SCANNER

UNDERSTANDING THE DYNAMICS & CONSEQUENCES OF NPS USE IN RAPIDLY CHANGING DRUG MARKETS

GENERAL REPORT OF SCANNER

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This project was funded by the European Union's Justice Programme – Drugs Policy Initiatives

sciensano

Project in cooperation with:

Sciensano	Belgium
Energy Control	Spain
VAD	Belgium
Medizinische universitaet wien	Austria
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YODA	Poland
Basis – Berating, arbeit, jugend & kultur e.v.	Germany
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General report Scanner

Work package 1

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1. Introductory note

This report gives an overview of the results and the importance of the European Project Scanner. The project had as main focus understanding the dynamics and consequences of new psychoactive substances in rapidly online changing market. The general project report includes a final presentation of all achieved outcomes and deliverables. It consists of:

- ✓ The scope of the project
  - Main issues addressed by the project
  - What the project looked into
- ✓ Summary of all results
  - Scanner applied to emcdda's annual drug report 2021 (emphasizing the importance of projects like Scanner)
  - Summary of the SCANNER project results
  - Lessons learned

2. Acknowledgements

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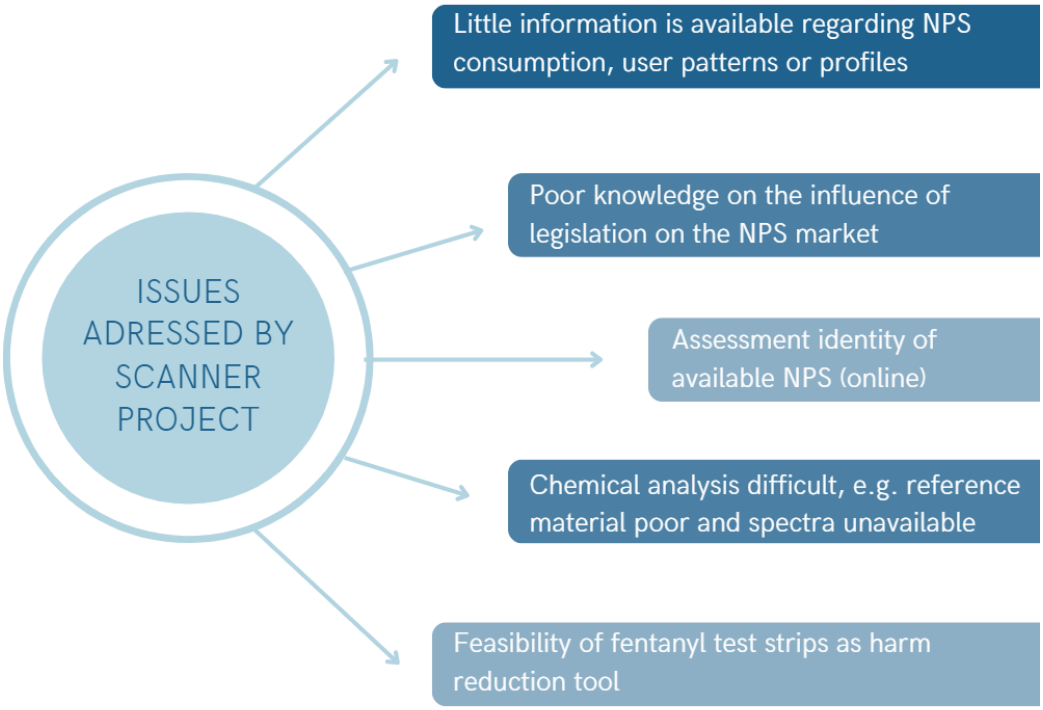
3. Scope of the SCANNER project

3.1. MAIN ISSUES ADDRESSED BY THE SCANNER PROJECT



3.2. WHAT THE PROJECT LOOKED INTO

1. Identification of NPS offered for sale using continuous web monitoring, both before and after a change in legislation, with the goal to yield valuable information on the effect of legislation on identity and price of NPS available online and establish the real impact of legislative change. To what extent the identity of NPS available online match the presumed identity as advertised by the vendor, by purchasing and subsequently analysing NPS using analytical chemistry.

