or direct dealing. Finalizing early (FE) is the term used for when buyers transfer payment to the vendor before the product is received, saving on escrow expenses, but at the cost of exposing themselves to fraud (Moeller et al., 2017). A step in further reducing hierarchical controls is to deal directly. Childs and colleagues (2020) found that some buyers and sellers use the discussion forums as an introduction to each other, but then agree to continue communication using an encrypted messaging app, unrelated to the site. Similar to finalizing early, this reduces administrative costs by obviating the protocols, and some vendors use the savings to offer discounts (Childs et al., 2020). While no studies have measured the prevalence of FE and direct dealing, the theoretical implication is that the hierarchical administration “collapses” if many buyers connect directly to prolific distributors (Duxbury & Haynie, 2018). Arguably, such a collapse would not be complete because the buyers would probably still utilize the networked reputation scores as a basis for deciding which vendor to directly deal with. The networked reputation score is predicated on the cryptomarket infrastructure and the designed economic order.

Finally, the Russian-language Hydra platform is a variant that was introduced after postal services were obligated to inspect parcels to “prevent transportation of prohibited substances” in 2014 (Meylakhs & Saidashev, 2021). Hydra constitutes a unique organization that has strengthened the hierarchical features, but which also uses novel market devices. Delivery takes place with stashes where the vendor hides the product in a discreet location, provides photos, descriptive notes, and coordinates to the buyer. Hydra administrators sanction fraud using temporary or permanent exclusion, fines, and regulate conflicts regarding drug quality and “dummies,” that is, when the stash is not found. A strong market characteristic is the list of “top vendors,” and the auctioning off the top four positions every year. Verified vendors have the right to close disputes without mediation from administrators. Verification requires more than 1,000 transactions, with less than 7% disputes, and payment of a monthly fee of 850 euros. Collectively, these features increase control and reduce the need for a networked trust and culture.
Social Media

Recent research has found that mainstream clearnet social media platforms, such as Facebook and Instagram, are used to facilitate drug transactions. None of the published studies on social media drug dealing directly addresses questions of organization, but they describe the steps in the acquisition process. They also relate this to prior typologies of conventional drug distribution, in terms of the openness and accessibility, as compared to closed, but safer networked transactions. Bakken and Demant (2019) noted that the platforms Instagram and Facebook constitute distinct distribution forms. One is more openly accessible than the other, parallel to the differences between open street markets and semi-open markets in pubs, namely intermediary positions on a market to network axis. In contrast, Moyle and colleagues (2019, p. 108) characterize drug distribution using social media as a “quick and convenient” intermediary option “between cryptomarkets and street-based drug markets.”

The first studies were published in 2019 (Bakken & Demant, 2019; Moyle et al., 2019), and used qualitative interviews and digital ethnographic methods to examine the motivations of participants. Primarily, this is an easy way to access sellers, and transactions are of very limited duration, as the sellers are often able to meet up quickly. A few studies have used surveys to examine the characteristics of the buyers and their preferred social media platforms. Van der Sanden and colleagues (2021) surveyed 16+-year-olds’ drug purchasers and found that around 22% had bought drugs using social media applications. Most had used Facebook, followed by Snapchat, and Instagram in order of frequency. Younger age was a significant predictor of social media purchasing (see also Oksanen et al., 2020).

Procuring drugs using social media starts with the buyer searching drug-related hashtags, or following individuals with profiles containing advertisements for drug sales, pictures, and videos of products (Bakken & Demant, 2019; Demant et al., 2019; Oksanen et al., 2020). The buyer then contacts the seller who redirects them to a message service with end-to-end encryption and temporary message capabilities, where the communication is deleted after a period, for example on Wickr, Signal, and so on. This implies that buyers can search for a geographically proximate seller, and in cases where there are more than one, assess who has the best product and prices. Bakken and Demant (2019) and Oksanen and colleagues (2020) note that this results in a competitive environment, with few restrictions on access for prospective sellers and buyers. Most groups stay open until they have attracted a sufficient number of buyers, but some groups require an invitation (Demant et al., 2019).

The final exchange of money for drugs “commonly take place ‘face-to-face’ at local level through public meetings or home drop offs” (Moyle et al., 2019), often within an hour (Bakken & Demant, 2019). This high level of “availability, convenience and immediacy” (Moyle et al., 2019) is arguably the key motivation for buyers to use this distribution form, and only a few sellers offered postal shipments (Bakken & Demant, 2019). The boundaries between the different social media platforms are fluid, as both sellers and buyers search for transaction partners on different platforms. They do not necessarily have repeated transactions with the same partner. Bakken and Demant (2019) quote a Swedish seller who says the following: “There is always new people in the Facebook groups, while on the street you mostly meet the same people.” These traits—availability, immediacy, changing transaction partners, and lack of social contents—indicate a large proportion of market governance in social media drug dealing.

