Black hands and onion channels: a study of drugs on non-English language darknet markets

Teodora Groshkova, Andrew Cunningham, Sascha Strupp and Roumen Sedefov

Black hands and onion channels: a study of drugs on non-English language darknet markets

Teodora Groshkova[1*], Andrew Cunningham[1], Sascha Strupp[2] and Roumen Sedefov[1]

[1] European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Praça Europa 1, Cais do Sodré, 1249-289 Lisbon, Portugal

[2] Europol, Eisenhowerlaan 73, 2517 KK Den Haag, Netherlands

[*] Presenting author: European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Praça Europa 1, Cais do Sodré, 1249-289 Lisbon, Portugal

teodora.groshkova@emcdda.europa.eu

Abstract

Introduction: Around two-thirds of all commerce in the darknet ecosystem is drug-related. The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), recently conducted an analysis that identified over 100 global darknet markets, and estimated that between 2011-2015, EU-based suppliers accounted for around 46% of all drug revenue. While the ecosystem is dominated by English language markets with global reach, marketplaces with limited geographical scope exist, catering to the needs of non-English speaking buyers. However, little is known about the extent of this phenomenon and what operational models are used.

Methods: Between May and June 2017 a short survey was distributed among EMCDDA drug supply-related networks in 43 countries (28 EU Member States, Turkey, Norway and the neighbouring countries). In addition, in June 2017, two surface websites were searched for non-English darknet markets, and information was gathered on the darknet markets identified. Prices of a range of drug types on offer were collected.

Results: Two-thirds of countries approached responded to the data request. Of these, four countries (France, Finland, Sweden and Norway) reported a total of nine national darknet marketplaces. Additional searching identified a further 11 marketplaces from three countries (France, Italy and Russia). Of these, 13 were excluded as they were unavailable, were forums or had never actualised sales. All seven darknet marketplaces catering for specific countries appeared to sell drugs over Tor, the majority offering open registration and some form of escrow functionality. Prices on the Russian marketplace were consistently higher than on European sites.

Discussion: There are a number of potential reasons for the emergence and endurance of these marketplaces, notably the role played by national Customs agencies. These are discussed along with the role of national darknet marketplaces in the global darknet markets ecosystem and how these may influence traditional physical drug markets.

Keywords: darknet, drug markets, drug trade, Europe, internet

Introduction

Developments in information technology are transforming many aspects of modern life and this includes the way that illicit goods are traded. Darknet markets (or 'cryptomarkets') are a relatively recent development that enables sellers and buyers to transact online without disclosing any personal details, hence creating a considerable degree of anonymity. Various strategies are used to conceal both transactions and the physical locations of servers. These include anonymisation services, such as Tor and I2P, that hide a computer's internet protocol address; cryptocurrencies, such as bitcoin and litecoin, for making relatively untraceable payments; and encrypted communication between market participants. Reputation systems also play a role in regulating vendors on the markets.

These developments have led to the proliferation of the trade in illicit goods online, and it is now recognised as a growth area for the activities of organised crime in the European Union (EU) that is undermining conventional law enforcement approaches. Europol's 2017 European Union Serious and Organised Crime Threat Assessment (EU SOCTA) identified the online trade in illicit goods and services as one of the engines of organised crime. An improved intelligence picture and a coordinated law enforcement approach across the EU in addressing criminality on the darknet are now at the heart of the EU Policy Cycle for organised and serious international crime (2018-2021). This has been reflected in law enforcement approaches, as illustrated by two recent significant coordinated international law enforcement operations on two of the largest darknet markets, AlphaBay and Hansa.

It is estimated that about two thirds of the offers on darknet markets are drug related. A recent analysis (EMCDDA-Europol, 2017), identified over 100 global darknet markets; based on sales on 16 major darknet markets between 2011 and 2015, it was estimated that drug sales were responsible for more than 90 % of the total economic revenue of global darknet markets. Nearly half (46 %), of all darknet drug sales reportedly originated from vendors based in Europe, representing an estimated EUR 80 million over the period of the study. The main European source countries, in order of sales volumes, were Germany, the Netherlands and the United Kingdom, with stimulants, in particular MDMA and cocaine, accounting for most of the sales revenue.

