



**UNODC**

United Nations Office on Drugs and Crime



IN FOCUS TRAFFICKING OVER THE DARKNET

**WORLD**  
**2020 DRUG**  
**REPORT**

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Comments on the report are welcome and can be sent to:

Division for Policy Analysis and Public Affairs  
United Nations Office on Drugs and Crime  
PO Box 500  
1400 Vienna  
Austria  
Tel: (+43) 1 26060 0  
Fax: (+43) 1 26060 5827

E-mail: [wdr@un.org](mailto:wdr@un.org)

Website: [www.unodc.org/wdr2020](http://www.unodc.org/wdr2020)



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### *Content overview*

Chloé Carpentier  
Angela Me

### *Analysis and drafting*

Thomas Pietschmann

### *Editing*

Jonathan Gibbons

### *Graphic design and production*

Anja Korenblik  
Suzanne Kunnen  
Kristina Kuttinig  
Federica Martinelli

### *Administrative support*

Andrada-Maria Filip  
Iulia Lazar

### *Review and comments*

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Jonathan Caulkins  
Paul Griffiths  
Marya Hynes  
Vicknasingam B. Kasinather  
Charles Parry

Afarin Rahimi-Movaghar  
Peter Reuter  
Alison Ritter  
Francisco Thoumi

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# EXPLANATORY NOTES

The designations employed and the presentation of the material in the World Drug Report do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Countries and areas are referred to by the names that were in official use at the time the relevant data were collected.

Since there is some scientific and legal ambiguity about the distinctions between “drug use”, “drug misuse” and “drug abuse”, the neutral term “drug use” is used in the World Drug Report. The term “misuse” is used only to denote the non-medical use of prescription drugs.

All uses of the word “drug” and the term “drug use” in the World Drug Report refer to substances controlled under the international drug control conventions, and their non-medical use.

All analysis contained in the World Drug Report is based on the official data submitted by Member States to the UNODC through the annual report questionnaire unless indicated otherwise.

The data on population used in the World Drug Report are taken from: World Population Prospects: The 2019 Revision (United Nations, Department of Economic and Social Affairs, Population Division).

References to dollars (\$) are to United States dollars, unless otherwise stated.

References to tons are to metric tons, unless otherwise stated.

The following abbreviations have been used in the present booklet:

alpha-PVP	<i>alpha</i> -pyrrolidinovalerophenone
APAAN	<i>alpha</i> -phenylacetoacetonitrile
ATS	amphetamine-type stimulants
CBD	cannabidiol
DEA	Drug Enforcement Administration
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
Europol	European Union Agency for Law Enforcement Cooperation
GDP	gross domestic product
INCB	International Narcotics Control Board
INTERPOL	International Criminal Police Organization
LSD	lysergic acid diethylamide
MAPA	methyl <i>alpha</i> -phenylacetoacetate
MDA	methylenedioxyamphetamine
MDMA	3,4-methylenedioxymethamphetamine
MDPV	methylenedioxypropylvalerone
4-MEC	4-methylethcathinone
3-MMC	3-methylmethcathinone
4-MMC	4-methylmethcathinone
NPS	new psychoactive substances
PCP	phencyclidine
P-2-P	1-phenyl-2-propanone
PMK	piperonyl methyl ketone
S-DDD	defined daily doses for statistical purposes
THC	$\Delta$ -9 – tetrahydrocannabinol
UNODC	United Nations Office on Drugs and Crime



## DRUG TRAFFICKING OVER THE DARKNET

### Vendors and customers perceive advantages in using the darknet for drug transactions

Purchases and sales of drugs and NPS over the Internet involve both the open net (using encrypted communication) and the darknet, which forms part of the deep web. Although not discussed in this chapter, various social media apps are also increasingly being used for purchasing and selling drugs.

The main characteristic and comparative advantage of darknet markets is their perceived anonymity, in particular the physical anonymity of those who do business on such markets. Purchasing drugs on those markets does not necessarily require physical contact, which reduces the inhibitions of some customers who might otherwise be reticent to interact personally with drug dealers. In addition, the customer does not have to go to dangerous places to buy drugs. Darknet trafficking also overcomes the challenge of sellers and buyers having to be in the same location; thus, organizations that traffic drugs over the darknet do not need to have the critical mass of customers necessary to sustain a local market.

Customers intending to buy drugs over the darknet typically access it through the onion router (TOR) in order to conceal their identities. Specialized darknet explorers (such as GRAMS, before it was taken down in December 2017, DuckDuckGo, Ahmia,<sup>251</sup> Torch, Hidden Wiki,<sup>252</sup> etc.) enable them to access their desired market platforms. The goods bought on the various darknet marketplaces are then typically paid for in cryptocurrencies, most notably bitcoins, which are also used for licit transactions on the open web.<sup>253</sup> These cryptocurrencies can subsequently be used to buy other goods and services, or they may be exchanged for various national currencies.

In general, the drugs are delivered by public or private postal services, presumably without their knowledge, although the drugs may also be hidden in locations that are secretly communicated to the

buyer.<sup>254, 255</sup> Parcels are often sent to anonymous post office boxes, including automated lockers for self-service collection. In jurisdictions with strong secrecy-of-correspondence laws, which typically apply to letters, drugs are often dispatched in letters. In some countries, drugs purchased on the darknet are thus preferably posted in letters to destinations within the poster's own country. This has also prompted some darknet vendors to transport letters containing drugs across the border into neighbouring countries in order to post them within the client's destination country and avoid detection.<sup>256</sup>

Darknet platforms bring anonymous suppliers and anonymous customers together. Although some darknet drug sales are from dealer to dealer, there are indications that most are still from dealer to user. Purchasers may benefit from other customers' feedback about the quality of the drugs sold, which can help them to evaluate the perceived reliability of the supplier.<sup>257, 258, 259</sup> The platforms may guarantee the payments of the goods sold, typically by making use of escrow account systems,<sup>260</sup> into which the client is required to pay immediately for the required goods but the finalization of the payment to the supplier is postponed until the goods have actually been received by the customer.

The darknet appears to be particularly attractive for

254 World Customs Organization, *Illicit Trade Report 2015* (Brussels, December 2016), p. 44.

255 See the background report prepared by UNODC for the meeting on the recent development of the opiate market in Central Asia, the Russian Federation and the Caucasus, held in Vienna on 29 and 30 January 2020.

256 Presentation by Robert Taferner, Austrian Criminal Intelligence Service, on online drug trafficking at the workshop of the National Reitox Academy on online drug purchases and implications for health responses, organized by Gesundheit Österreich, 2 December 2019.