2. Reference analysis methods, recommendations for improvement or implementation of drug checking services and possible alternative methods are developed and set up. This based on the output of ring-and proficiency testing, where analysis reference material for NPS is shared amongst the participants.

3. The project harmonises drug checking operating procedures throughout Europe and improves general analysis result quality. Based on the experience of the joint drug checking intervention proposed, a set of guidelines will be prepared regarding the most relevant and feasible analytic techniques.

4. Obtained NPS data are shared with the EU EMCDDA REITOX network using the recently developed long-term online platform European Database on New Drugs (EDND2), thereby enhancing the EMCDDA Early Warning System and improving the NPS monitor system.

5. NPS not only present a problem in recreational drugs. The last years dozens of opioids have appeared on the NPS market, with most substances being fentanyl derivatives. Some of these substances have potencies several thousand times that of morphine, and they have caused countless overdose deaths worldwide. In Europe it is less clear to what extent fentanyl is present in the traditional heroin chain. Collecting and subsequently analysing street heroin samples obtained directly from users distributed across the entire European Union will provide a picture of the potential fentanyl hotspots within Europe. The development and validation of a cheap fentanyl test kit has the potential to save many lives, even long after the end of this project. By collecting and analysing heroin samples obtained from users across the EU we will establish to what extent the fentanyl problem has penetrated the European heroin market. Investigating the feasibility of cheap fentanyl test kits in a harm reduction context can help users avoid harm or even death.

6. Prevalence data on NPS were gathered via 25 civil society organisations in 19 countries in Europe. The civil society organisations involved in the project were supported to improve their data collection by developing and implementing a standardized survey methodology for monitoring NPS use.
   Involving existing EU-wide civil society networks in this project raised awareness in these organisations about the importance of building the necessary skills and capacity not only for reliable data collection across Europe but also for meeting the challenges posed by the NPS phenomena in their interventions in general.

7. In agreement with the objectives of the EU drug action plan (2017-2020), by making the obtained analytical data available for sharing with EU institutions such as the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) using their recently developed EDND2 database, this project provides valuable information to further enhance the working of the European REITOX network and the EMCDDA Early Warning System, and improve the monitoring of the NPS phenomenon in Europe.

4. Summary and lessons learned

4.1. SCANNER APPLIED TO EMCDDA'S ANNUAL DRUG REPORT 2021

In the European Drug Report 2021 the EMCDDA highlights 9 important statements that we applied to with the SCANNER project.

1. "Response to drugs should be evidence-based"

- Drug checking services combine chemical analysis of samples with direct engagement with people who use drugs (PWUD), which has proven to be a well-working harm reduction strategy

- The standardisation of epidemiologic research on NPS amongst civil society organisations, to give the ability of dealing with NPS phenomena on a European level and not only at national level.

2. "A foresight and horizon-scanning exercise to increase our awareness of how the evolution of the drug situation may impact on our work".
- Involving civil society organizations (CSO's), such as NEWNet, YODA and FESAT, is a strategy to raise awareness in these organisations about the importance of building the necessary skills and capacity for, and not limited to, the collection of reliable data. The willingness to collaborate within Scanner and the outcome of the surveys proves that involvement of CSO's is of added value and generates valuable information on NPS on the level of PWUD.

3. "Drug market and patterns of drug use are becoming ever more dynamic, complex and globally connected".
- The project Scanner has questioned if the presumed identity as advertised by the vendor always matches the real identity of NPS. As, during the proficiency testing, three out of twenty samples had a different identity then marketed by the vendor, we can state this is a reoccurring problem. In sign of this, the project recommends repetition of proficiency testing and purchasing and subsequently analysing of NPS sold online.

4. "There is a need for more timely reporting, and to consider if both the data sources we use and the targets we select for our analysis are sufficient to meet both current and future policy development needs".
- The project Scanner has proven that different tools are needed to assess the presence of NPS. The project does not limit its research to providing up to date information on NPS, however highlights the importance of harm reduction initiatives, such as drug checking, PINS peer projects in nightlife settings, YODA low threshold settings and FESAT drug helplines.