The darknet ecosystem is dominated by English-speaking countries (the United Kingdom) and western European countries (Germany and the Netherlands). This is in line with other studies of darknet markets (Kruithof et al., 2016; Broseus et al., 2017). This may reflect the central position of English-speaking parties in the online darknet drug trade, which could deter non-English vendors (Kruithof et al., 2016). However, it may also be because less attention has been given to non-English-language or national sites. Currently, studies of non-English-speaking countries are very limited, but include a study of the Finnish version of Silk Road, *Silkittie* (Nurmi et al., 2017). Despite this, since 2013 several non-English-language markets have appeared. To date, little is known about the extent to which national-based, non-English-language markets exist and what operational models they use. This study aimed to identify and describe darknet markets for specific countries or non-English languages.

Methods

Between May and June 2017 a short survey regarding a subcategory of darknet marketplaces — those with limited geographical scope of operation, catering for the non-English-speaking buyers in a particular - was distributed among EMCDDA drug supply-related networks in 43 countries (28 EU Member States, Turkey, Norway and the neighbouring countries (IPA: n = 6; ENP: n = 7)) ([1]) (see Annex for the questions in this survey and instructions for completion). In addition, in June 2017, two surface websites ([2]) were searched for non-English darknet markets, and information was gathered from the darknet markets identified.

([1]) IPA (Instrument for Pre-accession Assistance) countries: Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Kosovo*, Montenegro and Serbia; ENP (European Neighbourhood Policy) partner countries: Armenia, Azerbaijan, Georgia, Israel, Moldova, Morocco and Ukraine.
* This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.
[2] https://darknetmarkets.org/markets/; https://www.deepdotweb.com/marketplace-directory/categories/non-english/

The prices of a range of drug types sold on national darknet markets were collected from a number of platforms, with mean prices based on several samples (between two and eight) taken in June 2017.

Results

Two thirds (n = 29) of the countries approached responded to the data request. Of these, four countries reported a total of nine national darknet marketplaces — France (n = 5), Finland (n = 2), Sweden (n = 1) and Norway (n = 1). Additional searching identified a further four French-, three Italian- and four Russian-language (selling exclusively to the Russian market) darknet marketplaces — thus bringing the total to 20 national marketplaces across six countries.

Table 1: Excluded national marketplaces — overview

Country/language	Platform name	Source	Reason for exclusion
France/French	The French connection	Survey	(Temporarily) closed (2 June 2017)
France/French	French Deep Web	Survey; Deepdotweb.com	(Temporarily) closed (2 June 2017)
France/French	French Freedom Zone	Survey; Deepdotweb.com	(Temporarily) closed (2 June 2017)
France/French	THC Market	Deepdotweb.com	Unavailable (20 June 2017)
France/French	French Darknet	Deepdotweb.com	Unavailable (20 June 2017); possibly hacked
France/French	French Market Place	darknetmarkets.org	Unavailable (20 June 2017)
France/French	French Dark Place 2.0	darknetmarkets.org	Unavailable (20 June 2017)
Italy/Italian	Babylon	darknetmarkets.org	Unavailable (20 June 2017)
Italy/Italian	Italian darknet Community	Deepdotweb.com; darknetmarkets.org	Forum
Norway/Norwegian	Fluesopp	Survey	Never had actual sales (as of 2 June 2017)
Russia/Russian	Wayaway	Deepdotweb.com	Unavailable (20 June 2017)
Russia/Russian	Rutor	Deepdotweb.com	Forum
Russia/Russian	Ramp	Deepdotweb.com	Forum

Of these, seven French, one Italian and one Russian marketplace appeared, at least temporarily, to be closed or unavailable when accessed. The Norwegian market never actualised any sales and a further three sites were noted to be forums rather than marketplaces (Table 1). At the time of writing, there appeared to be seven active national darknet marketplaces, as outlined in Table 2).

