

## Trends in the availability and type of drugs sold on the internet via cryptomarkets, January 2020 – January 2021

Authors: Nicola Man, Max Pedersen, Rajat Katyal, Rachel Sutherland, Raimondo Bruno, Monica J. Barratt and Amy Peacock

National Drug and Alcohol Research Centre  
University of New South Wales Sydney

### Key Findings

8 cryptomarkets monitored



In the period from January 2020 to January 2021, 8 cryptomarkets were monitored.

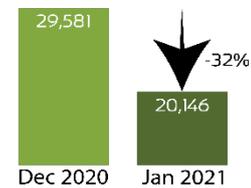
4 monitored cryptomarkets closed

- Apollon
- DarkBay
- Empire Market
- Dark Market

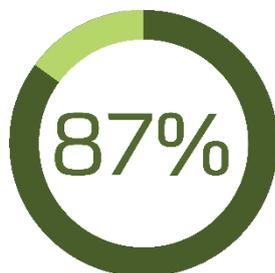
In the period from January 2020 to January 2021, 4 of the monitored cryptomarkets closed.



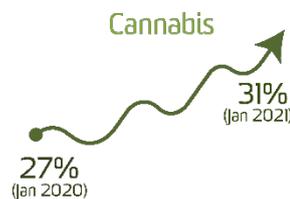
Dark Market, the only monitored market to have closed since the last bulletin, had 12,441 drug listings on the last scrape before its closure on 11<sup>th</sup> January 2021.



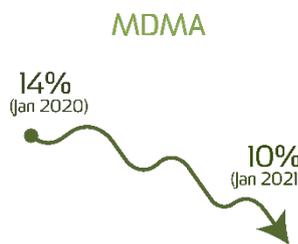
The average number of listings per weekly scrape decreased by 32% from 29,581 in December 2020 to 20,146 in January 2021 with the closure of Dark Market.



In the last week of January 2021, White House Market had 87% of drug listings across monitored markets.



The market share of cannabis had the biggest increase (4.0%) from 27% in January 2020 to 31% in January 2021.



The market share of MDMA had the biggest decrease (-4.5%) from 14% in January 2020 to 9.6% in January 2021.

- 28% Cannabis
- 14% MDMA
- 9% Cocaine
- 7% Benzodiazepines
- 6% Meth/amphetamines

Top 5 drugs across cryptomarket listings from January 2020 to January 2021.

- From 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021, eight cryptomarkets were monitored weekly, of which four were active at the end of the monitoring period: 31<sup>st</sup> January 2021.
- There was an average of 20,146 drug listings per weekly scrape in January 2021, representing a 32% decrease in listings as compared to December 2020 (n=29,581), and a 68% decrease in listings as compared to January 2020 (n=62,782).
- Since the [last Bulletin](#) (September 2019 – September 2020), one major cryptomarket closed: Dark Market. This market had 12,441 drug listings when last scraped whilst active on 7<sup>th</sup> January 2021.

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- In the last week of monitoring in January 2021, White House Market was the biggest cryptomarket accounting for 87% of the observed drug listings.
- The greatest market share of drugs listed on the cryptomarkets from January 2021 to January 2020 was held by cannabis (28%), followed by MDMA (14%), cocaine (8.9%), benzodiazepines (7.2%), meth/amphetamine (illicit) (6.2%), and opioids (excluding heroin) (5.4%). The ranking for market share of listings by drug class has largely been consistent since 2017.
- The market share of cannabis showed the biggest percentage increase from 27% in January 2020 to 31% in January 2021, while the market share of MDMA had the biggest percentage decrease from 14% in January 2020 to 9.6% in January 2021.

## Background

This bulletin series reports on trends in the availability and type of substances sold on the internet via cryptomarkets over the last 13 months (a new bulletin is released typically every four months). The current bulletin focuses on analysis of listings from 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021.

Drug Trends have identified, crawled (or 'scraped'), extracted, categorised and analysed drug listings on cryptomarkets on a weekly basis since 1<sup>st</sup> January 2014, formerly using VBA programming processes, and since 9<sup>th</sup> August 2018 using a range of programmed automated processes in Python that operate with minimal manual input. Following extraction of common text features across each listing (e.g., drug listing name, vendor name and the price in bitcoin or dollars), individual listings are categorised according to a pre-specified classification structure using a rules-based approach through text-matching in the first instance, followed by a long short-term memory (LSTM) artificial neural network (target predictive percentage 90%) that has been trained on historically categorised listings for those not matched through the former process. Further background and information regarding the methods are available for [download](#).

### Panel A. Terminology

- **Cryptomarkets** ('darknet markets') are anonymous online trading platforms that facilitate the purchasing of illicit goods and services via multiple sellers. Licit products (e.g., alcohol) may occasionally be traded on these platforms.
- **Number of listings** is the sum of listings per single scrape each week belonging to a specific market and/or drug category. For this measure, duplicate listings (defined as listings with identical names and same quantity of drug by a single vendor on a single market) within the same week are removed.
- **Number of vendors** is the sum of unique vendors per single scrape each week selling a specific drug within each market. For this measure, a vendor is considered unique only within the same market; that is, the same vendor may be counted multiple times across different markets. Please note that the number of vendors is not summed across different markets in our visualisation and bulletin.

Our reporting focuses only on identified English language cryptomarkets selling drugs which have had  $\geq 100$  drug listings and  $>1$  vendor. Ongoing monitoring of smaller markets is undertaken to determine whether they meet the number of listings threshold with market growth over time. In addition, some markets may meet the listing threshold criteria during at least one weekly scrape, but experience period(s) of market decline where the number of drug listings is  $<100$ . For a historical record of marketplaces monitored by Drug Trends, we refer the reader to our [interactive timeline](#).

Analyses are concentrated on listings on these marketplaces advertising the sale of illicit drugs (e.g., heroin), key licit drugs (e.g., alcohol, tobacco, e-cigarettes) and pharmaceutical medicines, as well as drug-related paraphernalia (e.g., needles and syringes, colorimetric reagent kits).

**An accompanying public [online interactive data visualisation](#) is available**, allowing viewers to interact with data collected over the total monitoring period. Data presented here comprise number of listings and number of vendors observed in a single scrape in a given week (see **Panel A**).

While these data can be considered reasonable estimates for trends in drug availability, we cannot guarantee exhaustive and/or immediate identification and capture of cryptomarkets once they emerge. As a result, there are some cryptomarkets which have existed for periods of time before our first scrape, resulting in a lack of data availability for these periods.