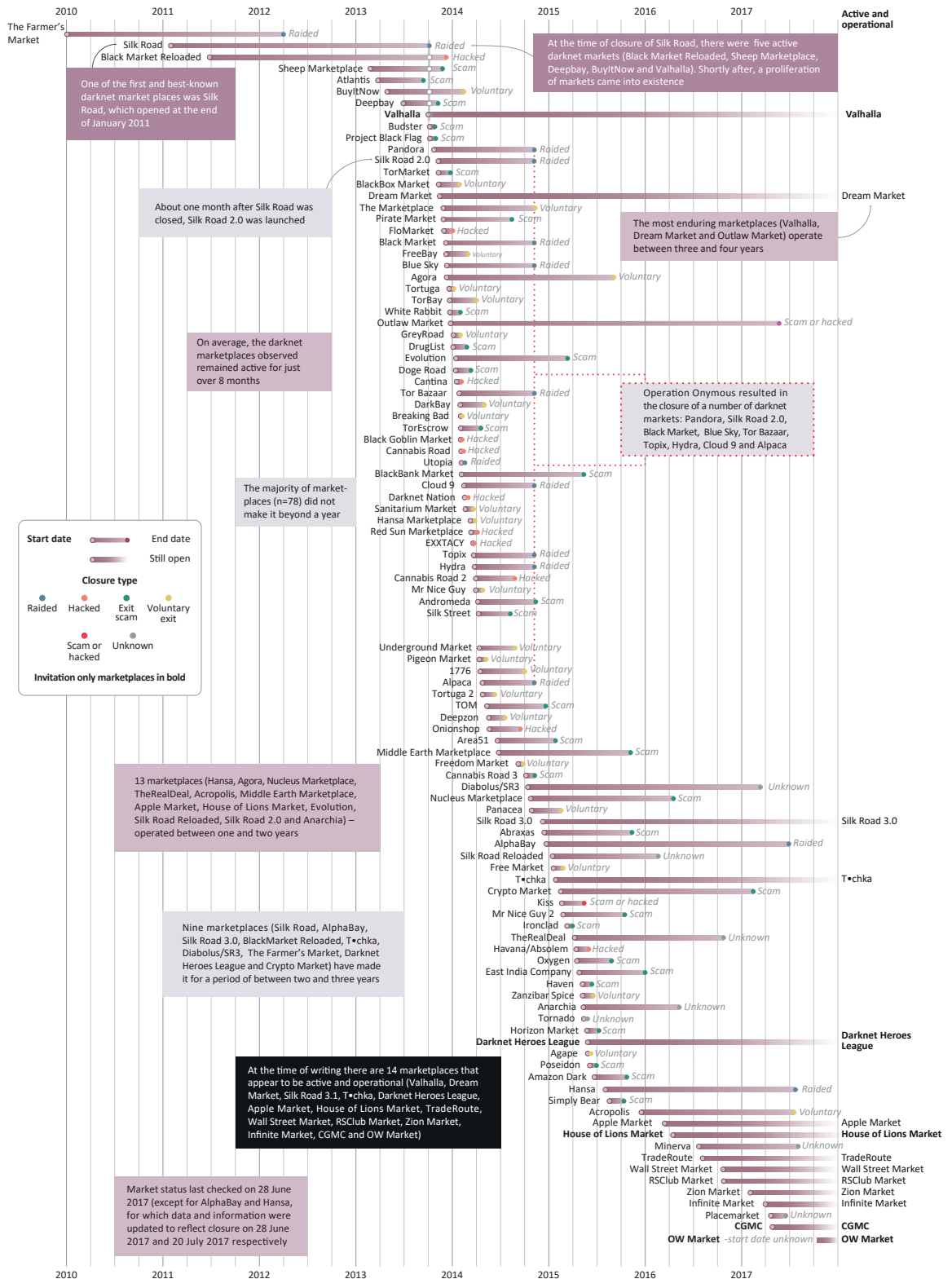
257 M.J. Barratt, J.A. Ferris and A.R. Winstock, "Use of Silk Road, the online drug marketplace, in the United Kingdom, Australia and the United States", *Addiction*, vol. 10, No. 4 (May 2014).

258 Meropi Tzanetakis, Gerrit Kamphausen, Bernd Wese and Roger von Laufenberg, "The transparency paradox. Building trust, resolving disputes and optimising logistics on conventional and online drugs markets", *International Journal of Drug Policy*, vol. 35 (September 2016).

259 Judith Aldridge and David Décary-Héту, "Not an 'eBay for drugs': the cryptomarket 'Silk Road' as a paradigm shifting criminal innovation", *SSRN Electronic Journal* (May 2014).

260 Horton-Eddison and Di Cristofaro, "Hard interventions and innovation in crypto-drug markets", p. 3.

**FIG. 1** Lifespan of darknet markets, 2010–2019





selling drugs.<sup>261, 262</sup> As reported previously,<sup>263</sup> an analysis of the goods and services listed on the darknet revealed that in 2017 (and in previous years),<sup>264</sup> 62 per cent of offers on the darknet were drugs and drug-related chemicals, that is, mostly illicit drugs and, to a lesser extent, drug-related chemicals and pharmaceuticals. The remaining 38 per cent were mainly related to fraud and counterfeit products, followed by guides and tutorials, hacking resources and malware, and firearms and explosives.<sup>265</sup> Drug sales on the darknet markets in the European Union were found to involve primarily cannabis, ATS and cocaine, that is, drugs that are mostly purchased for recreational purposes.<sup>266</sup> Other drugs, such as heroin, are also sold over the darknet but account for a smaller share of overall sales.

## Confidence in drug purchases over the darknet has started to suffer

In contrast to licit online trade in goods and services on the open net, the trafficking of drugs over the darknet has been characterized by a high turnover of drug markets. As a result of law enforcement activities, exit scams and voluntary closures, darknet markets continue to disappear and new ones to emerge.<sup>267</sup> Although the darknet market ecosystem is clearly both dynamic and resilient, the fact that darknet markets, including the largest ones, disappear quickly seems to have eroded, at least temporarily, the confidence of some drug buyers in the overall reliability of those markets.

261 EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*, Joint Publication Series (Luxembourg, Publications Office of the European Union, 2017).

262 EMCDDA and Europol, *EU Drug Markets Report 2019* (Luxembourg, Publications Office of the European Union, 2019).

263 *World Drug Report 2018* (United Nations publication, Sales No. E.18.XI.9).

264 Based on active listings data from AlphaBay, Dream Market, Hansa, TradeRoute and Valhalla darknet marketplaces, spanning from the launch of each marketplace through to 21 August 2017, or their closure.

265 Data based on active listings found on AlphaBay, Dream Market, Hansa, TradeRoute and Valhalla from the launch of each market to 21 August 2017 (or previous market closure) (EMCDDA and Europol, *Drugs and the Darknet*).

266 *Global Drug Survey 2020* and previous years.

267 EMCDDA and Europol, *EU Drug Markets Report 2019*.

A previous analysis of 103 darknet markets selling drugs over the period 2010–2017 revealed that those markets were, on average, active for just over eight months,<sup>268</sup> and their average lifespan does not appear to have increased in recent years. In fact, as at May 2019, most of the previously important darknet markets had disappeared. Out of more than 110 darknet markets for drugs identified during the period 2010–2019, just 10 remained fully operational. Most of the darknet markets selling drugs that were operational in 2019 had been launched only in 2018.<sup>269</sup>

## Sales of drugs over the darknet are likely to continue

It is not clear what the long-term impact of recent law enforcement successes in dismantling darknet sites will be on the survival of the darknet as a marketplace for drug sales. Internationally coordinated law enforcement activities, combined with extensive cyberattacks by competitors operating on the darknet, appear to have generated a general distrust in the onion router environment,<sup>270, 271</sup> which may at the very least affect the growth rate of the darknet in the near future. However, the onion router's overall user-friendliness, existing market variety and

existing customer base make full migration to new platforms currently unlikely.<sup>272</sup>

This does not mean that the dismantling of large sites will not have an impact on overall drug-related darknet sales and the distribution of darknet marketplaces. In contrast to earlier periods, when one or two markets dominated the overall darknet

268 EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*.

269 EMCDDA and Europol, *EU Drug Markets Report 2019*.

270 Europol, *Internet Organised Crime Threat Assessment* (IOCTA) 2018 (The Hague, 2018)

271 The onion router is a free, open-source software that enables anonymous communication. The original software project launched under that name was intended to conceal users' physical locations and thus to protect their personal privacy. The core principle of the onion router was developed in the mid-1990s by the United States Naval Research Laboratory and was developed further by the United States Defense Advanced Research Projects Agency with the purpose of protecting United States intelligence communication online.

272 Europol, *Internet Organised Crime Threat Assessment* (IOCTA) 2019 (The Hague, 2019).

sector<sup>273</sup> no similar, clearly dominant darknet market has been identified since the disappearance of Dream Market. The darknet drug marketplace is now characterized by fragmentation and ever-greater distrust,<sup>274</sup> but that may not last.

There are already some early indications of the emergence of new potential champions among the darknet drug markets. One of them may be Empire Market, which exhibits some of the same features as the now-defunct AlphaBay market did, but with some security improvements. Empire Market is still small compared with AlphaBay and Dream Market at their peaks, but it appears to have been growing rapidly over the past few months and was reportedly the single largest darknet market for drugs as at January 2020, according to some darknet sources.<sup>275</sup> As changes in darknet markets take place extremely quickly, it remains to be seen whether the platform, which was founded in early 2018,<sup>276</sup> will emerge as the dominant darknet market in the near future (like Silk Road, AlphaBay and Dream Market before it) or disappear into oblivion within a few months, like many other platforms that were hyped for short periods of time.

