Chapter 2

Social Media Applications and 'Surface Web' Mediated Supply of Illicit Drugs: Emergent and Established Market Risks and Contradictions

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Abstract

The online sourcing, supply, and purchase of illicit drugs is fast transforming drug markets worldwide. Although the long-term development of simple communications technology over time (from pagers to mobile phones) continues to impact and extend local drug supply dynamics, it is the recent developments of dark web cryptomarkets, social media applications (like Instagram), encrypted messaging applications (like WhatsApp), and surface web platforms, such as LeafedOut, that are changing the drug supply landscape online. The use of technology in drug supply has tended to go hand in hand with improving the efficiency of supply and opportunities to reduce exchange-related risks for both buyers and sellers. In relation to app-mediated supply, for example, the use of encrypted messaging provides enhanced security for arranging purchases beyond the lurking surveillance of law enforcement. Despite the perception of improved safety, however, the use of social media apps and other online platforms can expose both buyers and sellers to risk scenarios they may not fully appreciate. Drawing on two recent studies on the use of social media apps and the online platform LeafedOut as mediators of drugs supply, this chapter will consider how these mid-range (between cryptomarkets and traditional telecommunications such as basic texting/calling and material 'street' markets) virtual spaces are being utilised for drug supply and the extent to which this is 'just more of the same' or provides new structures and experiences for those engaging with it and in what

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ways. Consideration will also be given to contradictions in the mid-range market space where the broad perception of reduced risk from the use of encrypted messaging can in fact produce greater levels of risk for some buyers and sellers depending on how they engage with the process/es.

Keywords: Drug supply; social media; digital apps; drug markets; drug dealing

Introduction

Prior to the introduction of electronic pagers in the late 1980s, the methodology of drug supply and exchange between sellers and users had been pretty much the same for decades. Previously, drug purchases were either 'place' focused (i.e. dealing from known 'corners', 'hot-spots', or areas where sellers and buyers would congregate with the knowledge that both would be present) and/or acquaintance based (where supply could be organised through regular, known, or 'vouched for' sellers and buyers). The exchange process was relatively risky in terms of exposure to law enforcement due to the need for direct personal exchange. Although it is the place-based 'open street markets' that did (and continue to) represent the clearest example of visible, risky exchange, even the comparatively 'closed' exchanges in private settings with new customers or new suppliers left buyers and sellers potentially vulnerable to undercover stings – a risk that continues in the current context (cf. Coomber, 2015, 2022, 2023). Since the late 1980s, however, the overall form of illicit drug markets has been in an ongoing, transitionary phase with new exchange methods emerging and evolving. Some traditional issues remain but the overall landscape is now very different from that which preceded it. These changes have been particularly affected by the development and increasing ubiquity of communication technologies such as mobile phones and the Internet, but also other technological enablers (e.g. encryption and onion routing) that provide hidden online spaces for exchange on the dark web. Although there have been important changes in the practice of offline 'street-supply' involving traditional methods of face-to-face exchanges as well as in darknet drug cryptomarkets (cf. Coomber, 2022, 2023), this chapter will focus on drug exchange via the comparatively less well researched mid-range[1] space between these two – that of everyday social media app technology as well as that comprising the open and visible mainstream *surface* web.

[1]For the purposes of definition, 'mid-range' in this context relates to supply that is partially digitally mediated. As such, darknet cryptomarkets would be seen as wholly digitally mediated, while an open-air street deal would be wholly in person (although a phone call or text could be involved). App-mediated markets and surface level web-mediated markets (such as LeafedOut) where face-to-face contact occurs after digital-mediated agreement and arrangements are thus partially digitally mediated.

Digitally mediated illicit drug supply and purchase are largely, but not completely, distinct from what we might term 'offline' illicit drug supply. In this 'always on' world, very little is now completely offline, but it is nonetheless reasonable to discern a meaningful distance between what is involved in darknet-located drug cryptomarkets (Baym, 2009; Martin, 2023, Chapter 9) and surface web grey market (see below) drug exchanges and those corporeal relations that take place between heroin and crack cocaine sellers and buyers in material spaces. As we shall see, the use of social media apps (e.g. Wickr, Instagram, WhatsApp, Facebook, and so on) for arranging illicit drug exchanges sits somewhere between these extremes.