Table 2: Active darknet marketplaces for specific countries/languages

Country/language	Platform name and URL	Source

France/French	La main noire	Survey
France/French	Le bon coin	Survey; deepdotweb.com
Finland/Finnish	Sipulikanava	Survey
Finland/Finnish	Silkkitie	Survey; deepdotweb.com; darknetmarkets.org
Sweden/Swedish	Flugsvamp 2.0	Survey
Italy/Italian	IDC 2.0 Market	Deepdotweb.com
Russia/Russian	Hydra	Deepdotweb.com

All seven darknet marketplaces catering for specific countries, or run in a language other than English for the global market, appear to sell drugs over Tor, with the majority offering open registration (with the exception of La main noire, which is accessible by invitation only) and some form of escrow functionality (except Sipulikanava and Flugsvamp 2.0). In just two instances, the creation date of the reported platform was known (Flugsvamp 2.0: April 2015; Silkkitie: January 2014).

In terms of geographical scope, while in most cases it was made apparent that the marketplace served the needs of a national drug market (e.g. Russian Hydra sellers all appeared to be Russia based, shipping to over 100 locations across the country), there were instances where the marketplace was run in a non-English language, for example the Italian IDC 2.0 market, even though sellers were not necessarily based in Italy and were reportedly shipping 'worldwide' (see Figure 1).

Figure 1: The Italian IDC 2.0 market's Spain-based vendor ships 'worldwide'

At the time of data gathering, all seven darknet marketplaces had limited commercial activity. For example, only 30 drug products were displayed on the French marketplace Le bon coin and a comparable number of illicit drugs and medicinal products across 10 drug categories were available on the Russian marketplace Hydra. The average retail prices of cannabis resin, MDMA and LSD were lowest on the Italian IDC 2.0 market and highest on the Russian Hydra market. Herbal cannabis and cocaine appeared cheapest on the Swedish Flugsvamp 2.0 market (herbal cannabis, EUR 10/g; cocaine, around EUR 70/g) and most expensive on the Finnish darknet markets (herbal cannabis, EUR 20/g) and the Russian Hydra market (cocaine, EUR 180/g) (Table 3).

Table 3: Average prices (EUR) per drug unit (g/tablet/blotter); examples from five national darknet markets

Drug type/ Market (country)	IDC 2.0 (Italy)	Flugsvamp 2.0 (Sweden)	Sipulikanava (Finland)	Silkkitie (Finland)	Hydra (Russia)
	Price (EUR) (± SD) per drug unit (g/tablet/blotter)				
Herbal cannabis	11.7 (± 2.3)	10.3	20.0	20.0	17.2 (± 4.7)
Cannabis resin	7.7 (± 3.3)	8.2	NA	NA	13.6 (± 3.4)
Heroin	NA	102.8	NA	NA	64.5 (± 18.6)
Cocaine	85.8 (± 9.7)	72.0	140.0	150.0	180.0 (± 28.0)
Amphetamine	9.3 (± 5.5)	10.3	40.0	30.0	11.8 (± 3.8)
MDMA	5.2 (± 0.2)	6.2	NA	12.0	13.2 (± 4.0)
LSD	11.0 (±4.7)	17.1	NA	NA	23.4 (±4.5)

NA, not available, i.e. no listings at the time; SD, standard deviation (not available for prices reported for the Swedish and Finnish markets).

While different factors may contribute to the emergence and endurance of these platforms, it would appear that law enforcement activity may play a significant role. It is observed that some vendors will

not (re)ship to Finland (see Figure 2a) and some Finnish vendors will ship only nationally (see Figure 2b).