In addition, for existing identifiable markets that are regularly scraped, there can be challenges in a certain week that prevent a routine scrape. Most commonly, this is due to the occurrence of distributed denial of service (DDoS) attacks on these sites, which

prevent timely and complete retrieval of site content. Scrapes can also be incomplete if the cryptomarket has made changes to its site design that prevent full crawling of content, and the script cannot be fixed in time for that week. We used linearly interpolated data for number of listings where scrapes were missed in order to derive average number of listings per weekly scrape over a stated period.

Further, data provided here can only be used as a proxy of drug availability on cryptomarkets: we have not translated to any metric that reflects the sale volume of a market or specific drug. See [here](#) for further discussion of caveats to interpretation.

**There are various approaches to collecting, collating, categorising and analysing cryptomarket data, and inherent challenges in these processes. For this reason, we have attempted to be as transparent as possible about our procedures. Our monitoring is an ongoing process, requiring constant refinements to the various stages. We welcome feedback and suggestions so that we can continue to improve utility of these data and our reporting on them ([drugtrends@unsw.edu.au](mailto:drugtrends@unsw.edu.au)).**

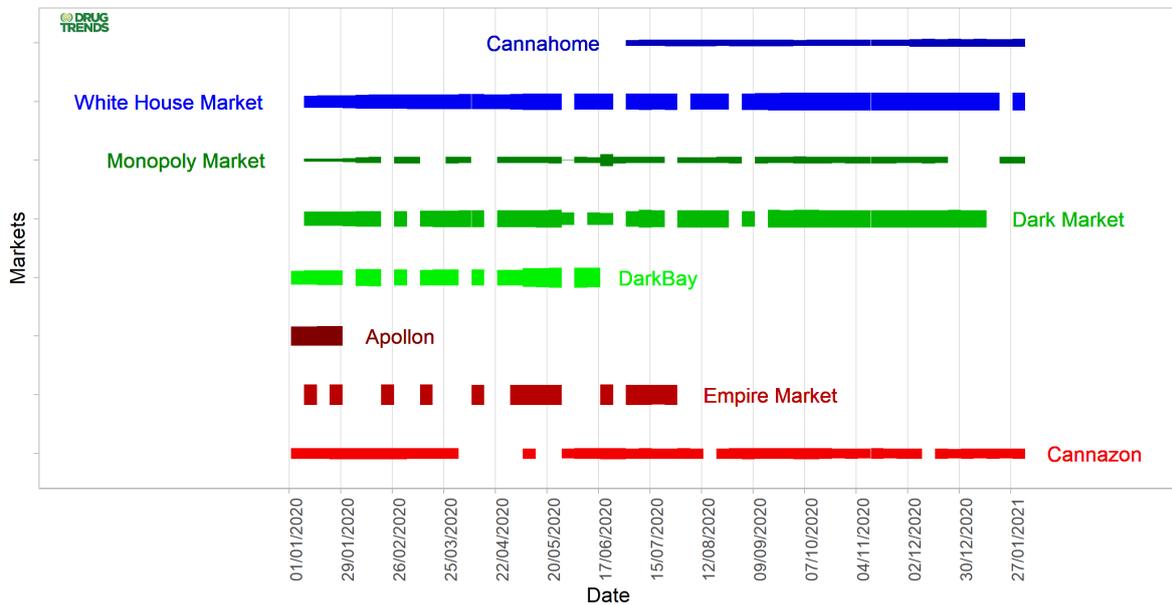
## Findings

### Profile of Markets

The current bulletin reports findings for the time period 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021. In that period, eight cryptomarkets were monitored ([Figure 1](#)). **Table 1** shows the characteristics of these cryptomarkets since the date of our first scrape. During the monitoring period (1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021), other drug cryptomarkets - Versus and Agatha - were reported to exist ([European Monitoring Centre for Drugs and Drug Addiction](#)). We also identified and commenced scraping on additional markets during May 2021, such as Dark0de, Versus, DarkFox, Vice City and ASAP. It appears that these additional markets have been operational since April-July 2020, based on analysis of posts on Dread, a dark web forum where we found mentions of these markets. Our reported findings for the time period 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021 are based only on the cryptomarkets that we have monitored, and do not include these additional markets. **Since our findings do not reflect the total of all cryptomarkets existing in the monitoring period, the analysis and estimates in this bulletin should be treated with caution. These estimates should not be used to infer the number of drug listings across all cryptomarkets.**

**Figure 1. Markets monitored from 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021.**

Source: DrugTrends, NDARC



Note: See our [interactive timeline](#) for a complete historical record of all cryptomarkets monitored since January 2014. Breaks indicate period where market crawling was not achievable. The width of the bar is proportional to the log of the number of drug listings observed in each week for each market.

Of the markets monitored in this bulletin, four markets were closed for the following purported reasons (**Table 1**).

- [Apollon](#) - Due to an exit scam, Apollon ended operations on 23<sup>rd</sup> January 2020 as reported by [darknetstats](#).
- [DarkBay](#) – DarkBay was last seen active on 11<sup>th</sup> June 2020 and closed possibly due to an exit scam as speculated in the cryptomarket reporting sites ([searchlight](#) and [darklink](#)).
- [Empire Market](#) – Empire Market announced its pending closure in mid-July 2020 and was last seen active on 23<sup>rd</sup> July 2020 by the authors of this report. There were reports of ongoing DDoS attacks on the market as an extortion to make money, which eventually led to market closure while the site administrators exit scammed the users with an estimated \$13 million in bitcoins ([bankinfosecurity](#) and [cointelegraph](#)).
- [Dark Market](#) – Dark Market was seized by German law enforcement, in collaboration with law enforcement agencies in Australia, Denmark, Moldova, Ukraine, the UK and US. The site’s servers were turned off on 11<sup>th</sup> January 2021 and on the following day, an Australian national alleged to be responsible for the site’s operation was arrested near the German-Danish border ([The Guardian](#)).

Of the above four markets, Dark Market was the only one to have closed after the reporting period (September 2019–September 2020) of the [last Bulletin](#), with the other three markets closing prior to September 2020.