Empire Market allows payments not only in bitcoins, but also in other cryptocurrencies, such as Litecoins and Monero, which are gaining in popularity owing to concerns among darknet users that the flow of bitcoins might be traced by the authorities. Empire Market applies a multi-signature system to authorize cryptocurrency transactions and uses sophisticated encryption programmes such as Pretty Good Privacy and two-factor authentication features in order to increase customer security.<sup>277</sup>

Another recently opened (July 2019) darknet market to be monitored for drug sales is the Samsara market, which appears to have many similarities to the

now-defunct Dream Market. Some observers have even expressed the view that the Samsara market may have been opened by the same operators who previously ran Dream Market.<sup>278</sup> If true, that would definitely pose a major challenge for law enforcement authorities, as the operators of Dream Market proved to be extremely efficient in marketing their services across the darknet community while maintaining high standards of security.

## Exit scams and shutdowns of darknet markets have had an impact

It has been argued that the shutdown of major trading platforms would not have long-lasting effects on drug sales over the darknet, that disruptions might only achieve short-term success and that customers and suppliers would simply shift to the next-largest trading platforms and overall drug sales would quickly recover.<sup>279</sup> However, in reporting on the consequences of the shutdown of AlphaBay and Hansa in mid-2017, the Global Drug Survey 2018, a non-representative survey of Internet users, suggested that as at January 2018, some 15 per cent of darknet users used such markets less frequently after the shutdowns and 9 per cent had stopped using the darknet for drug purchases. This suggests that the shutdowns may have had an impact on the purchase of drugs over darknet platforms, at least for a few months.

Similarly, there are indications that following a long-term upward trend, monthly sales of drugs through major darknet markets may have stabilized or even declined over the period July 2017–August 2018 compared with monthly drug sales over the darknet at the beginning of 2017. Direct comparability is limited as it remains difficult to extrapolate the overall size of darknet markets from data on some key darknet markets, in particular as the selection of those key markets may have been influenced by the research focus of the authors, and because their relative importance may change over time.<sup>280</sup>

273 Such as Silk Road (2011–2013), Silk Road 2.0 (in 2014, ending in November 2014), Evolution (November 2014–January 2015), Agora (January 2015–October 2015) (Europol, *Internet Organised Crime Threat Assessment* (IOCTA) 2019), AlphaBay (November 2015–July 2017) and Dream Market (mid-2017–April 2019) (Europol, *Internet Organized Crime Threat Assessment* (IOCTA) 2019).

274 Europol, *Internet Organized Crime Threat Assessment* (IOCTA) 2019.

275 See [www.darknetstats.com/empire-market/](http://www.darknetstats.com/empire-market/).

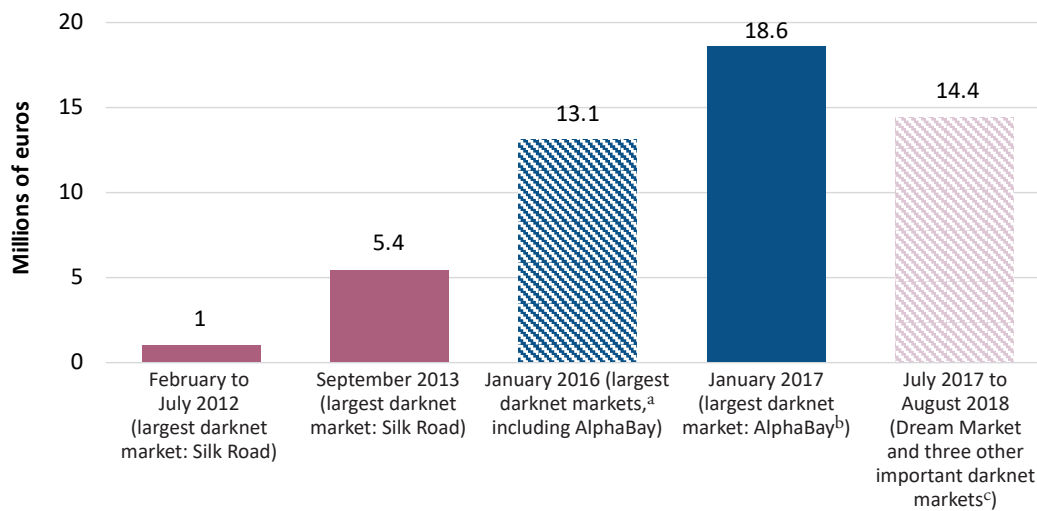
276 EMCDDA and Europol, *EU Drug Markets Report 2019*.

277 See [www.thedarkweblinks.com/darknet-market-list/](http://www.thedarkweblinks.com/darknet-market-list/).

278 Europol, *Internet Organised Crime Threat Assessment* (IOCTA) 2019.

279 EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*.

280 The analysis, for example, in January 2016 of the then six key darknet markets (in terms of listings: AlphaBay,

**FIG. 2** Estimates of monthly sales of drugs through different major darknet markets, 2012–2018

Sources: Nicolas Christin, "Traveling the Silk Road: a measurement analysis of a large anonymous online marketplace", proceedings of twenty-second International World Wide Web Conference, May 2013; Kristy Kruithof and others, *Internet-facilitated Drugs Trade: An Analysis of the Size, Scope and the Role of the Netherlands* (Santa Monica, California, RAND Corporation, and Cambridge, United Kingdom, 2016); EMCDDA and Europol, *EU Drug Markets Report 2019*; Nicolas Christin and Jeremy Thomas, "Analysis of the supply of drugs and new psychoactive substances by Europe-based vendors via darknet markets in 2017-18", background paper commissioned by EMCDDA for the *EU Drug Markets Report 2019*.

Note: The "major darknet markets" were identified by the respective authors. Even though global sales figures are reported, the identification of those markets may still have been influenced by the research focus of the authors, which was mainly on darknet activities in European Union countries.

<sup>a</sup> The eight largest darknet markets for drug listings in January 2016 were AlphaBay (36 per cent of the listings on those eight markets, or 28 per cent of all available drug listings on darknet markets at the time), followed by Nucleus, Dream Market, Crypto Market, Hansa, Python, French Darknet and Darknet Heroes League.

<sup>b</sup> UNODC calculations, based on estimated daily sales of some 600,000 over the darknet.

<sup>c</sup> The three other darknet markets were TradeRoute, Valhalla and Berlusconi Market. TradeRoute disappeared because of an exit scam in October 2017; Valhalla was raided in February 2019; Dream Market was closed in April 2019; and Berlusconi Market was raided in November 2019.

Nevertheless, raids, exit scams – which typically involve the organizers of darknet markets taking hold of funds held in escrow accounts before shutting those markets down – and voluntary closures appear to have at least temporarily halted the long-term upward trend in drug sales over the darknet.

Nucleus, Dreammarket, CryptoMarket, Hansa, Python, French Dark Net and Dark Net Heroes League) revealed a combined number of 105,811 listings, compared with 27,250 combined listings for a further 11 darknet markets. This suggests that those six key darknet markets accounted for around 80 per cent of all known listings on darknet markets in January 2016 (Kristy Kruithof and others, *Internet-facilitated Drugs Trade: An Analysis of the Size, Scope and the Role of the Netherlands* (RAND Corporation, Santa Monica, California, and Cambridge, United Kingdom, 2016)). Later, Europol estimated that the three main darknet markets in the first two quarters of 2017 (AlphaBay, Hansa and the Russian Anonymous Marketplace) accounted for 87 per cent of all darknet activities (Europol, *Internet Organised Crime Threat Assessment* (IOCTA) 2018).