5. "Patterns of use are becoming more complex, with people who use drugs being presented with a greater selection of substances".
- In the CSO standardised data collection on NPS our 3.999 respondents reported having used in total 70 different NPS. The categories of the stimulants and the psychedelics were most popular representing 48 of the 70 NPS used. Cathinone type stimulants are very present in our sample, as well as the more popular psychedelics such as 2C-B and related compounds from the 2C family, the LSD analogs. Less prevalent but worth mentioning are some dissociatives (eg. 2-FDCK), some synthetic cannabinoids and the new benzo's such as Etizolam and Flualprazolam

6. "We are seeing, partly because of developments outside of the European Union, more forms of cannabis appearing and new ways of consuming them emerging".

- The project can confirm the large share of synthetic cannabinoids, as 24% of the samples belonged to this category of NPS. Next to that, the project has detected a synthetic cannabinoid, namely MDMB-4-en-PINACA adulterated with 4F-MDMB-BINACA, another synthetic cannabinoid.
- From the CSO data it became clear that synthetic cannabinoids are mostly reported in Eastern countries and were specifically present in data from the drug helplines from Bulgaria and Hungary.

7. "Social distancing measures may have affected retail drug dealing, but this appears to have led to a greater adoption of new technologies to facilitate drug distribution, possibly accelerating the trend we have seen in recent years, where the market is becoming increasingly digitally enabled".

- To explain the rather high numbers of NPS use in the CSO study population (36% last year // 22% last month) we believe that the Covid-19 pandemic might have had impact. In times of lockdowns people were not able to buy classic drugs on the street, in nightlife settings or from their usual dealer. However it was more than ever easy to buy drugs online (clear web or deep web). This might also explain the use of psychedelics in a safe comfortable place at home as a way to escape and explore the mind freely at times when the freedom of EU citizens was limited.

8. "In the future we should work more dynamically and interactively with our stakeholders to ensure that our policies…"

- The project fully supports this statement, as the project has shared NPS data with the EU EMCDDA REITOX network using the recently developed long-term online platform European Database on New Drugs (EDND2). In this way, the project contributes to enhance the EMCDDA EWS and improving the NPS monitoring system.
- We strongly believe that CSO's are a still undervalued source of stakeholders for the EMCDDA that showed that they are able to collect relevant data, are able to provide interesting data on drug checking, etc.

9. "The events of the past year also highlight a growing need to respond rapidly, and this requires us to increase our capacity for the early identification of threats emerging from an increasingly dynamic and adaptive drug market".

- Scanner highlights different initiatives toward early identification and better understanding of the NPS markets, such as drug checking services and reliable data collection on NPS use within different civil society organizations.
- Drug checking services generate real-time information on NPS, as substances directly derived from people who use drugs (PWUD) are analysed within hours to days of submission.

4.2. SUMMARY OF THE SCANNER PROJECT RESULTS

4.2.1. HIGHLIGHTS from web scraping

- ‘New’ or ‘novel’ psychoactive substances (NPS) are newly synthesised or available drugs designed to mimic the effects of substances already controlled by UN conventions and legislation in member states. The rapid growth of NPS sales would not have been possible without internet-facilitated buying and selling.
- When the substances that NPS are designed to mimic have clear global consumer demand, NPS production can be highly profitable. And – because production and supply of NPS is often not illegal – the risks of production are comparatively low, leading to lower costs in turn for wholesale and retail supply, and to lower price to the people who use them.
- NPS create a problem for governments because their very existence is a direct challenge to criminalising drug laws. Governments have responded using a range of legislative approaches, including bans of individually named substances, bans of generic classes of substances, or blanket bans covering all or most psychoactive substances not already controlled.
- An important question to ask is whether, after the implementation of prohibitive drug laws, the ‘added value’ of an NPS substance having previously been legal will remain, resulting in it gaining traction in illegal markets.
- We set out to answer this question with respect to generic-type legislative changes in Belgium (26th September 2017) and Poland (17th August 2018). Cryptomarkets provide us with an ideal opportunity to examine whether such a shift took place, given that these online platforms – where users’ activities are to an extent protected by anonymity mechanisms – enable the buying and selling of illegal drugs.
- We used the DATACRYPTO software to collect data from cryptomarkets between September 2016 (12 months before the law was implemented in Belgium) to August 2019 (12 months after the law in Poland), as well as at seven additional time points in between, from 20 cryptomarkets active over these periods.
- Indicators of NPS supply and demand showed that, following implementation of these legislative changes, availability and purchasing of NPS products increased on cryptomarkets from vendors shipping from Belgium and Poland. This effect was most marked for Poland, but for both countries, the increases were not always sustained.
- NPS selling in Belgium and Poland on cryptomarkets was not substantial compared to that found in neighbouring countries like Germany and the Netherlands, where NPS sales were an order of magnitude greater. However, across Europe, NPS selling represented an increasing share of overall drug sales over time, from 1% to 4%.
- We cannot say for certain that the increased metrics for supply and demand where we observed these will have been in response to changes in the law specific to Belgium and Poland. It seems likely that the wider legislative landscape in Europe may have created a context where NPS