Initial research and criminal justice interest in the 2010s on how the Internet and related technology was coalescing with the illicit drug trade focused on grey market sales (i.e. products diverted from legal markets and then sold in markets such as online pharmacies, often with uncertain legal status) through surface platform websites offering two primary types of psychoactive and other substances. Originally, these were medicines and pharmaceuticals such as anabolic-androgenic steroids which required prescriptions in many jurisdictions (but were sold, often from sites based in countries that did not require them, without requiring the proof of prescription) and, at that time, were euphemistically called 'legal highs' and became known as new psychoactive substances (NPS). The burgeoning market of (mostly) undetectable illicit drug exchanges taking place in cryptomarkets on the dark web was the other primary focus. Somewhat analogous to the way that legal highs (NPS) such as mephedrone became extremely common and established among young users before researchers, drug services, public health organisations, or enforcement was aware of them (ACMD, 2011), researchers and others were also late to the party on recognising the use of social media apps – almost ubiquitous in the day-to-day life of most young people – as a new common method of accessing and supplying illicit drugs. Until 2017, despite some early media coverage (albeit largely sensationalist with little depth – see Moyle et al., 2019) and an academic 'nod' towards the activity by Aldridge as far back as 2012, there was no published academic research on the use of social media apps and their use in drug supply. Moyle et al. (2019) published the first research paper looking at the ways that social media apps were being used in everyday drug supply. It is that research, and other key research published since that we will consider in more detail here before discussing developments in the other 'in-between' area of illicit drug supply mediation via the surface web.

How Social Media Apps are Utilised in Drug Exchanges

Various internationally popular social media apps (e.g. Snapchat, Instagram, and Facebook), as well as some specific to a region or locality, are used to enable illicit drug exchanges between previously unconnected individuals. Actual app preferences vary by time and space and are related more to different geographical cultural preferences for specific apps than to app efficiency for drug exchanges, and this is likely to continue.

An ideal-type scenario for local illicit drug exchange is as follows: potential purchasers identify suppliers and their drug/s of choice on specific social media platforms (e.g. by searching for specific hashtags or identifying the use of emojis to indicate the availability of drugs via a particular vendor). A diamond or snowflake is a sign for cocaine; a capsule emoji indicates MDMA; a needle indicates heroin (Demant et al., 2019). Again, emojis and indicative messages/adverts will vary over time and space. Depending on the in-built app technology, potential purchasers may be able to see which suppliers are nearby, contact the seller to see if their preferred drug is available in a convenient timeframe and acceptable price, and, if so, arrange for the face-to-face exchange to take place (Bancroft, 2023, Chapter 5). Sellers may, or may not, prefer to move communications to a more secure communication app such as WhatsApp or Wickr as these messenger services provide sellers with end-to-end encrypted communication. A successful purchase will commonly involve 'face-to-face' public meetings or home drop-offs, although it is clear from some message board activity that selects sellers are willing to post purchases to much wider geographical boundaries.

Methodological Approach

Curious to understand more about how app-based drug exchanges were operating and being experienced by those using them, Moyle et al. (2019) set out to explore the motivations for, as well as the particular risks and anxieties associated with, the purchasing of drugs through mobile phone applications. Consideration of motivations, perceived risks, and concerns was the primary focus as these are also key issues in both traditional offline markets (Coomber, 2006; Jacobs, 2000) and for many that engage in drug cryptomarkets (Aldridge and Askew, 2017; Barratt et al., 2014, 2016; Martin, 2014a).