The most notable of these include: the dismantling of the then three largest darknet markets AlphaBay, Hansa and the Russian Anonymous Marketplace (RAMP) in mid-2017, which together were estimated by Europol to account for the bulk of all darknet market activity at the time;<sup>281</sup> the end of a number of other darknet markets following exit scams in 2017 (including CryptoMarket, Silk Road 3.1, Trade Route and Outlaw Market); the exit scam involving Olympia Market in 2018 and the closure of Dream Market in April 2019, the largest darknet market at the time; and successful raids by authorities targeting Valhalla in February 2019 and Wallstreet in April 2019.<sup>282</sup>

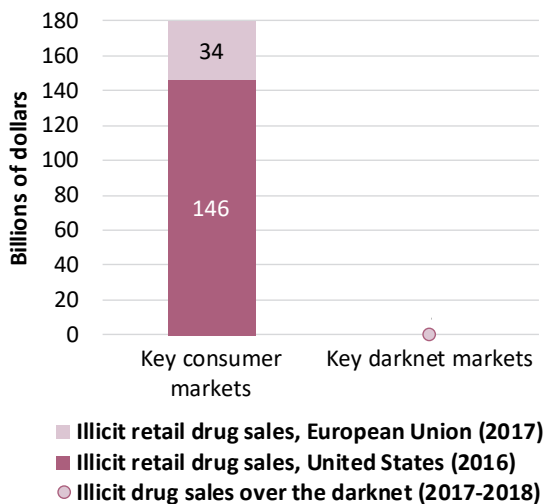
<sup>281</sup> Europol, *Internet Organised Crime Threat Assessment* (IOCTA) 2018.

<sup>282</sup> EMCDDA and Europol, *EU Drug Market Report 2019*.

## Drug supply over the darknet remains modest compared with overall illicit retail sales of drugs in Europe and the United States

The overall darknet sector has remained comparatively modest compared with overall illicit drug sales in the United States and the European Union. Based on available data, the best estimate suggests that the four largest darknet markets (Dream Market, TradeRoute, Berlusconi Market and Valhalla) accounted for 0.12 per cent of the combined illicit retail drug sales of the United States and the European Union. Even if those four markets accounted for just half of the total darknet market – although the actual proportion was probably far higher – the size of the overall darknet market would still equal only some 0.2 per cent of the combined retail drug markets of

**FIG. 3** Annual illicit retail drug sales in the United States (2016) and Europe (2017) versus annual illicit drug sales through key darknet markets (2017–2018)



Sources: Gregory Midgette, Steven Davenport, Jonathan P. Caulkins and Beau Kilmer, *What America's Users Spend on Illegal Drugs, 2006–2016* (RAND Corporation, Santa Monica, California, 2019); EMCDDA and Europol, *EU Drug Markets Report 2019*; EMCDDA, "Analysis of the supply of drugs and new psychoactive substances by Europe-based vendors via darknet markets in 2017–18".

Note: Based on data from the four largest drug markets on the darknet (Dream Market, followed by TradeRoute, Valhalla and Berlusconi Market) from July 2017 to August 2018.

the United States and Europe.

## Despite the rapidly changing nature of the market landscape, the overall characteristics of darknet trafficking seem to remain relatively unchanged

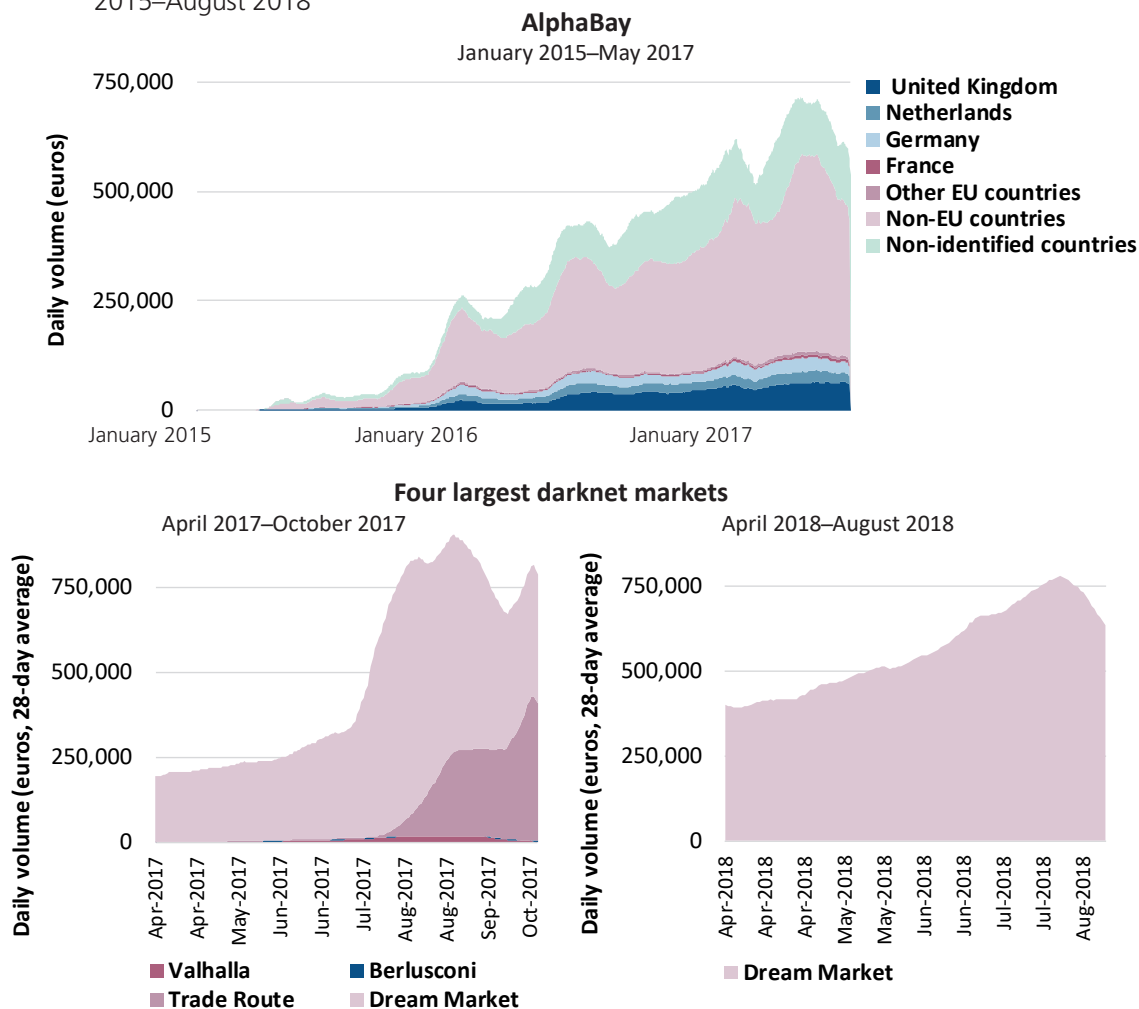
A more in-depth analysis of the involvement of AlphaBay, Dream Market and other important darknet markets in supplying drugs shows that the classic pattern identified in previous years, in which the closure of a major darknet market favours, first of all, the next-largest darknet market(s), remained true for the second half of 2017 and the first half of 2018. Thus, following the successful shutdown of AlphaBay by the authorities in July 2017, both Dream Market and TradeRoute benefited greatly from vendors and customers switching to those platforms. Notably, Dream Market, founded in late 2013, had already been in existence for three and a half years when AlphaBay was raided, and had gained the trust of other darknet users. Once TradeRoute ceased operations in the last quarter of 2017 owing to an exit scam, vendors and customers also moved on to Dream Market, and its popularity continued to grow in the following quarters. Subsequently, by August 2018, the reported daily sales on Dream Market exceeded even those estimated to have taken place on AlphaBay in January 2017.<sup>283, 284</sup>

An analysis of the vendors identified on AlphaBay (March 2015–May 2017) and on Dream Market (March 2015–May 2017) and on the other three major darknet markets (TradeRoute, Valhalla and Berlusconi Market, for the period July 2017–August 2018) suggests that the importance of vendors on the darknet may have increased, in particular in the European Union (from 29 per cent of darknet sales through AlphaBay from March 2016 to May 2017 to 44 per cent of total darknet sales through Dream Market, TradeRoute, Valhalla and Berlusconi Market from July 2017 to August

<sup>283</sup> EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*.