However, Moyle and colleagues (2019) found that comments on posts and "likes" on the seller’s profile serve a similar function as the networked reputation systems on cryptomarkets. Defrauded or otherwise dissatisfied buyers can post comments on discussion forums (Bakken & Demant, 2019). These comments have lower validity as compared to the aggregated reputation scores on cryptomarkets. On social media, posts and comments reflect individuals’ dissatisfaction, rather than average evaluations from many buyers. A few Facebook groups for drug sales actually have ratings systems regulated by the administrators. Here, administrators place sellers into “Red” and “Green” categories
based on user feedback, but how this happens is not transparent (Moyle et al., 2019). While there are group administrators that could potentially serve as a third party to transactions, there is no evidence that they sanction or ban fraudulent sellers. Also, they do not charge a fee for any administrative expenses because it is free for sellers and buyers to join the groups (Demant et al., 2019).

Compared to cryptomarkets, drug distribution using social media is a more self-generated economic order with lower walls and lower levels of central control and hierarchical governance. The dissemination of reputations is less efficient, and buyers seem to be less loyal to the same dealer, maybe because the quality of information on individual dealers is less reliable. Both Moyle and colleagues (2019) and Demant and colleagues (2019) found that there are group administrators, but they take a very passive role. When they sanction fraudulent sellers by placing them in a “Red” category, it is based on negative comments from buyers. It is not clear what the motivations are for leaving digital traces of one’s own illegal behavior, but as it happens, and they serve a stabilizing function where they help in reducing uncertainty. There is a networked governance mechanism at work. Summing up, market governance is the strongest mechanism in social media drug dealing, but it works in the shadow of the networked reputations of sellers. This network governance is not as strong as in cryptomarkets as it does not reflect aggregated assessments and is not communicated as effectively. Hierarchical governance is largely absent as the transaction process is not centrally monitored.

A variant in the organization of clearnet online drug distribution is the platform LeafedOut that facilitates cannabis exchanges at the local level (Childs et al., 2021). Users create an account linked to an email address, and are provided with an interactive international map that locates people selling or buying cannabis in their area. To reduce uncertainty, participants communicate using encrypted messaging, and selectively choose meet-up locations with lower risks. This still leaves a lot of room for uncertainty regarding who is a genuine transaction partner, and users report high levels of fraudulent behavior, typically variations of the finalizing early (FE) scams, where buyers pay beforehand, but never receive the product (Childs et al., 2021; Moeller et al., 2017). In this sense, LeafedOut is even higher in terms of market governance compared to social media platforms because it is openly accessible from a google search, and does require an account or knowledge about how to find drug selling groups that have sellers in the area.

Discussion and Conclusion

Illicit drug distribution on cryptomarkets, social media, and their variants apply governance mechanisms associated with markets, networks, and hierarchies, in different combinations. Buying and selling illicit drugs online is fundamentally an economic exchange, but illegality makes these transactions less about efficiency and more about uncertainty. Drawing on theories of organizations, I have proposed that the combination of governance modes found in empirical studies of online drug distribution can be understood in terms of hybrid governance. Based on my findings, I believe the following three key points merit further discussion.