To pursue this, a multistage approach using three different methodologies was employed: an international online survey was followed by rapid face-to-face *in situ* interviews (Measham and Moore, 2009) and in-depth interviews, all in the latter half of 2017. The survey recruited 358 responses from a target sample of those 'having sourced or who had considered sourcing, drugs through a mobile phone app'. The online survey produced baseline quantitative data on the demographics of app users, the apps they used, the drugs they purchased, the frequencies with which apps were used, and the perceived benefits and risks of using them. We also intentionally recruited drug-using respondents who had considered but had not used apps to source drugs to help us understand some of the perceived barriers and anxieties associated with using apps to access drugs. The resultant sample provided insights from (mostly) Australia, Canada, the UK, and the USA. Issues and topics raised in the online survey requiring further insight were followed up with face-to-face, *in situ*, 'rapid' interviews (Measham and Moore, 2009) in a Brisbane (Australia) night-time economy 'main-strip' (Fortitude Valley) with 20 individuals either queuing for nightclubs or outside the bars, who met the inclusion criteria. This approach (online survey and rapid interviews) provided important preliminary data to inform the in-depth interviews with 27 drug purchasers that then followed with mostly 18- to 32-year-old students of a fairly even gender split

(14 men, 12 women, and 1 non-binary). Due to the convenience sampling strategy employed, the final depth-interview sample was almost exclusively UK based (see Moyle et al., 2019 for further detail on the full process and ethics considerations).

Reasons for App-based Drug Purchasing

The primary perceived benefits of purchasing illicit drugs via darknet cryptomarkets are widely understood (Bancroft and Scott Reid, 2016; Van Hout and Bingham, 2013b; Barratt et al., 2014) to be safety (no face-to-face interaction with unknown sellers and, due to protective darknet access, less risk from law enforcement); drug quality (drug sellers are graded by previous buyers as to the quality of the drugs they sell); and reliability and predictability (sellers are graded as to their responsiveness and speed). The primary disadvantages, however, are a need for relevant social capital/accessibility (accessing darknets safely requires IT skill/knowledge that is a barrier to many); delivery delays; and delivery dilemmas (drugs have to be posted and arrive safely). For those that use them, however, cryptomarkets provide a sense of security, trust (in product), and safety that cannot be generally found in street-level face-to-face markets (Aldridge and Askew, 2017; Barratt et al., 2016; Martin, 2014a). Informal institutional standardisations like the rating system, a classification system helping users navigate across different marketplaces, and seller's reputation scores are some of the technological affordances used with cryptomarkets to establish trust and create a sense of safety (Tzanetakis, 2018b). Such issues, unsurprisingly, bleed into motivations for app-based drug purchasing.

Ease of Access, Immediacy, and Familiarity

App-based exchanges appear, at first sight at least, to also retain a certain amount of the benefits found in cryptomarkets but without having to navigate the technological barriers that purchasing via the darknet presents. The survey and follow-up interviews provided good insight in this regard, with ease of (immediate, if required) access through familiar social media platforms a clear 'pull factor' for most (78.8%) respondents. Ease of access and perceived benefits are summed up by Alex (27-year-old from Plymouth, UK) as being like an epiphany:

> I felt like I'd woken up in the 21st century and that everyone around me was idiots. It was safe, easier, and twice as quick as trying to nail down someone on the end of a line. The drugs turned up with the guy, and I paid him, and they were amazing. I never looked back.

The desire for near immediacy (the rapid interviews and depth interviews revealed that unplanned spontaneous desire to access/use drugs would often occur when on a night out) was the second (58.8%) most important perceived advantage of app-mediated supply and meant that those who had used an app to access drugs were instead far more likely (92.7%) to connect with sellers nearby.

App-mediated purchase was also increasingly normal for respondents, with 8.8% of respondents having used an app only once to purchase drugs, over half (58.8%) reporting using apps for drug purchases 10 or more times, and the vast majority (84.3%) reporting the intention to continue to use apps through which to purchase drugs. This intention to continue using apps was also conveyed in interviews, with respondents describing the convenience, visual appeal, and perceived security features as key benefits associated with their use.