Figure 2: Examples from the Hansa market of Finland-related vendors' activity

   a) *Vendors state, in their terms of service, 'no (re)shipping to. . . Finland' among other countries*

|STEALTHMASTERS|STEALTHMASTERS|STEALTHMASTERS|STEALTHMASTERS|STEALTHMASTERS|STEALTHMASTERS|

? New terms of service ?:

- We ship to Europe, Asia, Africa, South America and USA. If your country is not listed or you are not sure we ship to your country just leave a message.
-------------- ? (No shipping to Canada, Norway, Netherlands, Sweden, Finland, Denmark, Australia, New Zealand, United Amirates, Israel, and Norway)
- We don't ship to PO boxes.
- We will contact all messages within 48 hours.
- Refunds and reships will be processed on every friday!
- We won't respond on messages during the weekend. We use or weekend to think o

Details   Feedback   Terms & Conditions

Listing Details

Please Read our profile page before you order

The Drug
_____

This Royal Moroccan Hashish, is imported and has great quality!

Reship or Refund
_____

If you made more then 3 order's with us,then you are marked as "Trusted Customer" (Your Feedback should be higher then 4.9 and you should have a least 6 sales on the market) can get a 25% (directly) or a 50% reship with your next order

DOMESTIC CUSTOMERS CAN GET AN 100% Reship or 50% Refund if your order is TRACKED (Track and Trace is only Available for Domistic orders)

(ps all orders made before 10-10 still fall under the old terms)

This does not apply to the following countries: USA (since 10-10-2016) Ireland, Sweden Norway,Finland,Australia,New Zealand, Russia
The above listed countries have very strict customs with a success rate of ~50%, ordering to one of these countries is at your own risk.

for further question please contact me,

b) Finland-based vendor declares shipping to Finland only

Discussion

The darknet has emerged as a key platform to offer all types of illicit goods and services. Difficult to police yet easy to access, the darknet provides an ideal environment for the distribution of all types of illicit commodities including drugs. In addition to global darknet markets, recent years have seen the emergence of national (local) ones.

This study aimed to identify and describe national darknet markets in order to target specific countries or languages. Developments in information technology are transforming virtually all aspects of modern life, and this now includes the way that illicit goods are traded and the modus operandi used by OCGs. Online anonymous drug marketplaces, including national ones, can therefore be seen as part of a more general development for which addressing cybercrime and the use of information technology platforms for criminal purposes has become a more important policing priority across the EU.

There are a number of potential reasons for the emergence and endurance of these markets, notably the role played by national Customs agencies. The rigorous control of parcels by Customs appears to inhibit international sales, while driving the development of national markets as we have seen in Finland and it has also been observed elsewhere (Kruithof et al., 2016). It is important to continue improving our understanding of how the relative attractiveness or unattractiveness of darknet markets, to both buyers and sellers, is influenced by the wider, existing drug market and the factors that affect it. This is also likely to be important for explaining the national and regional differences observed in the use of online marketplaces.

The accessibility of drugs through other sources is also likely to be an important factor in influencing the extent to which consumers will be attracted to national darknet markets. For example, for drug users living in remote geographical locations or where policing or other factors mean that drug availability is poor there may be more incentive to explore local online options for drug supply.

Currently, the motives and rationale for using national online drug markets remain poorly understood, and this is an area that merits further research. Studies of global darknet markets suggest that avoiding the possible violence associated with the street drug market and obtaining what are

considered 'high-quality' products have been cited as reasons for using online marketplaces. These findings are interesting and suggest that, potentially, virtual markets are associated with less harm than traditional drug markets. However, further research is necessary in this area before any conclusions can be made. Not all physical drug markets are directly linked with violent crime, for example. Furthermore, understanding the relationship between purity and potency, chemical composition, possible contamination, and the relative availability of different types of substances and their relationship to harm at both the individual and population levels is a complex topic.