First, cryptomarkets draw on all three governance modes, but the hierarchical mechanisms are understudied. Given their importance for cryptomarket stability and novelty in terms of drug distribution governance, this area warrants further research. Second, social media drug dealing primarily relies on two organizational modes, and market governance is the strongest. The openness with which drug distribution occurs on clearnet platforms demonstrates a surprising disregard for the risks associated with retail drug sales. Third, hybrid governance elucidates the way governance modes work in conjunction in these technologically enabled complex organizational forms. This conceptual framework constitutes a theoretically informed approach to understanding the temporal developments in the organization of drug distribution and is especially useful for describing how emerging online variations differ from earlier iterations.
Studies on the organization of economic exchanges generally find that technological innovation facilitates complex organizational modes. Notably, these include adopting reputation systems, verification of reliable sellers, and transformed legal e-commerce platforms from social networks to impersonal exchange (Kas et al., 2021). This “evolution of cooperation” (Diekmann et al., 2014) has also occurred in the illicit online trade. However, the conventional differentiation between network and market, does not adequately capture the changes. In this article, I have conceptualized the reputation systems on cryptomarkets as a second-party device, that represents a networked governance. While this information should increase the level of competition, openness, and arms-length transactions the research finds that sales are actually concentrated among few vendors. This is an interesting contrast to how efficient the reputation systems are in legal e-commerce. On legal platforms, sellers with high reputation scores command higher prices. However, recent research on cryptomarkets finds that this relationship does not hold for the illicit context (Munksgaard & Tzanetakis, 2022). The reliability of reputation scores in the illicit context should not be overestimated. Arguably, the importance of the networked reputation scores hinges on the integrity of the platform administrators and owners. Administrators banning fraudulent vendors and awarding verified status to reliable ones constitute a hierarchical third-party monitoring (Odabas¸ et al., 2017). Both buyers and vendors know that administrators have the capacity to ban fraudulent vendors. Even if no vendors are banned, the threat of a ban and the existence of a banning capacity constitutes a “shadow” of hierarchical governance (H´eritier & Lehmkuhl, 2018; Leixnering et al., 2021).

Hierarchical governance also influences the organization of cryptomarkets more directly. In particular, the escrow system is a key device. Escrow systems are centrally organized, and come with administrative costs, but they improve monitoring and reduce uncertainty. While no research has focused on the importance of the escrow systems, Hardy and Norgaard (2016, p. 5) mention them, but, in my opinion, fail to appreciate their importance in stabilizing cryptomarkets. They note that transactions incur additional costs since there is “no recourse for failure,” “no legal contract enforceability,” and “no formal enforcement mechanism if a transaction goes awry.” Conversely, I follow Munksgaard and Tzanetakis’s (2022) assessment that escrow is parallel to contracts and courts. They are a stabilizing hierarchical mechanism, and should be examined further in future research.

Continuing this line of argument but focusing now on market governance, a similar interaction exists with the networked devices. Open advertisements from many vendors, including their prices and products, is a form of market governance and arms-length transaction. However, the research cited in this article suggests that this market openness is contingent on the networked reputation scores. Conversely, using the hybrid governance perspective, the reputations scores are not devoid of market content. Rather, here the market functions “in the shadow,” as this incentivizes vendors not to cheat because they may lose business from a reduction in reputation score.

To assay the respective proportions between the governance mechanisms on cryptomarkets is beyond the scope of this article, but following Williamson’s (1973) logic, time will give an indication of which governance mode is best for supporting networked governance. Areas to follow are FE and the Hydra model. Finalizing early strengthens market governance, and weakens hierarchical governance. In contrast, the Hydra cryptomarket has strengthened hierarchical controls over the transaction process. Are new cryptomarket platforms heavier on the market or hierarchy mechanisms?

Maybe the emergence of drug dealing on social media gives an indication of market mechanism proliferation. From my assessments of the published research on social media drug distribution, market governance is the most important mechanism. Buyers that use social media platforms emphasize ease of access and the fast delivery (Bakken & Demant, 2019; Childs et al., 2021). These are features associated with market governance. This disregard for potential law enforcement intervention is surprising in light of the conventional wisdom on drug buyers’ aversion to legal threats. Buyers go as far as to self-incriminate by leaving comments on fraudulent sellers. This represents a low level of
networked controls. Gleaning this information requires examining the comments on posts for negative evaluations, and is a less efficient way of disseminating information.

For social media drug distribution, the dominant market mechanism operates in the shadow of networked governance. Following this reasoning, LeafedOut is a variation of social media dealing that is higher on market governance and comparably lower on networked governance, with hierarchical mechanisms being largely absent. In this sense, social media dealing exemplifies hybrid governance of market in the shadow of network. The absence of hierarchical mechanisms exposes sellers and buyers to fraud and law enforcement intervention (Jardine, 2021; Ladegaard, 2019). Surprisingly, this mode of drug dealing persists and even evolves, as seen with LeafedOut.

I propose that the concept of hybrid governance is useful for illustrating the temporal dimension of organizational change in a systematic manner. For each online drug distribution type, it is a mix of governance modes, which characterize the organization, rather than a single point on an open–closed axis. While drug distributors have always applied technological innovations to evade law enforcement, encryption technologies and anonymous payments have enabled the implementation of more complex organizational forms. The most recent developments described in this article, Hydra and LeafedOut, constitute interesting trends in this regard. Both of these online distribution forms represent economic exchanges where one form of governance dominates.