products that remained desirable even after the added value of having been legal was removed could gain traction in illicit markets.

- Further research could helpfully supplement the findings reported here. Particularly valuable would be interviews with NPS buyers and sellers across a range of countries to establish their awareness of new legislation, and how they believed that their buying and selling activities may have changed in response.

4.2.2. HIGHLIGHTS from drug checking services

- The identity of NPS sold online does not always match the presumed identity (three out of twenty samples). This emphasizes the advantage of monitoring the online market and subsequently analysing purchased NPS. This could be a valuable tool in detecting unwitting consumption.
- Harmonizing in proficiency testing improves the chemical analysis and helps mapping the most common issues when it comes to analysing NPS, e.g. regular updates of libraries, how to analyse structural isomers and analogues. It's important to have access to different Analytical Laboratory Techniques using GC-MS as a first-choice technique.
- It's important to continuously monitor the NPS trends running stationary drug checking services, collaborating with the Early Warning System and doing research on online Drug Markets. This gives the opportunity to detect unwitting consumption and give up-to-date information to PWUD. This to strengthen awareness and preparedness towards upcoming NPS.
- After doing a proficiency test of the onsite techniques implemented at Boom Festival we concluded that TLC combined with FTIR brings the advantage of knowing how many compounds are present in a sample, which facilitates the analysis of the FTIR spectra. The results from combination of TLC with FTIR allowed a good identification of compounds present in samples, reducing time and resources and adaptable to festival conditions.
- Evaluation of fentanyl test strips, has shown that a vast range of fentanyl analogues, present on the recreational drug market, can be detected. Unfortunately, the tests also have limitations such as:
    - Not giving any indication on concentration levels of detected fentanyl (analogues)
    - High concentrations of non-fentanyl compounds can give false positive results, as well as MDMA and methamphetamine (20mg/mL)
    - The test strips have a low sensitivity for detecting the ultra-potent fentanyl-analogues such as carfentanil
    - No detection possible of the newest highly potent NPS opioids (benzomidazoles), such as metonitazene, butonitazene and etonitazepyne.
- In sign of the limitations of fentanyl test strips mentioned before, it should be noted that PWUD need to be informed correctly and completely on how to interpret test strip and what the shortcomings of tools like FTS are.
- As there is a high willingness to implement fentanyl test strips, further studies should be implemented looking into the response towards a positive result for fentanyl and in what format

the fentanyl test strips could have a place within harm reduction. There is a need to assess how the strips will be used and interpreted in the lived contexts and everyday opioid use.

- Harm reduction tools, such as fentanyl tests strip, don't stand alone and it should be investigated how to integrate self-testing interventions fit inside a broader package of harm reduction intervention and support.