Although social supply, where users access drugs via friends and acquaintances, clearly still predominates as a preferred form of access for many and was identified as such by our international survey sample (see also Barratt et al., 2014, 2016; Coomber and Moyle, 2014), for those without reliable social networks of that kind (e.g. many students had moved locations), the new social media platforms provided both platform familiarity plus increased opportunity. Zac (22 years old from London) related how this independent connectivity worked for him:

> It just seemed like a simple, modern way to buy things. I'd gotten pretty sick of the darknet because I never really got it, so had to always have a friend on hand to help me out. With apps it's super simple; I get it and in no time I've managed to connect with strangers who I would've never been able to access before. Plenty of dealers in this area exist solely on Snapchat, so without it, I would've kept relying on people approaching me in the street or randomly bumping into people in clubs.

Range and Availability of Substances

As with cryptomarkets (Bancroft and Scott Reid, 2016; Barratt et al., 2014, 2016), the range of substances available from social media platforms was also reported as an important 'pull' factor. Buyers reported purchasing substances such as mushrooms, LSD, and prescription stimulants/benzodiazepines in addition to the 'usual suspects' of cannabis, MDMA, and other common stimulants. Cannabis is the most widely bought and sold illicit drug in those countries that made up the sample, and this was echoed in the survey in which just over half of respondents reported buying cannabis via social media apps. LSD was next in terms of prevalence at 7.9%, followed by ecstasy/MDMA (6.5%). Tim (23 years, London), like numerous others, considered this aspect to be one of 'the best features of apps [as] … it is very rare to find a dealer out and about who carries psychedelics in this country', and similarly Jess (23 years, Coventry): 'I couldn't get hold of oxy or codeine any other way because I didn't know anyone selling them, so the first time I had both I bought them through apps'.

It should be noted that these qualitative findings (primarily a UK sample) differed from the broader international survey where there was a less clear experience – a third of app-using respondents reported that it was 'hard to find the drug I am after' (34.7%) but almost a quarter (23.4%) reported the benefit of having a 'wide range of drugs available'. This difference is likely due to the characteristics

of the international survey sample, all active forum members who might be understood as a more experimental and/or seasoned group of users with more specific preferences with regard to the strain, strength, or brand of substance required. It is likely also related to the different contexts in which apps are being used, with the UK app market perhaps more responsive to demand for psychedelics and prescription drugs (see Lee, 2018; Lewins, 2018).

Safety/Security

The 'security' offered by end-to-end encryption and other messaging services, where user messages are not stored was, unsurprisingly, reported as desirous and a clear advantage. Kik, Wickr, and WhatsApp – apps that function primarily as instant messengers, but with added social networking features – were found to be the most prevalent of these apps used by international survey respondents. Many in the interviews relayed that, for example, WhatsApp was now so ubiquitous that it was hardly thought of as an 'app' as such and was considered more like an everyday accompaniment to normal life and as 'a natural extension of texting' (Sam, 21 years, London). Encryption was the most commonly reported security feature associated with apps. The fact that some other apps, such as Snapchat and Wickr, were able to provide transient ephemeral messaging, through auto-destruction or 'burn on read' settings, also provided the somewhat illusionary assurance of the protection of their digital trace (Décary-Hétu and Aldridge, 2015).

These functions were emphasised in numerous interviews, both in the UK and Australia, as well as being noted in various online communities where users contrast between the insecurity of text messages and phone calls and the comparative 'safety' of Snapchat, where it was acknowledged that it 'does not store a database of users' snaps' (including still photos, videos, and text). As such, not dissimilarly to how the advent of mobile phone technology in the 1990s provided a new, cheap, and convenient form of communication deemed more secure than pagers and public phones (Natarajan et al., 1995), social media platforms and encrypted messaging services appear to be increasingly utilised by vendors of illegal substances who, in contrast to vendors on cryptomarkets, take advantage of technology that does not require specialist knowledge (Van Hout and Bingham, 2013b) and also offers some well-known security features that are expected to provide effective protection to them from enforcement detection and prosecution.