When trying to compare darknet market prices with conventional 'street' market prices reported to EMCDDA, no meaningful pattern emerged; a larger dataset would need to be compiled to permit such comparative analysis. Since drug prices were not collected systematically, the values reported here should be seen as a rough guide to what some of the main drug types cost on national darknet platforms. At the time of data gathering, key drugs such as heroin were unavailable on some markets, limiting the analysis. Nonetheless, an important observation is that drug prices on the Russian darknet market are consistently higher than on European darknet markets, particularly the Italian IDC 2.0 market, possibly reflecting the greater distance of Russia-based vendors from countries perceived to be associated with the production of drugs.

The dynamic nature of online markets, their ability to evolve to counter threats and exploit new opportunities, and the introduction or adoption of new technologies mean that enhanced monitoring capacity in this area is crucial to ensure that responses keep pace with developments. In this context, there are a number of possible developments that may pose additional threats with respect to the technologically assisted distribution and sale of drugs. Developments in the darknet market are among these, but may evolve in tandem with the exploitation of other technological platforms in ways that may bring about additional regulatory and law enforcement challenges.

The potential threats already identified that may increase the challenges in responding to cyber-enabled drug supply include the development of decentralised software and new encryption technologies; new forms of parcel delivery and collection services; the greater integration of nationally based darknet markets with existing street markets; and the growing use of instant messaging applications. These are briefly discussed below, but require ongoing consideration.

The need to keep pace with changes in this area is illustrated by the fact that evidence is beginning to emerge for the use of instant messaging and social media apps, together with global positioning system (GPS) technologies, for drug distribution in some European cities. These applications, if combined with existing national darknet markets and distributed software to create a darkcloud-based drug distribution platform linked to numerous low-volume local supplies, have the potential to disrupt existing organised-crime drug-trafficking models and pose even greater challenges to existing regulatory and law enforcement approaches. Currently, this risk is largely speculative, but it does, however, underline the urgent need for the systematic monitoring and assessment of the anonymous online ecosystem, including national darknet markets, conducted in the context of understanding the operation of the overall drug market. This is necessary to support the comprehensive and strategic analysis required to inform future policy and operational responses in this area, and to reduce both the health threats and the security threats that developments in the technologically-assisted marketing and sale of drugs and other illicit commodities now present.

Any changes in this area are currently difficult to predict. Importantly, they will not occur in isolation from broader developments in the illicit drug market as a whole, including the use of other technologies and platforms; the impact of law enforcement and regulatory efforts; and broader social and policy developments that may shape the supply of and demand for drugs more generally. For this reason, the systematic monitoring and assessment of the darknet ecosystem in the context of the overall drug market is necessary to support the comprehensive and strategic analysis needed to inform future policy and operational responses and to reduce the health and security threats that developments in this area now present.

References

Broseus, J., Rhumorbarbe, D., Morelato, M., Staehli, L. and Rossy, Q. (2017), 'A geographical analysis of trafficking on a popular darknet market', *Forensic Science International* 277, pp. 88-102.

EMCDDA and Europol (2017), *Drugs and the darknet: perspectives for enforcement, research and policy*, Publications Office of the European Union, Luxembourg (available at http://www.emcdda.europa.eu/darknet_en; accessed on 15 March 2018).

Europol (2017), *European Union Serious and Organised Crime Threat Assessment (SOCTA): Crime in the Age of Technology*, Europol, The Hague (available at https://www.europol.europa.eu/activitiesservices/main-reports/european-union-serious-and-organised-crime-threat-assessment-2017; accessed on 15 March 2018).

Kruithof, K., Aldridge, J., Decary-Hetu, D., Sim, M., Dujso, E. and Hoorens, S. (2016), *Internet-facilitated drugs trade: an analysis of the size, scope and the role of the Netherlands*, RAND Europe, Cambridge.