**Table 1. Characteristics of markets in this bulletin (in ascending order by end date and start date of monitoring) since the start of their monitoring**

Market	Status (reason <sup>a</sup> )	Period of monitoring			Number of listings in a scrape	
		Start date	End date	Duration in weeks <sup>b</sup>	Maximum	Average <sup>c</sup>
Apollon	<a href="#">Closed</a> (exit scam)	26 <sup>th</sup> Sep 2019	23 <sup>rd</sup> Jan 2020	18	24,775	13,866
DarkBay	<a href="#">Closed</a> (possible exit scam)	2 <sup>nd</sup> Jan 2020	11 <sup>th</sup> Jun 2020	24	27,008	11,967
Empire Market	<a href="#">Closed</a> (DDoS/exit scam)	18 <sup>th</sup> Apr 2019	23 <sup>rd</sup> Jul 2020	67	31,620	27,444
Dark Market	<a href="#">Closed</a> (law enforcement)	9 <sup>th</sup> Jan 2020	7 <sup>th</sup> Jan 2021	53	13,363	9,781
Cannazon	Open <sup>d</sup>	26 <sup>th</sup> Apr 2018	Ongoing <sup>d</sup>	146*	1,822	991
Monopoly Market	Open <sup>d</sup>	9 <sup>th</sup> Jan 2020	Ongoing <sup>d</sup>	57*	2,362	398
White House Market	Open <sup>d</sup>	9 <sup>th</sup> Jan 2020	Ongoing <sup>d</sup>	57*	15,085	9,664
Cannahome	Open <sup>d</sup>	2 <sup>nd</sup> Jul 2020	Ongoing <sup>d</sup>	32*	627	452

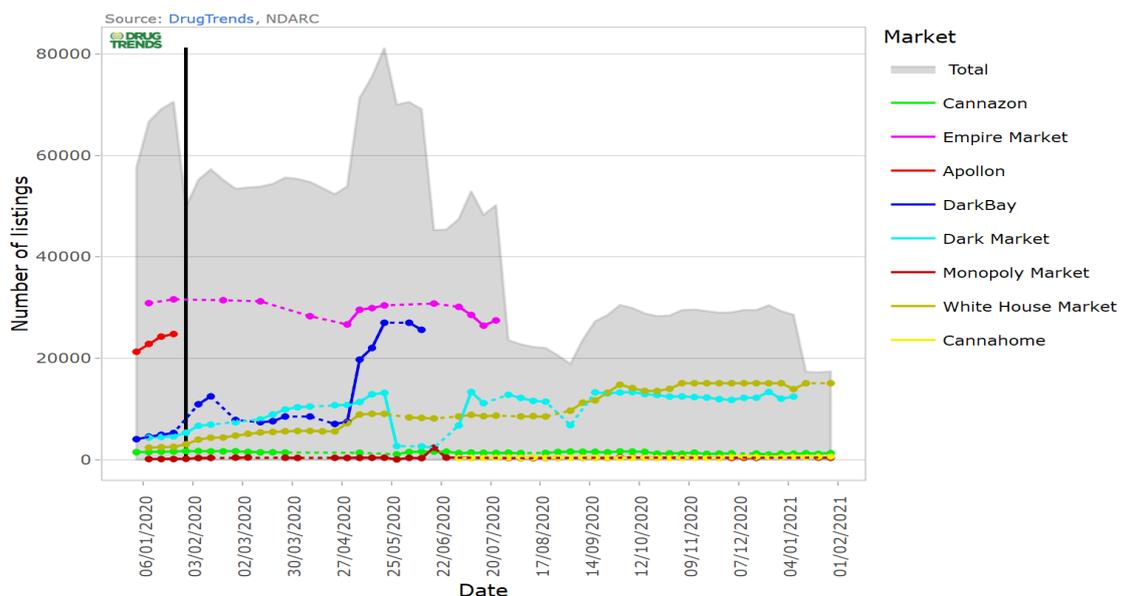
<sup>a</sup> Most probable reason for closure is given in brackets. <sup>b</sup> Duration of monitoring is the number of weeks between the start and end date of scraping, including those weeks where data could not be scraped from the cryptomarket. Where the cryptomarket was still active as of 31<sup>st</sup> January 2021 (indicated by \*), the duration is computed as the number of weeks between the start date and 31<sup>st</sup> January 2021. <sup>c</sup> Average number of listings per weekly scrape is computed as total number of drug listings per weekly scrape (including interpolated data) in the period divided by duration of the market monitoring in weeks given in the table. See [here](#) for information on how interpolated data were computed. <sup>d</sup> The cryptomarket was active as of 31<sup>st</sup> January 2021.

### Active cryptomarkets

Out of the eight cryptomarkets monitored during this period (1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021), four remained active at the end of the monitoring period: Cannazon, Monopoly Market, White House Market and Cannahome (**Table 1**).

From **Table 1**, we can observe that the market with the longest duration of monitoring was Cannazon (total duration: 146 weeks, commencing in the last week of April 2018). Cannazon is a cannabis-specific cryptomarket, with the number of drug listings per scrape ranging between 1,020 and 1,720 within the current reporting period (**Figure 2**). Cannahome is another cannabis-specific cryptomarket (**Figure 5**) which has been scraped since 2<sup>nd</sup> July 2020, with the number of drug listings per scrape ranging between 330 and 630. White House Market is the largest market that was still active at the end of the monitoring period. It accounted for 87% of drug listings across all cryptomarkets scraped in the last week of the monitoring period. Monopoly Market is the other market that was active at the end of the period; scraping of this cryptomarket started at a similar time to White House Market and Dark Market, with the number of listings per scrape ranging between 60 and 2,370 within the current reporting period. As noted previously, there were other cryptomarkets which were likely to have been active at the end of the monitoring period on 31<sup>st</sup> January 2021, but which were not scraped until May 2021.

**Figure 2. Number of drug listings by marketplace from 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021.**



Note: Complete interactive visualisation available [here](#). Shaded area displays the total number of drug listing across all markets monitored at a given time. Caveats to this metric are outlined in the [methods](#). Dashed lines indicate interpolated data over periods where a market could not be monitored. Note that the commencement and discontinuation of the coloured lines indicates the opening and closure of the named market. The black vertical line indicates the date when the World Health Organization declared COVID-19 a [Public Health Emergency of International Concern](#).

### **Overall number of listings in the monitoring period from January 2020 to January 2021**

The largest cryptomarkets scraped during the monitoring period (1<sup>st</sup> January 2020-31<sup>st</sup> January 2021) were (**Table 2**):

- Empire Market with an average of 29,973 listings per scrape over 30 weeks;
- Apollon with an average of 23,290 listings per scrape over 4 weeks;
- DarkBay with an average of 11,967 listings per scrape over 24 weeks;
- Dark Market with an average of 9,781 listings per scrape over 53 weeks; and,
- White House Market with an average of 9,588 listings per scrape over 56 weeks.