<sup>284</sup> Nicolas Christin and Jeremy Thomas, "Analysis of the supply of drugs and new psychoactive substances by Europe-based vendors via darknet markets in 2017–18" (November 2019).

**FIG. 4** Trends in drug sales on AlphaBay, Dream Market and other major darknet markets, January 2015–August 2018



Sources: EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy, Joint publications series* (Luxembourg, Publications Office of the European Union, November 2017); Nicolas Christin and Jeremy Thomas, “Analysis of the supply of drugs and new psychoactive substances by Europe-based vendors via darknet markets in 2017–18” (November 2019).

<sup>a</sup> Each point on the two graphs represents a moving 28-day average. The plot is stacked, meaning that the top line represents the sum of all markets. The vertical dotted lines represent times at which scrapes of the relevant markets were obtained, with the black dotted lines depicting scrapes of Dream Market. The dip at the end of the second plot is an artefact due to missing data for the computation of the moving average.

2018).<sup>285, 286</sup>

<sup>285</sup> EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*.

<sup>286</sup> Nicolas Christin and Jeremy Thomas, “Analysis of the supply of drugs and new psychoactive substances by Europe-based vendors via darknet markets in 2017–18” (November 2019).

Findings from research conducted in 2016 on the eight largest darknet markets at the time<sup>287</sup> suggested that most of the revenues of darknet vendors in Europe were made by vendors from the United

<sup>287</sup> AlphaBay, followed by Nucleus, Dream Market, Crypto Market, Hansa, Python, French Darknet and Darknet Heroes League.

Kingdom, followed by vendors located in Germany, the Netherlands, France and Spain, while most of the revenues of darknet vendors from outside the European Union were generated by vendors located in the United States (36 per cent of the total), followed by those in Australia (11 per cent) and Canada (7 per cent).<sup>288</sup> The analysis of AlphaBay over the period March 2015–May 2017<sup>289</sup> and the analysis of vendors on Dream Market, TradeRoute, Valhalla and Berlusconi Market over the period July 2017–August 2018 confirmed this ranking of vendor countries of origin by sales revenue. The data for most countries show that patterns of sales of various drugs over the darknet were similar in the periods March 2015–May 2017 and July 2017–August 2018. Only for smaller markets that emerged later in Europe were changes noted in the rankings of sales by vendor location.<sup>290, 291</sup>

However, vendors on the darknet do not necessarily indicate their true locations. There have been frequent reports, for instance, of darknet vendors located in the Netherlands who chose German IP addresses and subsequently also chose German postal services to have their parcels delivered to their clients in order to avoid ever-tighter customs controls of parcels originating in the Netherlands.<sup>292</sup>

In terms of the goods and services sold over the darknet, an analysis of Dream Market and the three other major darknet markets (TradeRoute, Valhalla and Berlusconi Market) in the period July 2017–August 2018 revealed that 80 per cent were related to drugs.<sup>293</sup>

An analysis of the markets in the United Kingdom, Germany and the Netherlands, which are

288 Kristy Kruithof and others, *Internet-facilitated Drugs Trade: An Analysis of the Size, Scope and the Role of the Netherlands* (RAND Corporation, Santa Monica, California, and Cambridge, United Kingdom, 2016).

289 EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*.

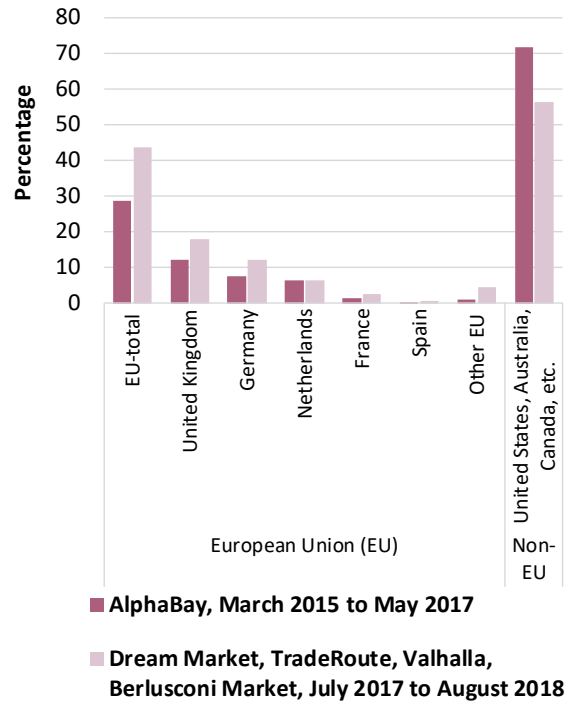
290 Ibid.

291 EMCDDA and Europol, *EU Drug Markets Report 2019*.

292 Presentation by Robert Taferner, Austrian Criminal Intelligence Service, on online drug trafficking at the workshop of the National Reitox Academy on online drug purchases and implications for health responses, organized by Gesundheit Österreich, 2 December 2019.

293 Christin and Thomas, “Analysis of the supply of drugs and new psychoactive substances by Europe-based vendors”.

**FIG. 5** Geographical spread of darknet vendors on key darknet markets, based on revenues generated



Sources: EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*; EMCDDA and Europol, *EU Drug Markets Report 2019*.

responsible for the bulk of drug sales on the darknet markets in the European Union (i.e., 92 per cent of sales in the period March 2015–May 2017 and 83 per cent in the period July 2017–August 2018), shows that cannabis, ATS and cocaine are the most common drugs sold over the darknet in the European Union. Other drugs, including dissociatives (such as ketamine), hallucinogens, NPS and opioids, are also sold over the darknet but account for a smaller share of overall sales.<sup>294, 295</sup>

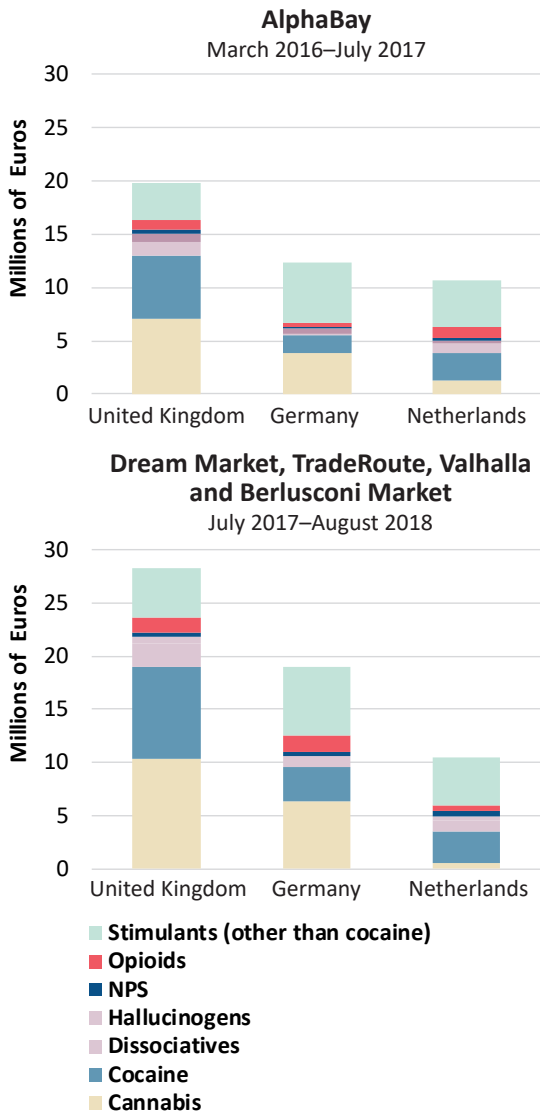
Expressed as a proportion of sales made on street markets in Europe, the data suggest that the darknet is more important for sales of “ecstasy”, but of relatively low importance for sales of heroin.<sup>296</sup> This

294 EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*.

295 EMCDDA and Europol, *EU Drug Markets Report 2019*.

296 Ibid.

**FIG. 6** Drugs sold on the darknet in different European countries



Sources: EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*; EMCDDA and Europol, *EU Drug Markets Report 2019*.