Visual Dealing Practices and 'Seeing' the Quality

Apart from convenience and accessibility, another key advantage of using apps to purchase drugs was related to the images and videos posted by sellers on social media platforms and sent via encrypted messaging services, which was perceived by some to provide an opportunity to assess drug quality and safety. Respondents commonly referred to the practice of sellers' using social media technology in novel ways to facilitate sales. Broadly known as 'dealer spam', such practices included: sellers 'following' users (on Facebook, Instagram, and Snapchat) with the aim to get potential customers to notice them and then 'follow' them back;

sending group messages to existing customers advertising new deals, prices, and stock through WhatsApp and Wickr; posting multiple videos and a range of different images of the advertised product to followers on social media platforms such as Snapchat and Instagram. Sometimes this would happen several times a day. Other ploys would be to 'prove' the quality and legitimacy of the product they had to sell by posting videos of 'themselves smoking, hanging with their stashes, or with their mates cruising on deliveries' (Lucy, 19 years, Cardiff). Several respondents explained that pictures of pills, white powders, and prescription medicines and videos of drugs being used or opened were uploaded to advertise substances, which for them provided 'valuable' and 'important' evidence that the substance was legitimate:

> The first time I bought coke it was through an app and I thought it was a better idea to buy it that way because I could look to see if it seemed cut with anything which is really common for coke you buy on the street around here. (Olly, 18 years, Birmingham)

As Bancroft and Scott Reid (2016) have argued, drug users often make judgements of drug quality based on colour, texture, smell, and structure (regardless of how effective this is in reality (cf. Evrard et al., 2010; Coomber et al., 2014)). Again, highlighting the 'visual' nature of many apps, a notable number of app-using respondents felt that they were able to use photos and videos posted on social media apps to 'see' that a drug was unadulterated, safe, and reasonable quality. Unlike cryptomarkets, however, where vendor rating systems (similar to those on eBay) provide detailed comments regarding the perceived potency/quality of substances (Martin, 2014a), apps, and the ability to preview products provided only illusory reassurance that was perceived as unavailable in offline markets, and potential purchasers only had access to rudimentary feedback in the form of 'likes' on platforms such as Instagram.

So, as one interviewee opined, one of the main perceived benefits associated with purchasing drugs through apps was the so-called 'transparency' of transactions. With regard to the level of drug information available, social media apps therefore seemed for many to offer 'far less than the dark web, [but] far more than the streets' (Danny, 23 years, London), regardless of how illusory in reality.

Drug Quality and Personal Safety

Though a subset of those interviewed conveyed a level of confidence in their capacity to draw upon the features of certain apps to discern quality and safety, this was not felt across the board. Respondents from the international survey expressed more concern regarding the quality of the product they were purchasing than those (perhaps more experienced users) interviewed. When questioned about key anxieties in relation to using apps to access drugs, the survey sample was found to be most worried about 'receiving poor quality or fake drugs' and 'receiving a substance that was the incorrect weight'. Some interviewees also had similar concerns:

> You have no idea if a teenage kid is just trying to sell you rubbish [or] cut substances … [and the] main issue [with apps] is the lack of trust in the dealer as there are so many online, social media dealers. (Emma, 21 years, Bristol)

Personal Safety Concerns

In the same way that app-based supply using visual media to provide assurances about quality offers little in the way of reliability (but nonetheless worked for many), fewer app-based buyers than might be expected (23.4%) felt that meeting an unknown seller face-to-face was potentially dangerous or risky. This is in stark contrast to many cryptomarket buyers who regarded darknet platforms as a preferred method for the exposure to 'violent' street drug markets (Barratt et al., 2016; Martin, 2014a). Our interviewees also reported a relative lack of concern about this aspect of the transaction process; in Brisbane, one young woman admitted that she had not even considered such risks (despite having met sellers alone and unaccompanied) prior to being asked about them in the research context. By way of meaningful contrast, however, those who had only *considered* purchasing drugs from an app seller were significantly more anxious about the possible risks, with 68.3% indicating this to be a concern.

Although a minority of respondents employed strategies such as always taking someone with them when meeting a seller, most app users had well-rehearsed narratives that they used to justify (to themselves and the research team) their continued confidence in purchasing substances from unknown suppliers on apps. A common trope was that it is 'bad for business' for dealers 'to be bad at business'.