The three markets with the greatest average number of listings - Empire Market, Apollon and DarkBay - ceased operation before the end of the reporting period (September 2019 – September 2020) for the [last Bulletin](#). Dark Market was the largest of the monitored cryptomarkets in terms of the number of listings for a brief period in August 2020 after the closure of Empire Market ([Figure 2](#)). From 24<sup>th</sup> September 2020, White House Market overtook Dark Market in number of listings and continued to have more listings than Dark Market up to 7<sup>th</sup> January 2021, when the last scrape of Dark Market was conducted.

It is also important to note that these estimates include interpolated data as per the [methodology](#).

During the monitoring period of 57 weeks (from January 2020 to January 2021), the average number of drug listings per weekly scrape across all monitored cryptomarkets was 43,009 (**Table 2**). Given we have not exhaustively identified cryptomarkets, the total number of listings in the final row of **Table 2** should be considered an underestimate and particularly so in the more recent months.

**Table 2. Number of drug listings on the markets monitored from 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021 (in descending order by average number of listings in the 13-month monitoring period)**

Market	Average number of listings per weekly scrape <sup>a</sup> (number of weeks monitored <sup>b</sup> )				Relative % change in market size <sup>c</sup>	
	Jan 2020 - Jan 2021 <sup>d</sup>	Jan 2021	Dec 2020	Jan 2020	Dec 2020 to Jan 2021 <sup>c</sup>	Jan 2020 to Jan 2021 <sup>d</sup>
<b>Empire Market</b>	29,973 (30)	– <sup>e</sup>	– <sup>e</sup>	31,222 (5)	– <sup>e</sup>	– <sup>e</sup>
<b>Apollon</b>	23,290 (4)	– <sup>e</sup>	– <sup>e</sup>	23,290 (4)	– <sup>e</sup>	– <sup>e</sup>
<b>DarkBay</b>	11,967 (24)	– <sup>e</sup>	– <sup>e</sup>	5,380 (5)	– <sup>e</sup>	– <sup>e</sup>
<b>Dark Market</b>	9,781 (53)	12,441 (1) <sup>e</sup>	12,324 (5)	4,694 (4)	0.9 <sup>e</sup>	165 <sup>e</sup>
<b>White House Market</b>	9,588 (56)	14,796 (4)	15,085 (5)	2,620 (4)	-1.9	465
<b>Cannazon</b>	1,413 (57)	1,232 (4)	1,193 (5)	1,580 (5)	3.3	-22
<b>Cannahome</b>	448 (31)	601 (4)	587 (5)	– <sup>f</sup>	2.4	– <sup>f</sup>
<b>Monopoly Market</b>	398 (56)	407 (4)	391 (5)	147 (4)	4.0	176
<b>Total</b>	43,009 (57)	20,146 (4)	29,581 (5)	62,782 (5)	-32	-68

<sup>a</sup> Average listing is computed as total number of listings (including interpolated data) in the period divided by the number of weeks when the market was monitored (shown in brackets) in the stated period. Data for weeks with missed scrapes is interpolated if we can scrape data from the cryptomarket at a later date. See [here](#) for information on how interpolated data were computed. <sup>b</sup> A market is monitored from the date we had started scraping it until the last scrape before it closed or before the end of the monitoring period, whichever is earlier. Those weeks with missed scrapes were included in the count of the number of weeks monitored. <sup>c</sup> These columns display the relative change in the average number of weekly listings observed in the stated months (e.g., from January in one year to January in the next year). <sup>d</sup> There were 57 weeks during the period from 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021, and only Cannazon was monitored over the whole of that period. Other markets were not monitored for the whole of the 13-month period because their first scrape started after the first scrape on 2<sup>nd</sup> January 2020 and/or the market closed before the last scrape on 28<sup>th</sup> January 2021 (see Table 1 for start and end dates of monitoring). <sup>e</sup> Empire Market, Apollon and DarkBay had closed before December 2020. Note that Dark Market only had one week of data in January 2021 because it closed on 11<sup>th</sup> January 2021. <sup>f</sup> Cannahome had not yet started in January 2020.

### Comparison to previous month

Overall, there was an average of 20,146 drug listings per weekly scrape summed across all the monitored markets in the final month of monitoring (January 2021; **Table 2**). This equated to a -32.0% change in the average total number of listings (i.e., *'relative change in total market size'*) compared to the previous month of December 2020 (average of 29,581 drug listings per weekly scrape), much of which was due to the closure of Dark Market. Given the omission of some of the cryptomarkets that emerged in 2020 in our weekly scrapes, we may expect a less substantial relative decrease in total market size. Within each market, the relative change in number of listings (i.e., *'relative change in individual market size'*) in the final month of monitoring compared with the previous month varied between 4.0% (Monopoly Market) and -1.9% (White House Market).

### Comparison to same month in the previous year

Relative to the same month in the year prior, January 2021 saw a 68% decrease in average weekly listings as compared to January 2020, with the latter having 62,782 average weekly listings across all monitored cryptomarkets. This large decrease in the number of listings can be attributed to three major cryptomarket closures during this period: Apollon, DarkBay and Empire Market (see **Table 1**). As noted above, we may expect a less substantial relative decrease in total market size if we included the unmonitored cryptomarkets that emerged in 2020.

White House Market and Dark Market were the two largest cryptomarkets of note that were monitored in the last month of the reporting period, both of which had been scraped from 9<sup>th</sup> January 2020. White House Market showed steady growth with minimal downtime. It increased by 465% from an average of 2,620 drug listings in January 2020 to an average of 14,796 drug listings in January 2021 (**Figure 2** and **Table 2**). Dark Market grew by 165% from an average of 4,694 drug listings in January 2020 to 12,441 listings in the last scrape on 7<sup>th</sup> January 2021 before being seized by law enforcement (**Figure 2** and **Table 2**).