Applying the concept of hybrid governance to these emerging forms of online drug distribution illustrates how they compare to prior modes of drug distribution. Presently, the online trade in illicit drugs is increasingly reminiscent of the arms-length trade of legal markets (Duxbury & Haynie, 2021; Ladegaard, 2019). The declining importance of the ideological components and political discussions that characterized the early iterations (Munksgaard & Demant, 2016) illustrate this trend. Over time, a hybrid governance framework may help in explaining why some online distribution forms persist, while others fail. Recent law enforcement takedowns pose questions as to the viability of cryptomarkets in the longer run. Similarly, political pressure on the large social media applications to improve their control of content may inhibit illicit drug distribution in the future.

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References
Adler, P. S. (2001). Market, hierarchy, and trust: The knowledge economy and the future of capitalism. Organization Science, 12(2), 215–234.
Aldridge, J., & Askew, R. (2017). Delivery dilemmas: How drug cryptomarket users identify and seek to reduce their risk of detection by law enforcement. International Journal of Drug Policy, 41, 101–109.
Aldridge, J., & Decary-Hétu, D. (2014). Not an “eBay for Drugs”: The cryptomarket “Silk Road” as a paradigm shifting criminal innovation. SSRN Electronic Journal.
Armstrong, M. (2006). Competition in two-sided markets. The RAND Journal of Economics, 37(3), 668–691.
Aziani, A., Favarin, S., & Campedelli, G. M. (2020). Security governance: Mafia control over ordinary crimes. Journal of Research in Crime and Delinquency, 57(4), 444–492.
Bakken, S. A., & Demant, J. (2019). Sellers' risk perceptions in public and private social media drug markets. *International Journal of Drug Policy, 73*, 255–262.

Bakken, S. A., Moeller, K., & Sandberg, S. (2018). Coordination problems in cryptomarkets: Changes in cooperation, competition and valuation. *European Journal of Criminology, 15*(4), 442–460.

Barratt, M. J., & Aldridge, J. (2016). Everything you always wanted to know about drug cryptomarkets* (*but were afraid to ask). *International Journal of Drug Policy, 35*, 1–6.

Basheer, R. (2022). Cryptomarkets’ phenomenon: A conceptualization approach. *Human Behavior and Emerging Technologies, 2022*(3), 6314913.

Beckert, J. (2009). The social order of markets. *Theory and Society, 38*(3), 245–269.

Beckert, J., & Wehinger, F. (2013). In the shadow: Illegal markets and economic sociology. *Socio-Economic Review, 11*(1), 5–30.

Benson, J. S., & Decker, S. H. (2010). The organizational structure of international drug smuggling. *Journal of Criminal Justice, 38*(2), 130–138.

Bhaskar, V., Linacre, R., & Machin, S. (2019). The economic functioning of online drugs markets. *Journal of Economic Behavior & Organization, 159*, 426–441.

Block, F. L. (1990). *Postindustrial possibilities*. University of California Press.

Bradach, J. L., & Eccles, R. G. (1989). Price, authority, and trust: From ideal types to plural forms. *Annual Review of Sociology, 15*(1), 97–118.

Caulkins, J. P., & Reuter, P. (2006). Illicit drug markets and economic irregularities. *Socio-Economic Planning Sciences, 40*(1), 1–14.

Caulkins, J. P., & Reuter, P. (2010). How drug enforcement affects drug prices. *Crime and Justice, 39*, 213–271.

Childs, A., Bull, M., & Coomber, R. (2021). Beyond the dark web: Navigating the risks of cannabis supply over the surface web. *Drugs: Education, Prevention and Policy, 1–12.*

Childs, A., Coomber, R., Bull, M., & Barratt, M. J. (2020). Evolving and diversifying selling practices on drug cryptomarkets: An exploration of off-platform “direct dealing.” *Journal of Drug Issues, 50*(2), 173–190.

Coomber, R., & Moyle, L. (2018). The changing shape of street-level heroin and crack supply in England: Commuting, holidaying and cuckooing drug dealers across ‘county lines’. *The British Journal of Criminology, 58*(6), 1323–1342.

Curtis, R., & Wendel, T. (2007). “You’re always training the dog”: Strategic interventions to reconfigure drug markets. *Journal of Drug Issues, 37*(4), 867–892.