Law Enforcement and Detection

Respondents who had considered but not actually used an app to source drugs were found to be most worried about 'law enforcement becoming aware of the transaction' and reported 'a potential encounter with law enforcement' as the most common reason for choosing not to use apps (65.2%). The digital 'trace' (Décary-Hétu and Aldridge, 2015) between buyer and seller that was associated with online interactions was the aspect deemed most problematic. This 'trail' (Olly, 18 years, London) was broadly perceived as having the potential to expose users to undercover officers or provide sufficient evidence of drug possession or supply offences:

> I have worries about the input of personal information, directly contacting a dealer and meeting them is not the issue. The issue lies with the process before you actually get hold of the drug itself. The planning, using personal information and having to actually go out of my way for it, is something that is not attractive to me. (Sophie, 23 years, Slough)

An understanding of app security was important in influencing the degrees of anxiety surrounding the use of apps to source drugs. Those who had only *considered* using apps to purchase drugs or those who had only 'dabbled' with them for this purpose had also typically spent less time researching the security aspects of apps, and as a result, they admitted feeling uncertain as to the risks therein. In Brisbane, for example, several respondents were unclear about the security of Facebook Messenger. Although a small number of respondents claimed the service was encrypted, and 'not monitored by the Australian Government' (LM, 03, Brisbane), others described feeling 'uneasy' or 'nervous' arranging deals through this app, stressing that they could not be sure that they were not being monitored. This lack of knowledge led many 'would-be' or infrequent app users to conclude that it just 'wasn't worth the risk' (LM, 05, Brisbane). In contrast, more experienced app users (i.e. those who had used an app over 10 times) conveyed greater confidence in the security of apps, rating risk as lower than those who had only gained access on one occasion.

Despite the majority of users being unable to guarantee that they could not be targeted by law enforcement, app technologies seemed to promote 'feelings' of security, often through the assumption that law enforcement would 'have a hard time penetrating apps' (male, 22 years, Belgium) and reasoning that the likelihood that they would be 'personally targeted by law enforcement' (Vicky, 20 years, Bristol) was very low. This logic and the additional security features and safeguards provided by some apps therefore seemed to provide enough protection to persuade many app users that occasional purchasing was safe and would go undetected.

Surface Web Supply: NPS, Performance and Image Enhancing Drugs, Cannabis

While social media app drug supply provides us with insight into how ubiquitous mainstream technology is now integrated into the supply of drugs, there are also other common online technologies beyond the darknet where drug supply is increasingly prevalent. The rest of this chapter will now consider these forms and how they seem to be developing the broader milieu of online drug supply.

The development of surface web illicit drug markets can be traced from the early use of the Internet for information on manufacturing drugs to the current state of bespoke digital platforms facilitating in-person illicit drug exchanges. The 'surface' or 'clear' web are terms used to describe Internet content that is indexed by conventional search engines (e.g. Google) and accessible to individuals without additional programs. Though there was some early evidence that Internet chat rooms could be used to arrange illicit drug sales (May and Hough, 2004), in this first generation of online drug cultures, the surface web primarily hosted a range of online communities and 'drug information libraries' (Bogenschultz, 2000) where guides on synthesising and extracting substances were provided to online communities (Halpern and Pope, 2001). Archived forum posts from *The Hive* (https://the-hive.archive.erowid.org/), a popular forum that ran until 2004, demonstrate the liveliness of the forum in topics relating to clandestine chemistry

matters such as substance extraction and manufacturing equipment for substances (see also Schneider, 2003).

The ongoing transformation of the Internet and the rapid growth of e-commerce platforms such as eBay and Amazon afforded opportunities for the next generation of surface web illicit drug markets to host electronic markets of grey market pharmaceuticals with digital transactions and reliance on postal delivery systems (see Craciunescu and South, Chapter 7). Here, a grey market is regarded as one that distributes goods through unofficial, unauthorised, or otherwise unintended channels from the trademarked owner of the goods (Chaudhry, 2014). Over time, particular goods have come to be associated with grey markets on the Internet (e.g. popular fashion brands and electronics) (Berman and Dong, 2016), and in the current context, there has been a significant growth in online retailers of pharmaceuticals (e.g. performance and image enhancing drugs, PIED) and NPS. These surface web markets will now be discussed in turn.