### Substance Availability

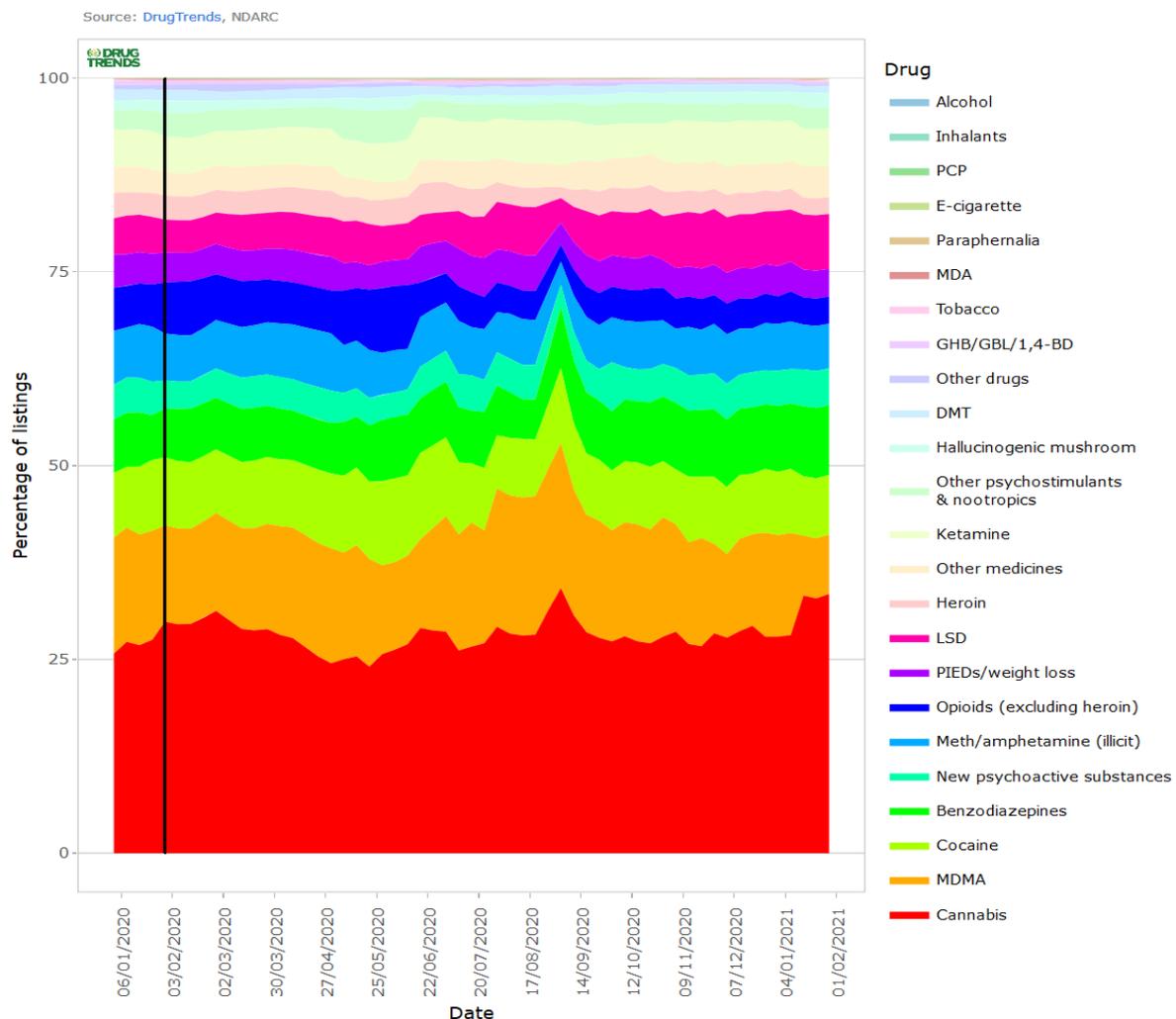
Market listings captured through cryptomarket monitoring have been categorised into drug classes according to this [methodology](#).

Cannabis comprised the bulk of the listings identified across all markets over the total period of monitoring (28%), followed by MDMA (14%), cocaine (8.9%), benzodiazepines (7.2%), meth/amphetamine (illicit) (6.2%), and opioids (excluding heroin) (5.4%) (see **Table 3** and **Figure 3**). New psychoactive substances comprised

4.1% of listings, although challenges in their categorisation must be noted (see [methods](#) for further detail).

The percentage of drug listings across all markets disaggregated by drug (i.e., the ‘market share’ for each drug) is relatively stable over time with <5% change in market share for each drug across all markets when comparing the percentage of all listings observed in January 2021 versus January 2020 and December 2020 ([Figure 3](#) and [Table 3](#)). Please refer to our methodology document for an explanation of the measures of change described in this section. The ranking for market share of listings by drug class has largely been consistent in the last couple of years.

**Figure 3. Percentage breakdown of listings by drug class over time from 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021.**



Note: Complete interactive visualisation available [here](#). Missing data are interpolated in this figure. See [here](#) for information on how interpolated data were computed. The black vertical line indicates the date when the World Health Organization declared COVID-19 a [Public Health Emergency of International Concern](#).

**Table 3. Breakdown of total listings by drug class from 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021 (in descending order by market share in the 13-month monitoring period)**

Drug	Market share <sup>a</sup> (% of listings)		Difference in market share % <sup>b</sup>		Market size <sup>c</sup> (average listings per scrape) Jan 2021	Relative % change in market size <sup>d</sup>	
	Jan 2020 - Jan 2021	Jan 2021	Dec 2020 to Jan 2021	Jan 2020 to Jan 2021		Dec 2020 to Jan 2021	Jan 2020 to Jan 2021
<b>Cannabis</b>	28	31	3.1	4	6,326	-25	-63
<b>MDMA</b>	14	9.6	-2.6	-4.5	1,942	-46	-78
<b>Cocaine</b>	8.9	7.9	-0.3	-0.7	1,594	-34	-70
<b>Benzodiazepines</b>	7.2	8.8	0.3	2.2	1,777	-30	-57
<b>Meth/amphetamine (illicit)</b>	6.2	5.9	-0.1	-0.8	1,189	-33	-72
<b>Opioids (excluding heroin)</b>	5.4	3.7	-0.2	-1.9	736	-35	-79
<b>LSD</b>	5.1	7	-- <sup>g</sup>	2.3	1,405	-32	-53
<b>Ketamine</b>	4.9	5	-0.6	0.1	1,000	-39	-67
<b>New psychoactive substances</b>	4.1	4.7	0.2	0.3	938	-30	-65
<b>PIEDs<sup>e</sup>/weight loss</b>	3.9	3.7	-0.2	-0.4	738	-36	-71
<b>Heroin</b>	3.1	2.4	-0.4	-0.7	476	-41	-75
<b>Other medicines</b>	3.1	3.9	0.3	0.7	788	-26	-61
<b>Other psychostimulants &amp; nootropics</b>	2.8	2.5	0.3	-0.1	507	-24	-69
<b>Hallucinogenic mushroom</b>	1.3	1.8	0.2	0.4	353	-23	-58
<b>DMT</b>	1.2	0.9	-- <sup>g</sup>	-0.4	188	-33	-78
<b>Total<sup>f</sup></b>	<b>100</b>	<b>100</b>	<b>-</b>	<b>-</b>	<b>20,146</b>	<b>-32</b>	<b>-68</b>