Notes: Dissociatives: ketamine, gamma-hydroxybutyrate (GHB), gamma-butyrolactone (GBL); hallucinogens: LSD, PCP (excluding psychedelics); non-cocaine stimulants: amphetamine, methamphetamine, MDMA, MDA; opioids: heroin, opium, analgesics.

may reflect the fact that sales over the darknet are still more from dealers to final customers (and/or their close friends), as opposed to being from dealers to other dealers, and that darknet technology is difficult to master for some hard-core heroin users

(as opposed to recreational drug users). Moreover, qualitative research among darknet drug users in Austria suggests that purchases of heroin over the darknet are often limited to the acquisition of quality heroin for certain special occasion, such as Easter, Christmas, birthdays and parties, while daily purchases of smaller quantities (in which lower and often varying degrees of purity are accepted) still take place on the street. Heroin users need their daily ration and often do not have the financial means to purchase heroin in larger quantities and/or are afraid that such large amounts might be stolen by other heroin-dependent persons.<sup>297</sup>

Similar to the situation in the European Union, an analysis carried out in St. Petersburg, Russian Federation, showed that the drugs most commonly offered on Hydra, the main Russian darknet market in 2019, were cannabis (marijuana and hashish), followed by ATS (notably amphetamine, “ecstasy” and to a lesser extent methamphetamine) and cocaine. As in the European Union, sales of opiates, notably heroin, over the darknet also seem to play less of a role. In contrast to the darknet markets for drugs in the European Union, however, sales of cathinones (i.e., mephedrone and *alpha*-PVP) appear to be more important in the Russian Federation.<sup>298, 299</sup>

At the same time, the darknet has also expanded to various locations outside Europe, the Americas and Oceania. Although such markets still seem to be comparatively small in developing countries, their share appears to have increased. Notably, Asian countries have been identified as both sources and destinations for crypto-drug transactions.<sup>300</sup>

In an analysis of the Evolution darknet market, which was active from January 2014 to March 2015, 93 countries across the globe were identified as

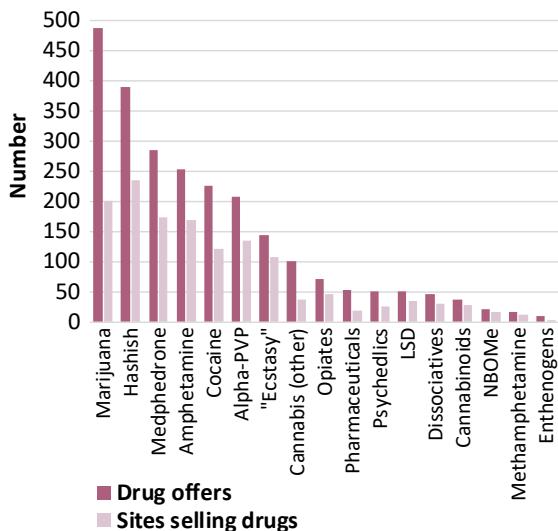
297 Irene Schmutterer, “Purchasing in web drug supermarkets: motives, concern, harms; results from the VIDRO project”, presentation given at the National Reitox Academy, Vienna, 2 December 2019.

298 UNODC, background document of the meeting on the recent developments of the opiate market in Central Asia, the Russian Federation and the Caucasus, held in Vienna on 29 and 30 January 2020.

299 DrugStat, “Na chëm sidit Piter?”, 3 April 2019. Available at <https://telegra.ph/Na-chyom-sidit-Piter-04-03>.

300 Julian Broséus and others, “A geographical analysis of trafficking on a popular darknet market”, *Forensic Science International*, vol. 277 (August 2017), pp. 88–102.

**FIG. 7** Number of offers and sites on the Hydra darknet platform in St. Petersburg, Russian Federation, by drug type, 2019



Source: DrugStat, "Na chëm sidit Piter?", 3 April 2019. Available at <https://telegra.ph/Na-chyom-sidit-Piter-04-03> (translated from Russian).

source countries and 164 as destination countries for darknet transactions, with China and Hong Kong, China, accounting for 3.6 per cent of all listings in that period.<sup>301</sup> The analysis also revealed that the listing proportions of China (including Hong Kong, China) were three times higher than their respective vendor proportions. This may be explained by the strict control of China's Internet traffic, which leaves only a few vendors on the market who consequently deal in larger quantities. The majority of the drug listings related to China and Hong Kong, China, concerned NPS (93 per cent). This was in stark contrast to the majority of other countries, where more traditional drugs dominated the darknet.<sup>302</sup>

An analysis of email addresses linked to drug listings found on eight major darknet markets in 2016 revealed that while most could be linked to the United States (34 per cent) and Europe (32 per cent, notably the Netherlands and the United Kingdom with 12 per cent each), China accounted for 9 per

cent and India for 3 per cent of the total.<sup>303</sup> It is also of note that, prior to his arrest and suicide in 2017, the founder and key administrator of the AlphaBay darknet market, a Canadian citizen, actually organized the operations of the largest darknet platform while living in Thailand, although its key computer servers were located in Lithuania,<sup>304, 305</sup> which clearly underlines the international nature of this business.

## Alternatives to drug supply over the darknet are emerging

Europol has reported that the closure of key darknet markets has given rise to a growing number of single-vendor shops,<sup>306</sup> as well-established vendors with high levels of trust and good reputation have set up their own hidden service platforms and continued to do business with the clientele previously established on those key markets. There is also a general trend towards more fragmented darknet markets operating through the onion router.<sup>307</sup>

In addition, growth has been observed in secondary, non-English-speaking darknet markets, which generally cater to a particular nationality or language group.<sup>308</sup> In particular, the platform Hydra, which targets Russian-speaking communities worldwide, seems to be of growing importance.<sup>309</sup>

Moreover, the development of encrypted communications applications that bypass the traditional darknet markets may have contributed to enhancing single-vendor trade on the darknet, helping to direct users to services and enabling closed communication.<sup>310</sup>

In parallel, some sophisticated open web

303 Kristy Kruithof and others, *Internet-facilitated Drugs Trade*.

304 United States Federal Bureau of Investigations, "Darknet takedown: authorities shutter online criminal market AlphaBay", 20 July 2017.

305 United States Department of Justice, "AlphaBay, the largest online 'dark market', shut down", 20 July 2017.

306 Europol, *Internet Organised Crime Threat Assessment (IOCTA) 2019*.

307 Ibid.

308 Ibid.

309 *World Drug Report 2019* (United Nations publication, Sales No. E.19.XI.8).

310 Europol, *Internet Organised Crime Threat Assessment (IOCTA) 2019*.

301 Ibid.

302 Ibid.



marketplaces have emerged, which are characterized by high levels of anonymity among a large number of players and by the rapid replacement of arrested participants; they operate with encrypted messages and existing postal services, not only for drug delivery but also for the transfer of money.