Nurmi, J., Kaskela, T., Perala, J. and Oksanen, A. (2017), 'Seller's reputation and capacity on the illicit drug markets: 11-month study on the Finnish version of the Silk Road', *Drug and Alcohol Dependence* 178, pp. 201-207

Annex: Local darknet markets survey

The EMCDDA and Europol are preparing a joint analysis on drugs and darknet markets to be published in the last quarter of 2017. Part of the analysis will focus on a subcategory of darknet marketplaces — those with limited geographical scope of operation, catering for national (and/or local) markets. To help us gauge the extent and key features of these markets, you are invited to complete this short survey. The questions below consider **local (national) darknet websites** selling **drugs over Tor (The Onion Router), I2P (the Invisible Internet Project), OpenBazaar** or a similar hidden service network, using **cryptocurrencies** such as bitcoin, litecoin or dogecoin, hosting **multiple sellers** other than the site operators, and operating in **national/local languages** and within a fixed **national (or smaller) geographical scope**. For instance, the Tor-based Valhalla was founded in October 2013 as a Finnish-only marketplace for drugs and other illicit products. While global darknet markets that tend to operate in the English language are increasingly targeted by research, monitoring and international law enforcement activities, non-Englishlanguage markets, such as Valhalla, tend to be excluded from these activities and subsequent analyses, as they are more difficult to navigate. Data and information on these marketplaces are nevertheless important and need to be reflected in any up-to-date analyses of the online drug trade.

In collaboration with a relevant national partner involved in online investigations in relation to illicit drugs, please read carefully each question and provide your answers. Questions 1-3 relate to the numbers and key features of national/local darknet marke
tplaces. Questions 4-6 aim to elicit information about law
enforcement strategies and data and information on recently completed or ongoing operations, and will be suitably anonymised.

Data protection note: As a matter of routine practice, the EMCDDA does not collect datasets that contain personal information, i.e. data that directly identify individuals or organisations or that can be used in combination to identify individuals or organisations. Such information is securely kept and not shared in public print or electronic publications.

Thank you for taking the time to answer these questions. If possible, please answer all questions.

Country
. . ..

If not a member of the EMCDDA Reference Group on Drug Supply Issues, please indicate:
Name of organisation. . .. .
Contact details, including name and email address/telephone number
(optional). . .. .

---

1. To your best knowledge, are there any national and/or local darknet marketplaces according to the above definition?

   Yes |__| No |__|

2. If yes, how many unique national/local darknet marketplaces have come to the attention of law enforcement or monitoring/research agencies over the past year:

   |__|__|__|

3. Please name up to 10 significant darknet marketplaces, along with some key features (please insert additional lines as needed):

Name & URL	Geographical scope and language of operation	Type of software used (e.g. Tor, I2P)	Type of registration (e.g. open, invite only)	Offers multisig (^{3}) (yes/ no)	Created (date)	Currently active (yes/no)	If not, reason for closure (e.g. law enforcement takedown, exit scam)	Estimated proportion of drug-related activity	Main drug types offered	Typical single-transaction volumes (money & quantities) for the top five drugs	Large transactions (> 1 000 g/tabl ets/units) encountered (no/yes/yes but very infrequently)	Turnover (annual or on a typical day, specify)

4. Please briefly describe the law enforcement strategies applied in your country to tackle the trade of drugs on darknet markets.

. . ..
.. . .
 .
. . ..
.. . .
.. . .

5. Provide an example of recently completed or ongoing operations, including the process (e.g. investigation initiation, evidence gathering), the outcome (e.g. darknet market shutdown, arrest(s)), the key challenges and the lessons learnt (e.g. law enforcement skills required, key differences from real-world investigations).

. . ..
.. . .
 .
. . ..
.. . .
.. . .

6. Do you agree for (parts of) your case example (#5) to be used in the upcoming EMCDDA–Europol report. You will be consulted on the final draft.

Yes |__| No |__|

(^{3}) Multisignature (often called **multisig**) is a form of technology used to add additional security and for cryptocurrency transactions. Multisignature addresses require another user or users to sign a transaction before it can be broadcast on the blockchain.