Cuypers, I. R. P., Hennart, J.-F., Silverman, B. S., & Ertug, G. (2021). Transaction cost theory: Past progress, current challenges, and suggestions for the future. *Academy of Management Annals, 15*(1), 111–150.

Demant, J., Bakken, S. A., Oksanen, A., & Gunnlaugsson, H. (2019). Drug dealing on Facebook, Snapchat and Instagram: A qualitative analysis of novel drug markets in the Nordic countries. *Drug and Alcohol Review, 38*(4), 377–385.

Diekmann, A., Jann, B., Przepiorka, W., & Wehrli, S. (2014). Reputation formation and the evolution of cooperation in anonymous online markets. *American Sociological Review, 79*(1), 65–85.

Duxbury, S. W., & Haynie, D. L. (2018). The network structure of opioid distribution on a darknet cryptomarket. *Journal of Quantitative Criminology, 34*(4), 921–941.

Duxbury, S. W., & Haynie, D. L. (2021). Network embeddedness in illegal online markets: Endogenous sources of prices and profit in anonymous criminal drug trade. *Socio-Economic Review*. Advance online publication. https://doi.org/10.1093/ser/mwab027

Eck, J. (1995). General model of the geography of illicit retail marketplaces. In J. E. Eck & D. Weisburd (Eds.), *Crime and place* (pp. 67–93). Criminal Justice Press/Willow Tree Press.

Gambetta, D. (1988). Mafia: The price of distrust. In D. Gambetta (Ed.), *Trust making and breaking of cooperative relations* (pp. 158–175). Harvard University Press.

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology, 91*(3), 481–510.
Hardy, R. A., & Norgaard, J. R. (2016). Reputation in the Internet black market: An empirical and theoretical analysis of the Deep Web. *Journal of Institutional Economics, 12*(3), 515–529.

Hérétier, A., & Lehmkuhl, D. (2018). Governing in the shadow of hierarchy: New modes of governance. In A. Hérétier & M. Rhodes (Eds.), *New modes of governance in Europe* (pp. 48–74). Macmillan.

Jardine, E. (2021). Policing the cybercrime script of darknet drug markets: Methods of effective law enforcement intervention. *American Journal of Criminal Justice, 46*, 980–1005.

Jones, C., Hesterly, W. S., & Borgatti, S. P. (1997). A general theory of network governance: Exchange conditions and social mechanisms. *Academy of Management Review, 22*(4), 911–945.

Kas, J., Corten, R., & van de Rijt, A. (2021). The role of reputation systems in digital discrimination. *Socio-Economic Review*. Advance online publication. https://doi.org/10.1093/ser/mwab012

Ladegaard, I. (2019). Crime displacement in digital drug markets. *International Journal of Drug Policy, 63*, 113–121.

Leixnering, S., Meyer, R. E., & Polzer, T. (2021). Hybrid coordination of city organisations: The rule of people and culture in the shadow of structures. *Urban Studies, 58*(14), 2933–2951.

Makadok, R., & Coff, R. (2009). Both market and hierarchy: An incentive-system theory of hybrid governance forms. *Academy of Management Review, 34*(2), 297–319.

Martin, J., Cunliffe, J., & Munksgaard, R. (2019). *Cryptomarkets: A research companion*. Emerald Publishing.

May, T., & Hough, M. (2004). Drug markets and distribution systems. *Addiction Research & Theory, 12*(6), 549–563.

Meylakhs, A., & Saidashev, R. (2021). A qualitative analysis of the Russian cryptomarket Hydra. *Kriminologisches Journal, 3*, 169–185.

Moeller, K. (2018). Drug market criminology. *International Criminal Justice Review, 28*(3), 191–205.

Moeller, K., Munksgaard, R., & Demant, J. (2017). Flow my FE the vendor said: Exploring violent and fraudulent resource exchanges on cryptomarkets for illicit drugs. *American Behavioral Scientist, 61*(11), 1427–1450.

Moeller, K., Munksgaard, R., & Demant, J. (2021). Illicit drug prices and quantity discounts: A comparison between a cryptomarket, social media, and police data. *International Journal of Drug Policy*. Advance online publication. https://doi.org/10.1016/j.drugpo.2020.102969

Moeller, K., & Sandberg, S. (2015). Credit and trust: Management of network ties in illicit drug distribution. *Journal of Research in Crime and Delinquency, 52*(5), 691–716.

Moeller, K., & Sandberg, S. (2019). Putting a price on drugs: An economic sociological study of price formation in illegal drug markets. *Criminology, 57*(2), 289–313.