## An increasing percentage of a selected group of drug users purchase drugs on the darknet

The Global Drug Survey, which is based on a non-representative convenience sample of roughly 100,000 to 500,000 self-selected people from more than 50 countries – mostly developed countries – each year, shows that the proportion of Internet users using drugs who purchased drugs over the darknet more than tripled from 4.7 per cent in January 2014 to 15 per cent in January 2020,<sup>311</sup> with increases found in all regions covered by the survey.<sup>312</sup>

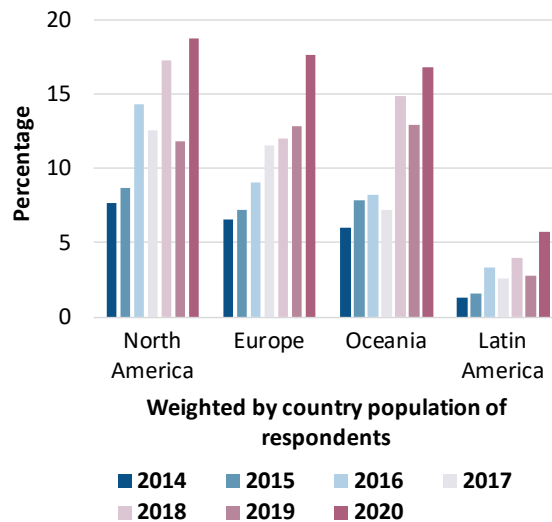
However, disaggregated data suggest that the proportion of Internet users purchasing drugs over the darknet declined between January 2018 and January 2019 in all regions except Europe, before increasing markedly in all regions between January 2019 and January 2020. The temporary decline in 2018 may have been a consequence of the shutdown of major darknet drug markets in July 2017. Responses from survey participants on the impact of darknet market closures, in particular of AlphaBay and Hansa in mid-2017 and Dream Market in April 2019, on their behaviour as drug purchasers over the darknet suggest that the overall impact of the closure of darknet markets in 2017 may have been far more pronounced than of the closure of darknet markets in 2019.

While half of Internet users purchasing drugs on the darknet continue to use the same type of drugs that they used prior to obtaining drugs through the darknet, some have changed their drug use habits. More than a quarter of those who started using drugs before they began buying drugs on the darknet now report (in 2020) that they consume a wider range of drugs, and 9.7 per cent report that they consume

311 Data from the Global Drug Survey refer to January of the reporting year.

312 *Global Drug Survey 2020* and previous years.

**FIG. 8** Proportion of surveyed Internet users using drugs in the past year who purchased drugs over the darknet, selected regions and subregions, January 2014–January 2020



Source: UNODC calculations based on *Global Drug Survey 2020* data and previous years: detailed findings on drug cryptomarkets. Available from Dr. Monica Barratt, Drug Policy Modelling Program, National Drug and Alcohol Research Centre, Australia.

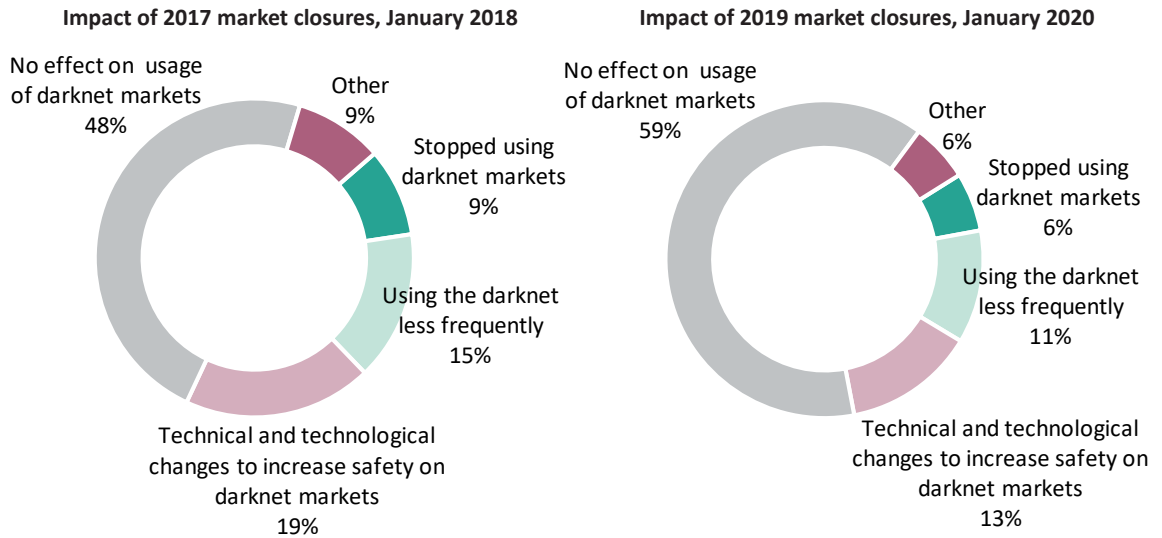
Notes: The *Global Drug Survey* is based on a convenience sample of 100,000 to 500,000 people every year, of whom 50,000 to 90,000 replied to questions on drug purchases over the darknet. Values shown have been weighted by the population of reporting countries; North America: averages based on information from respondents in Canada and the United States; Europe: averages based on information from respondents in 25 European countries (not included are data from the Russian Federation, which are only available for 2018 and 2020); Oceania: averages based on information from respondents in Australia and New Zealand; Latin America: averages based on information from respondents in Brazil, Colombia and Mexico (not included are data from Argentina and Chile, which are only available for 2020 and 2019, respectively).

a different class of drugs. In addition, the darknet may be increasingly developing into an alternative to other sources of drugs, such as friends, acquaintances or street drug dealers, for people who did not previously use drugs: the proportion of people purchasing drugs on the darknet who did not use drugs prior to their first drug purchase on the darknet has doubled, from 4.5 per cent in 2015 to 9.3 per cent in 2020.<sup>313</sup>

Analysis shows also that most people who purchased drugs over the darknet in 2020 only started doing

313 *Global Drug Survey 2020* and previous years.

**FIG. 9** Reported impact of market closures among persons purchasing drugs on the darknet in 2017 and in 2019

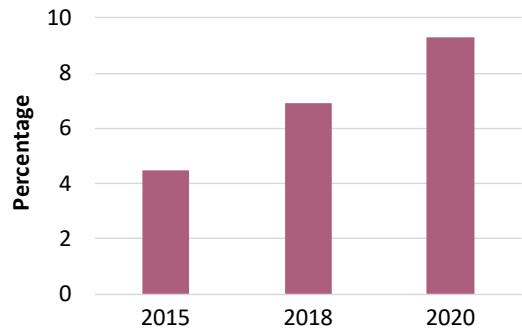


Source: *Global Drug Survey 2020* and previous years: detailed findings on drug cryptomarkets.

so recently, i.e., a third in the last year, about half in the last two years and two thirds in the last three years. By contrast, following shutdowns of close to 100 darknet markets over the past decade, very few people who reported having started using the darknet as a source of drugs at the time of Silk Road appear to be still involved in purchasing drugs on the darknet.<sup>314, 315</sup>

It has been argued that the Covid-19 pandemic in 2020 and the subsequent lockdown in many countries have led to a reduction in overall drug trafficking, which has gone hand in hand with increases in drug prices.<sup>316, 317</sup> At the same time, there are indications that cybercrime, including sales of drugs through the darknet at the retail level, has

**FIG. 10** Share of people who had not consumed drugs prior to their first purchase of drugs on the darknet, among Internet users purchasing drugs over the darknet, 2015–2020



Source: *Global Drug Survey 2020* and previous years: detailed findings on drug cryptomarkets.

increased.<sup>318, 319, 320</sup> A recent analysis of three major European markets, Cannazon, Agartha and Versus

314 EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*.

315 *Global Drug Survey 2020*.

316 UNODC, *Research Brief: COVID-19 and the Drug Supply Chain: from Production and Trafficking to Use* (Vienna, May 2020).