Note: All estimates in table have been computed using interpolated data. See [here](#) for information on how interpolated data were computed. Each column is colour coded to highlight the highest numbers in green, the average numbers in yellow and lowest numbers in purple, following the colour scale range. <sup>a</sup> This column displays the percentage of total listings across all marketplaces observed in the stated period. <sup>b</sup> These columns display the change in percentage of total listings attributed to each drug across all marketplaces in the stated months (e.g., from January in one year to January in the next year). <sup>c</sup> This column displays the average number of weekly listings observed across all marketplaces in the month of January 2021. <sup>d</sup> These columns display the relative change in the average number of weekly listings observed in the stated months (e.g., from January in one year to January in the next year). <sup>e</sup> PIEDs: performance and image enhancing drugs. <sup>f</sup> The total row includes all drug listings presented in our Bulletin including those not shown in this table. Alcohol, Inhalants, PCP, E-cigarette, MDA, Tobacco, GHB, other drugs and Paraphernalia are not shown in this table due to small values. Each of their percentage contribution over the monitoring period was ≤0.5%. <sup>g</sup> Percent values <0.05 were suppressed.

### ***Comparison to previous month: Drug market share***

Among the monitored cryptomarkets, the largest changes observed in January 2021 compared to December 2020 were a 3.1% increase in market share for cannabis, and a 2.6% decrease in market share for MDMA (**Table 3** and **Figure 3**).

### ***Comparison to same month in the previous year: Drug market share***

Among the monitored cryptomarkets, cannabis had the biggest increase (4.0%) in market share in January 2021 (31%) versus January 2020 (27%). However, it is important to consider that two of the markets across the monitoring period were cannabis-predominant (see **Figure 5**). The additional markets identified in May 2021 are likely to change these findings, were they observed during the monitoring period of interest. The biggest decrease observed was for MDMA, with a 4.5% decline in January 2021 (9.6%) versus January 2020 (14%). This is a reversal compared with the **last Bulletin** (September 2019 – September 2020), where MDMA saw the biggest increase (4.7%) in market share in September 2020 compared with September 2019, and cannabis had the biggest decrease (-4.2%) (**Table 3** and **Figure 3**).

### ***Comparison to previous month: Drug market size***

Compared with the 32% relative decrease in total number of listings across all monitored markets in January 2021 versus December 2020, the drugs below had a larger decrease in average weekly listings (**Table 3** and **Figure 4**):

- MDMA (46% decrease to 1,942 listings);
- Heroin (41% decrease to 476 listings);
- Ketamine (39% decrease to 1,000 listings);
- PIEDs/weight loss (36% decrease to 738 listings);
- Opioids (excluding heroin) (35% decrease to 736 listings); and
- Cocaine (34% decrease to 1,594 listings).

It is also important to note that these figures include interpolated data as per the **methodology**.

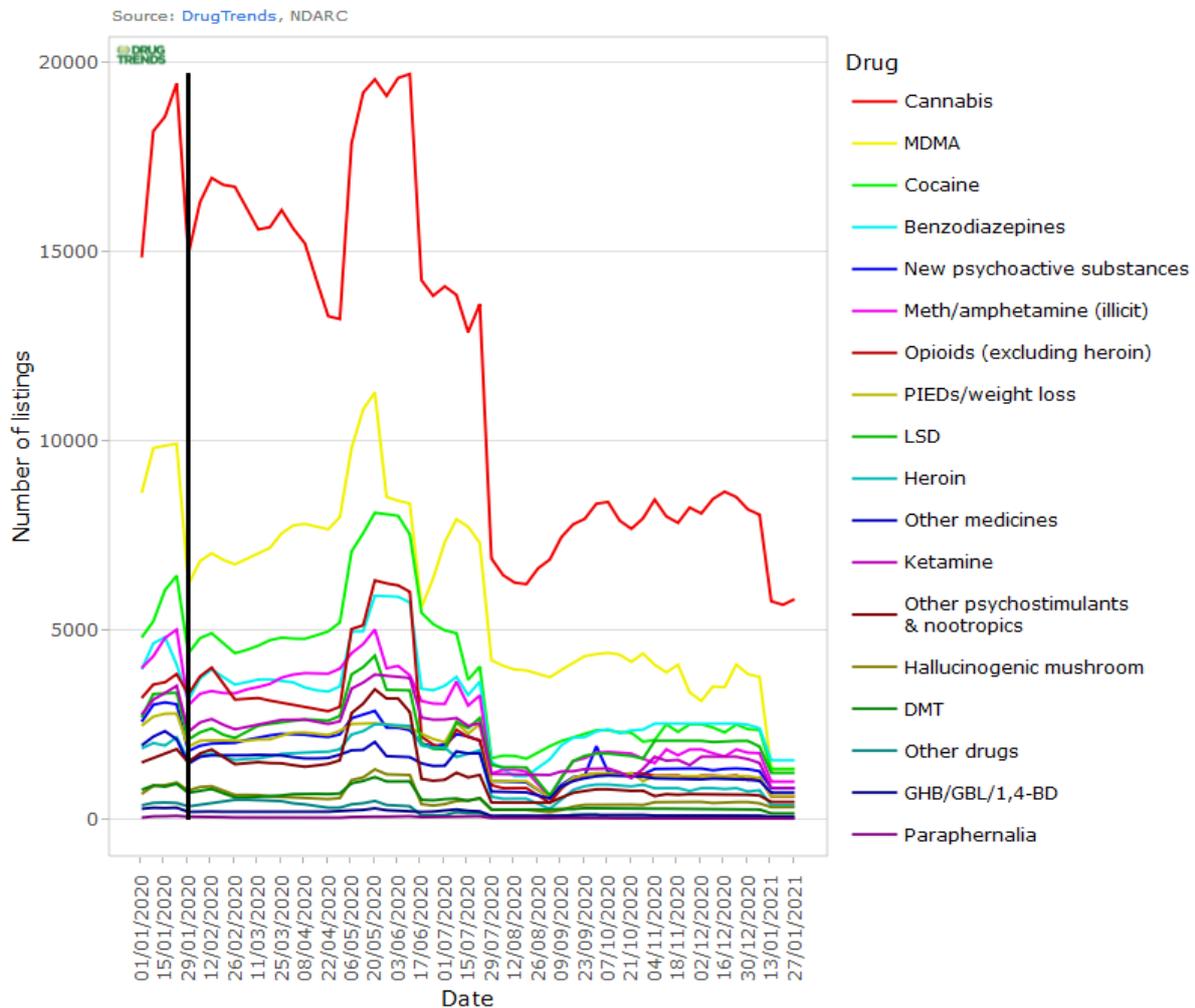
### ***Comparison to same month in the previous year: Drug market size***

In terms of change in the absolute number of listings per drug across all monitored markets in the month of January 2021 as compared to January 2020, all drug categories saw a decrease. It should be noted that there was an overall 68% decrease in number of drug listings for January 2021 versus January 2020 (**Table 3**; **Figure 4**).