Moyle, L., Childs, A., Coomber, R., & Barratt, M. J. (2019). #Drugsforsale: An exploration of the use of social media and encrypted messaging apps to supply and access drugs. *International Journal of Drug Policy, 63*, 101–110.

Munksgaard, R., & Demant, J. (2016). Mixing politics and crime: The prevalence and decline of political discourse on the cryptomarket. *International Journal of Drug Policy, 35*, 77–83.

Munksgaard, R., & Tzanetakis, M. (2022). Uncertainty and risk: A framework for understanding pricing in online drug markets. *International Journal of Drug Policy, 101*, 103535.

Murji, K. (2007). Hierarchies, markets and networks: Ethnicity/race and drug distribution. *Journal of Drug Issues, 37*(4), 781–804.

Norgaard, J. R., Walbert, H. J., & Hardy, R. A. (2018). Shadow markets and hierarchies: Comparing and modeling networks in the dark net. *Journal of Institutional Economics, 14*(5), 877–899.

Odabaş, M., Holt, T. J., & Breiger, R. L. (2017). Markets as governance environments for organizations at the edge of illegality: Insights from social network analysis. *American Behavioral Scientist*, *61*(11), 1267–1288.

Oksanen, A., Miller, B. L., Savolainen, I., Sirola, A., Demant, J., Kaakinen, M., & Zych, I. (2020). Social media and access to drugs online: A nationwide study in the United States and Spain among adolescents and young adults. *The European Journal of Psychology Applied to Legal Context, 13*(1), 29–36.

Paquet-Clouston, M., Décary-Héuté, D., & Morselli, C. (2018). Assessing market competition and vendors’ size and scope on AlphaBay. *International Journal of Drug Policy, 54*, 87–98.
Reuter, P. (1983). *Disorganized crime: The economics of the visible hand*. MIT Press.
Reuter, P., & Kleiman, M. (1986). Risks and prices: An economic analysis of drug enforcement. *Crime and Justice*, 7, 289–340.
Ritter, A. (2006). Studying illicit drug markets: Disciplinary contributions. *International Journal of Drug Policy*, 17, 453–463.
Søgaard, T. F., Kolind, T., Haller, M. B., & Hunt, G. (2019). Ring and bring drug services: Delivery dealing and the social life of a drug phone. *International Journal of Drug Policy*, 69, 8–15.
Soska, K., & Christin, N. (2015). *Measuring the longitudinal evolution of the online anonymous marketplace ecosystem* [Symposium]. Proceedings of the 24th USENIX Security Symposium, pp. 33–48. USENIX Association.
Swedberg, R. (2003). *Principles of economic sociology*. Princeton University Press.
Swedberg, R., Himmelstrand, U., & Brulin, G. (1987). The paradigm of economic sociology: Premises and promises. *Theory and Society*, 16(2), 169–213.
Thompson, G. F. (2003). *Between hierarchies and markets: The logic and limits of network forms of organization*. Oxford University Press.
Thorelli, H. B. (1986). Networks: Between markets and hierarchies. *Strategic Management Journal*, 7(1), 37–51.
Tzanetakis, M., Kamphausen, G., Werse, B., & von Laufenberg, R. (2016). The transparency paradox. Building trust, resolving disputes and optimising logistics on conventional and online drugs markets. *International Journal of Drug Policy*, 35, 58–68.
UNODC. (2021). *World drug report*. United Nations Office on Drugs and Crime. UNODC Research.
Uzzi, B. (1997). Social structure and competition in interfirm networks. *Administrative Science Quarterly*, 42(1), 37–69.
Van der Sanden, R., Wilkins, C., Romeo, J. S., Rychert, M., & Barratt, M. J. (2021). Predictors of using social media to purchase drugs in New Zealand: Findings from a large-scale online survey. *International Journal of Drug Policy*, 98, 103430.
Van Hout, M. C., & Bingham, T. (2014). Responsible vendors, intelligent consumers: Silk Road, the online revolution in drug trading. *International Journal of Drug Policy*, 25(2), 183–189.
Williamson, O. E. (1973). Markets and hierarchies, some elementary considerations. *American Economic Review*, 63(2), 316–325.
Williamson, O. E. (1991). Comparative economic organization: The analysis of discrete structural alternatives. *Administrative Science Quarterly*, 36(2), 269–296.
Williamson, O. E. (2000). The new institutional economics: Taking stock, looking ahead. *Journal of Economic Literature*, 38(3), 595–613.

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