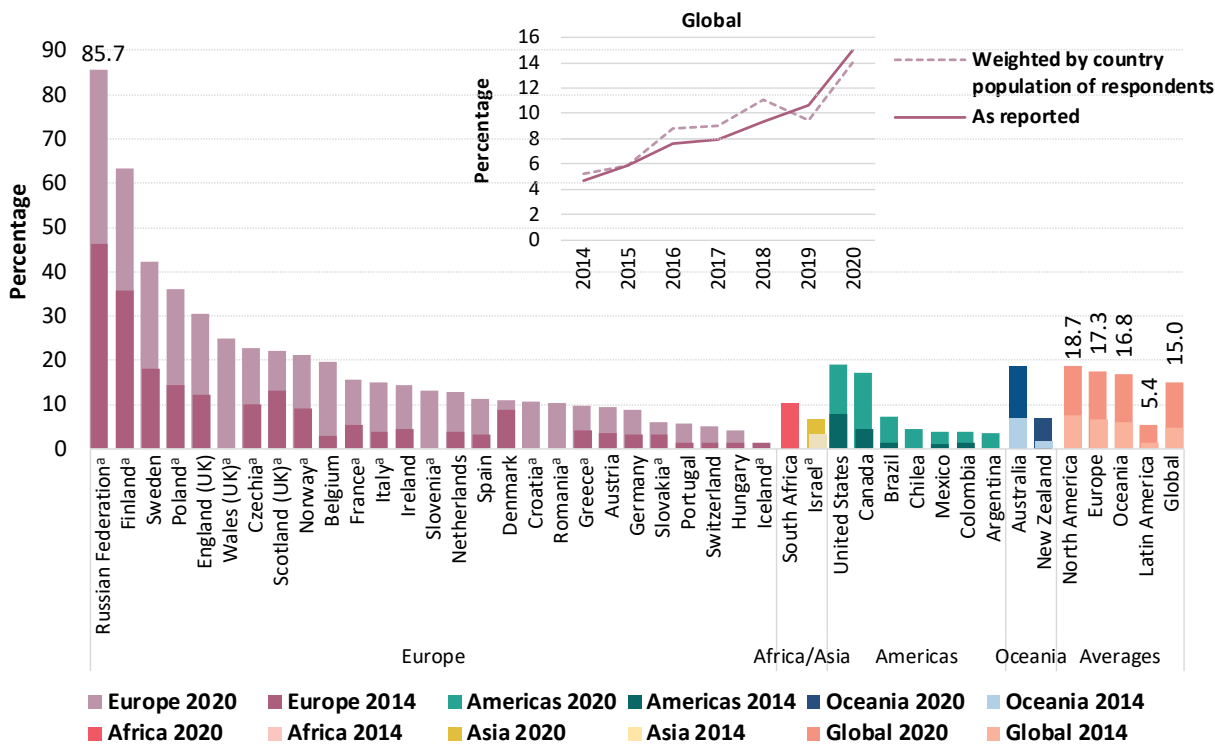
317 Ibid.

318 Europol, “Catching the virus: cybercrime, disinformation and the COVID-19 pandemic” (April 2020).

319 UNODC, *Research Brief: COVID-19 and the Drug Supply Chain: from Production and Trafficking to Use*.

320 EMCDDA, *Special Report: COVID-19 and Drugs – Drug Supply Via Darknet Markets* (Lisbon, May 2020).

**FIG. 11** Proportion of surveyed Internet users using drugs (in the past year) who purchased drugs over the darknet, global average and selected countries, January 2014 and January 2020



Source: UNODC calculations based on the *Global Drug Survey 2020* data and previous years: detailed findings on drug cryptomarkets.

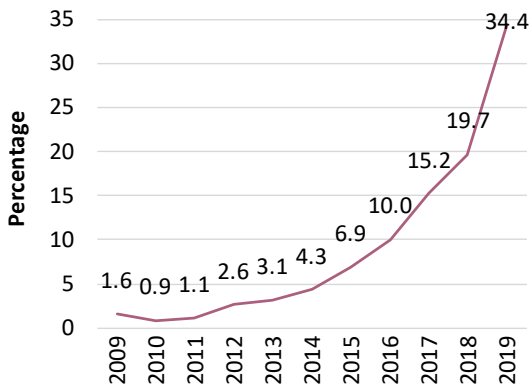
Note: The *Global Drug Survey* is based on a convenience sample of 100,000 to 500,000 people every year, of whom 50,000 to 90,000 replied to questions on drug purchases over the darknet. All regional averages are weighted by the population of each country. North America: averages based on information from respondents in Canada and the United States; Europe: averages based on information from respondents in 25 European countries (not included are data from the Russian Federation, which are only available for 2018 and 2020); Oceania: averages based on information from respondents in Australia and New Zealand; Latin America: averages based on information from respondents in Brazil, Colombia and Mexico (not included are data from Argentina and Chile, which are only available for 2020 and 2019, respectively).

<sup>a</sup> Data for either January 2014 or January 2020 were not available; data from the most recent year available were taken as a proxy.

(in order of importance), points to an increase in market activity mainly in relation to cannabis. An increase of more than 25 per cent from January to March 2020, mostly driven by Cannazon, a market specialized in the sale of cannabis.<sup>321</sup> Detailed analysis of that market shows a marked increase in retail sales of cannabis (sales of 1 g, 10 g, 28 g and up to 1 ounce) while sales of large quantities of the drug (sales of 100 g, 500 g and 1 kg) declined from January to March 2020.

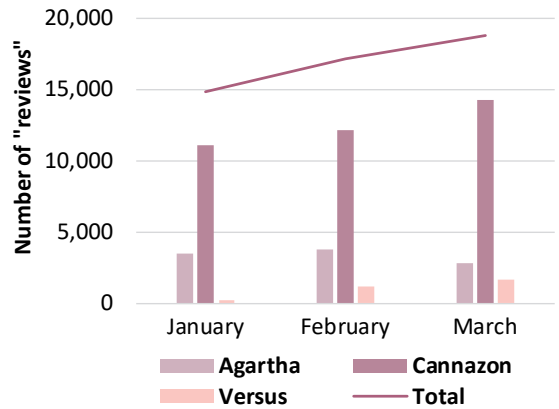
321 Ibid.

**FIG. 12** Year in which Internet users who purchase drugs via the darknet obtained their first drug through the darknet, reported in January 2020



Source: *Global Drug Survey 2020: detailed findings on drug cryptomarkets.*

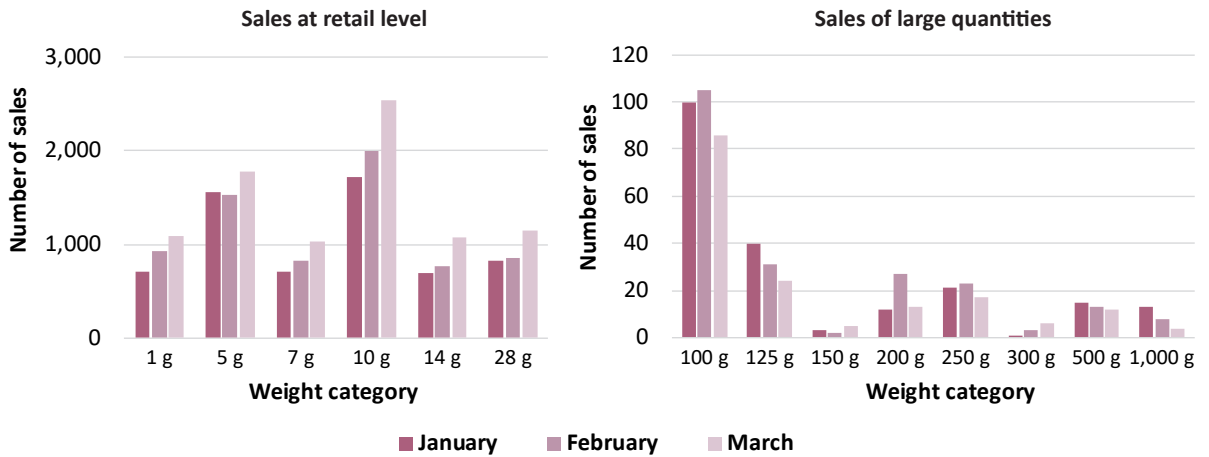
**FIG. 13** Number of “reviews” of three European darknet markets, Agartha, Cannazon and Versus, January–March 2020



Source: EMCDDA, *Special Report: COVID-19 and Drugs – Drug Supply Via Darknet Markets.*

Note: The number of “reviews” refer to the number of feedback reports posted by people buying drugs on the three darknet markets (Agartha, Cannazon and Versus).

**FIG. 14** Sales of cannabis by weight category on Cannazon market, January–March 2020



Source: EMCDDA, *Special Report: COVID-19 and Drugs – Drug Supply Via Darknet Markets.*