The drug classes with the largest decreases observed in this time period were:

- Opioids (excluding heroin) (79% decrease to 736 listings);
- MDMA (78% decrease to 1,942 listings);
- DMT (78% decrease to 188 listings); and
- Heroin (75% decrease to 476 listings).

**Figure 4.** Number of listing disaggregated by drug for all markets from 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021.

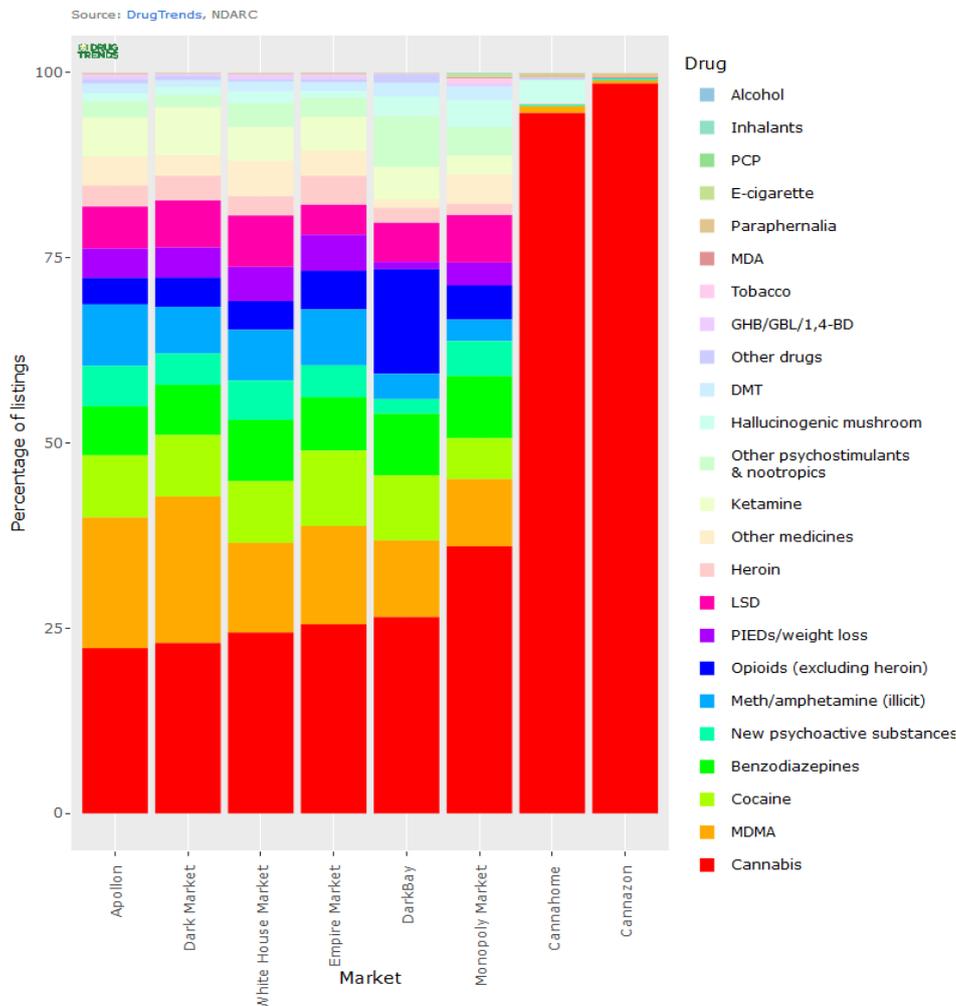


Note: Missing data are interpolated in this figure. See [here](#) for information on how interpolated data were computed. Alcohol, e-cigarettes, inhalants, MDA, tobacco and PCP have not been included in the figure. These drug classes had fewer total number of listings in the 13-month monitoring period than paraphernalia. To view these data see our [interactive visualisation](#). The black vertical line indicates the date when the World Health Organization declared COVID-19 a [Public Health Emergency of International Concern](#).

### Composition of markets by drug type in the monitoring period from January 2020 to January 2021

**Figure 5** shows the breakdown of listings by drug type per market during the 13-month monitoring period. The analysis shows that most markets monitored listed an array of different drugs, although listings for two markets (Cannahome and Cannazon) comprised >90% cannabis. There was some variability in the market share attributed to each drug across markets. In particular, DarkBay had a greater proportion of its listings as opioids (excluding heroin; 14% compared with the overall of 5.4% from **Table 3**) and other psychostimulants and nootropics (6.7% versus the overall of 2.8% from **Table 3**) during the monitoring period from January 2020 to January 2021.

**Figure 5. Drug composition of markets monitored from 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021.**



Note: See Figure 1 and our [interactive timeline](#) for the duration of monitoring each market. This figure displays drug class percentage of all listings observed from 1<sup>st</sup> January 2020 to 31<sup>st</sup> January 2021) for each marketplace monitored. Missing data are interpolated in this figure. See [here](#) for information on how interpolated data were computed. Cannahome and Cannazon are cannabis-specific cryptomarkets.