The number of online retailers advertising 'no prescription required' pharmaceuticals with fast home delivery has blossomed over the last two decades (see Orsolini et al., 2015). In particular, there is a burgeoning market of online retailers for lifestyle drugs such as performance and image-enhancing drugs (Koenraadt and van de Ven, 2018). Analyses of the prevalence of these online markets show how easily these retailers can be accessed through Google search terms (e.g. 'buy steroids online') (McBride et al., 2018; Vida et al., 2017). However, many PIED purchasers will also avoid buying from online channels due to concerns about the quality of the products and a lack of trust in online markets (Coomber et al., 2014; Santos and Coomber, 2017). Despite many PIED users having reservations about online PIED markets, there is a wealth of evidence documenting the popularity of the Internet as a sourcing option in these cohorts (Bonnecaze et al., 2020; Smit et al., 2020). This is likely to be the case because of the features of many of these surface web markets that actively attempt to minimise feelings of uncertainty and risk to customers (e.g. product reviews, product guarantees, discreet shipping) and vendors who employ social supply business models and customer service to instil trust in prospective customers (van de Ven and Koenraadt, 2017). In addition, even when individuals may prefer purchasing PIEDs from offline sources, there is the potential that the initial purchase of the product was made online (Kraska et al., 2010), particularly as many individuals will purchase raw powders and other derivative compounds for homebrewing purposes to sell onwards to offline contacts (Turnock, 2020).

The surface web also hosts a considerable number of online retailers for various NPS. There is no universally agreed upon way of categorising NPS, and the term itself has been criticised (see Potter and Chatwin, 2018), but this collection of substances can broadly be divided into synthetic stimulants, synthetic cannabinoids, synthetic hallucinogens, and synthetic depressants (Shafi et al., 2020). As with online PIED markets, NPS markets can be located via Google searches (Brunt et al., 2017), and this ease of access online appeals to NPS buyers (Barnard et al., 2016). NPS and many other associated 'legal highs' have been subject to ongoing legislative changes in various countries seeking to restrict the distribution of these

substances, but these surface web markets nevertheless remain resilient to the laws of local jurisdictions as the hosting websites and e-vendors are located elsewhere globally where these laws may not apply (Wadsworth et al., 2018). Information seeking on Internet forums has formed a vital part of the risk minimisation strategy for successfully navigating NPS markets and avoiding fraudulent dealers and the constantly changing legal status of various substances (Kalo et al., 2017).

As briefly described above, the bulk of scholarship on surface web illicit drug markets tends to describe the sale of pharmaceuticals/lifestyle products and NPS. Recent innovations in the supply and access of substances over this visible section of the Internet has seen the rise of online retailers and exchange mediators for commonly used illicit drugs. For example, there is recent evidence of the online classifieds website Craigslist being used to organise illicit drug exchanges (Liu and Bharadwaj, 2020; Tofighi et al., 2016), although the degree to which this occurs is moot (Barratt, 2017). In a single case study of heroin purchasing via Craigslist, Tofighi et al. (2016) describe how the use of codewords in the advertisement followed by text messaging between buyer and seller assuaged uncertainties, which then resulted in a prompt face-to-face meeting for a heroin exchange. This documenting of evidence of illicit drugs and other prohibited drug paraphernalia (see Loomes, 2019) being sold through online classifieds websites and other popular e-commerce platforms (e.g. Wish shopping) illustrates this most recent generation of surface web drug buying, which has also produced bespoke drug exchange websites such as LeafedOut.

LeafedOut (www.leafedout.com) originated in the United States of America within a context of regulated cannabis supply to connect buyers with local businesses. However, because of the geolocation technology used by the platform, this website has also emerged as a sourcing option in countries that still mostly restrict the sale and supply of cannabis (e.g. Australia and the United Kingdom). In research examining the use of LeafedOut in Australia, interviews were held with 11 buyers and 9 sellers who used the platform (Childs et al., 2021). The ease of accessing this platform through Google was appreciated by buyers and sellers involved in this website as there was no requirement to possess expertise related to dark web drug buying, have drug buying contacts on personal social media accounts, deal with 'dealer spam', or gain access to hidden groups in social media spaces where substance exchanges are arranged. Compared to other online sourcing options (e.g. dark web and social media) that LeafedOut users were familiar with, the platform's emphasis on cannabis supply was also key in differentiating this source from other options that advertise a wide range of products and hence potentially attract greater attention from law enforcement. This specialisation in cannabis supply embedded cultural aspects (Sandberg, 2012) into this market participation, as dark web markets in particular were seen as spaces that were untrustworthy, taboo, and risky for drug supply.

Purchasing illicit drugs from a surface web supplier on LeafedOut could entail greater exposure to law enforcement compared to other online-mediated sourcing options because of the retrievability of digital traces associated with website interactions (e.g. IP addresses). As a result, buyers and sellers of cannabis on LeafedOut developed distinct risk minimisation strategies to

guard against these risks in the exchange. In a similar manner to how social media purchasers attempted to cover their digital traces, buyers and sellers on LeafedOut would transition to a different digital channel on an encrypted messaging application such as Wickr. When moving to an encrypted messaging application, buyers and sellers would use the technological affordances on offer to engage in a practice of sending selfies (a photograph taken of oneself), often with drug paraphernalia (e.g. bongs, cannabis on offer), as a way of ensuring their status as a legitimate person navigating this market. Users were ambivalent about the risks of sending potentially incriminating photos online, and the distribution of these photos served an important function in the representation of authenticity for buyers (including their products on offer) and sellers. This study also provided more details on how buyers and sellers move from an encrypted messaging application to an in-person exchange, detailing how the risks of meeting a potentially unknown exchange partner were minimised by mutually agreeing on exchange locations in low-risk settings (e.g. public spaces) before potentially offering home delivery if the trust was established after multiple exchanges.

Conclusion

The findings from Moyle et al. (2019) and Childs et al. (2021) highlight the emergence of this mid-range market space that sits in between the technologically demanding dark web cryptomarkets and pure 'offline' street dealing. Explorations of drug market activity in these online spaces – social media applications, surface web markets, and encrypted messaging applications – demonstrate the hybridity of drug transactions as they combine existing online (e.g. cryptomarkets) and offline (e.g. in-person meeting) elements throughout the process of the drug exchange. This chapter has particularly emphasised as a key theme the navigation of emergent risks and the methods used by buyers and sellers to establish trust when using these new technologies for drug supply. Platforms in this mid-range market space may not provide the same protections that cryptomarket drug buying does, but buyers (and sellers) are aware of this and yet still adopt platforms where the security is deemed 'good enough' or make decisions to shift to an encrypted messaging application to organise the meeting location. In addition, without clear trust ratings and user review systems that are widely used in dark web cryptomarkets to verify the legitimacy of suppliers, buyers and sellers employ new strategies such as looking at the number of followers and 'likes' a vendor may have and attempting to visually discern the quality of drugs for sale via photos and videos. These illustrative examples, discussed in detail throughout this chapter, show how these new digital spaces have clearly emerged as differentiated (Coomber, 2015) online drug markets. There are substantial and important distinctions between dark web cryptomarket drug supply and this mid-range space, which has critical implications in understanding contemporary drug market practices and how individuals navigate these markets. As illicit drug markets continue to change in response to new technologies and the unique affordances of technologies for drug market exchanges, there

will likely continue to be an increased diversification in the types of platforms used (dark web, social media, surface web), the ways that platforms merge and produce hybrid forms (Childs et al., 2020; Barratt et al., 2022), and the unique practices of users operating in these digital spaces to respond to established and emergent risks in drug supply.