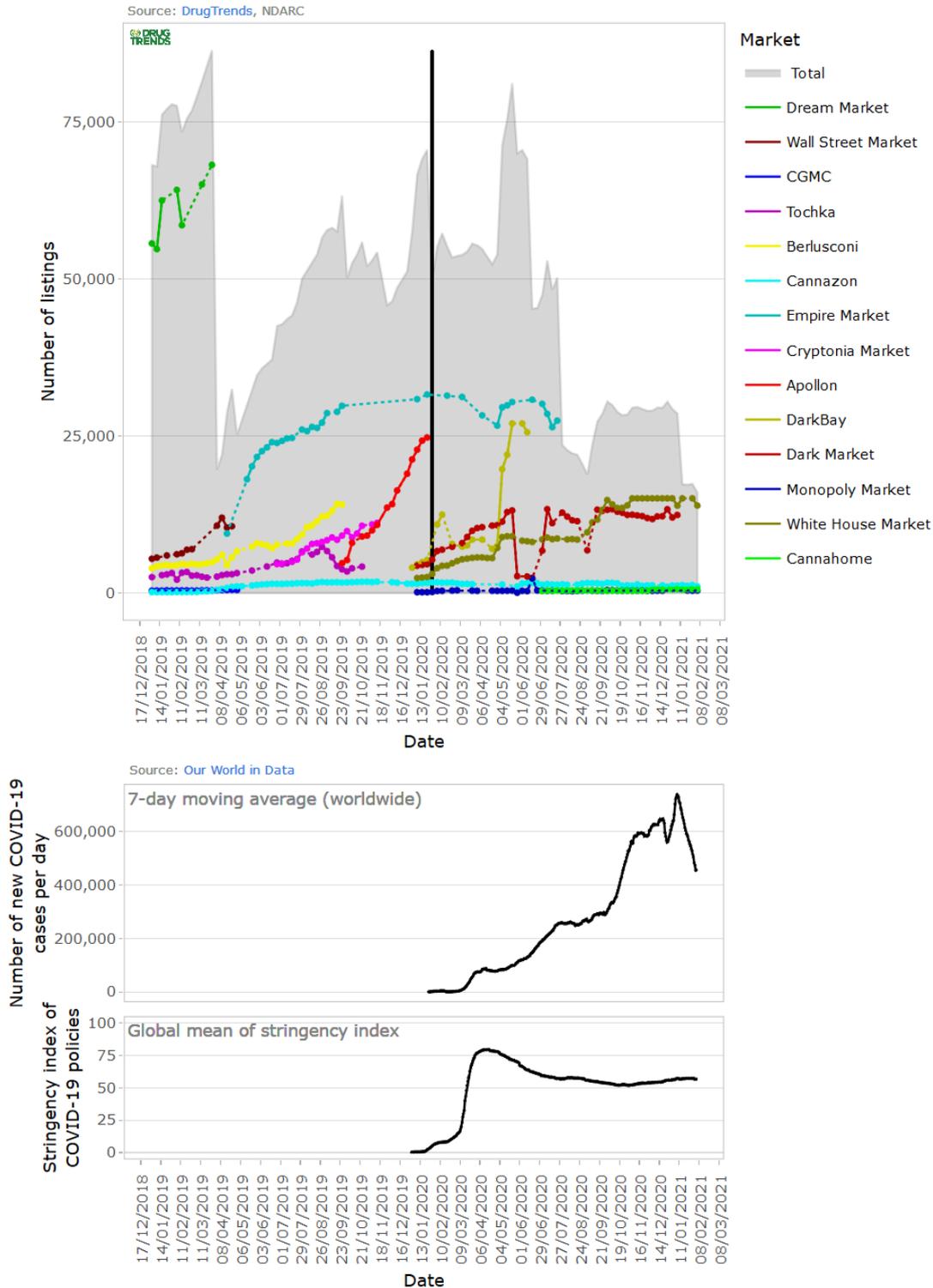
## Impacts of COVID-19 and Associated Restrictions on Cryptomarkets

**Figure 6** shows the time series for number of drug listings mapped against a key indicator of the COVID-19 pandemic; namely, the [number of new cases globally](#) since the start of monitoring on 31<sup>st</sup> December 2019. The global mean of a measure or index for stringency of COVID-19 policy derived by [Hale et al. \(2020\)](#) is also shown in the figure.

The figure suggests an initially stable trend in the average number of drug listings observed in the early months of the COVID-19 pandemic between February–April 2020 as the number of new COVID-19 cases increased and COVID-19 related policies were introduced or tightened globally. As evident from the stringency index, COVID-19 related policies appeared to have gradually relaxed from around April 2020 onwards until the end of the monitoring period on 31<sup>st</sup> January 2021. However, the global mean of this index is not indicative of the changes in policy in a particular country or region.

The monitored drug listing trends have been dependent on the volatile nature of cryptomarket activity, even before the pandemic (**Figure 6**). During the year 2020, three of our biggest monitored markets closed (i.e., Apollo, Empire Market and DarkBay – see **Table 1**). The total number of listings across markets can decrease sharply with the closure of major cryptomarkets (e.g., closure of Dream Market in March 2019) but it often increases again with new cryptomarkets that emerge and grow in the aftermath of the collapse of these markets. As such, the current evidence is inconclusive on whether the COVID-19 pandemic (measured by number of new cases and/or stringency of government policies) had an impact on the observed drug listings. However, there are important nuances to explore beyond crude count of number of vendors and number of listings. Whilst not an exhaustive list of other research studying shifts in cryptomarket drug activity since the COVID-19 pandemic, the interested reader could consider work by the [European Monitoring Centre for Drugs and Drug Addiction \(EMCDDA\)](#) which showed increased trade across three marketplaces in February and March 2020. [Other research](#) has shown showing an increase in unsuccessful transactions on cryptomarkets in April 2020. Ongoing monitoring will be important to further elucidate changes in drug cryptomarkets alongside the evolution of the COVID-19 pandemic.

**Figure 6.** Total number of drug listings by marketplace from 1<sup>st</sup> January 2019 to 31<sup>st</sup> January 2021 and number of new COVID-19 cases per day (worldwide).



Note: Data on new COVID-19 cases and policies are taken from [Our World in Data](#). While the monitoring for the number of new COVID-19 cases started on 31<sup>st</sup> December 2019 in the data for our earlier bulletins, the revised number of new cases started from 22<sup>nd</sup> January 2020 in the data for this bulletin. As we have plotted the 7-day moving average, the first data point is on 25<sup>th</sup> January 2020 which shows the mean number of cases per day from 22<sup>nd</sup> January 2020 to 28<sup>th</sup> January 2020.

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## Related Links:

- Data visualisations: <https://drugtrends.shinyapps.io/cryptomarkets>
- Methods document: <https://ndarc.med.unsw.edu.au/resource/methods-trends-cryptomarket-drug-listings>
- For more research from the Drug Trends program go to: <https://ndarc.med.unsw.edu.au/program/drug-trends>

## Contact us

Email: [drugtrends@unsw.edu.au](mailto:drugtrends@unsw.edu.au)