4.2.3. HIGHLIGHTS from NPS monitoring amongst civil society organisations (CSO)

- CSO projects from YODA, NEWNet and FESAT were very interested in collaboration to improve their data collection on NPS. Most of these projects were able to standardise their methods and were able to collect data. Several projects acknowledged that their participation in the SCANNER monitoring strengthened their capacity for data monitoring and reporting.
- YODA and NEWNet outreach projects are able to connect deeply with NPS users. And in return they can provide the people who use NPS with harm reduction information to help them to minimize the risks related with their NPS consumption.
- The life time prevalence use of NPS detected in the NEWNet and YODA respondents is high. Almost half of our study population has ever tried an NPS and more than 1/3th has used NPS during the last year. 22% last month use.
- Organisations that provide drug checking services (DCS) were the projects that were able to collect most data on NPS.
- The group of recreational NPS users we reached reported having used 70 different NPS, mainly stimulants and psychedelics. Surprisingly this group reported to have used no single synthetic opioid and a rather limited number of synthetic cannabinoids.
- Our target group has a clear interest in stimulants and in psychedelics. In Western Europe, the interest for psychedelics is most profound. In Eastern European countries there is a high interest in cathinone type stimulants. In the eastern countries there is more use of synthetic cannabinoids, possibly related with a stricter regime on natural cannabis.
- NPS use is more dominant in the younger age groups and is surprisingly high amongst women. In general we can state that women use NPS equally then men. But for some substances such as 3-MMC and 4-MMC women use more than men.
- Drug helplines have the capacity to register NPS-related questions. However, the amount of queries about NPS is rather limited (2,2%). In some projects, such as Drogstop, Perseas and Trimbos (Drugs Infolijn) we see that NPS are more common in their registrations than in other projects.
- The Trimbos Institute (Drugs Infolijn) in the Netherlands already developed a specific web-based intervention to provide information about the most relevant NPS used in the Netherlands. Simularly De Druglijn for Belgium elaborated a database with information on the 9 monitored NPS in their intranet to support their call takers. These could be examples for other helplines to optimize their support towards people who use NPS and their relatives.

- The majority of questions related with NPS were linked to stimulants, mainly the cathinone type stimulants (CTS) 3-MMC (36%), 4-MMC (17%). The second most registered category of NPS are the synthetic cannabinoids. Although psychedelics such as 2C-B (8%) and 1P-LSD (7%) are popular, they seem to appear less in the registrations of the helplines.
- This could indicate that helplines reach a different target group that get into contact with NPS than the outreach projects do. This makes their data complementary despite being small in proportion.
- During the evaluation meeting the vast majority of projects involved expressed their motivation and will to keep monitoring data on NPS. Thus we will look for opportunities in funding and collaboration to maintain this network of CSO's. Connections with EMCDDA and UNODC were established during Lisbon addictions.
- Limitations: We shouldn't overestimate the degree to which people are aware of which drug they are actually using. Specially relatives from the people who use often are not aware that the substances used are NPS. And even people who use these substances themselves often are not aware that they are NPS. Therefor we can conclude that the results from this report are an underestimation of the real NPS use in participating projects and countries.

4.3. LESSONS LEARNED

4.3.1. Is banning the solution? What is the effect of legislative change?

Influence of legislation

The growth of the NPS phenomena is internet-facilitated and it is not clear to what extent there is an influence of legislation on the availability of NPS. After the change in legislation in Belgium and Poland an increase in availability and purchase of NPS was seen on cryptomarkets. This, next to the fact that legislative changes don't tackle health problems related to drugs and have high social costs, forces drug policy to look into alternative approaches. The collaboration of CSO's and particularly drug checking services has proven to help being well-prepared to meet the future consequences of the NPS phenomena. Policymakers urgently need to recognise that selective prevention and harm reduction strategies implemented by civil society organisations, who gain the trust of people who use drugs are crucial strategies in future drug policies. With selective prevention we prevent PWUD from the misuse and addiction of these substances by empowering and supporting them, instead of criminalising and stigmatising them.

A secondary effect of banning substances is that the composition of the banned substance tense to change. Based on drug checking results we conclude that the average quality of 3-MMC decreased and several impurities were found in samples that were tested. We even saw 3-MMC appearing as an adulterant in classical drugs such as xtc-tablets. This phenomenon appeared just after the ban, while it was almost absent when 3-MMC sales were still legal. Next to that, the project has also detected unwitting consumption, were legal synthetic cannabinoids were adulterated with illegal synthetic

cannabinoids, which can also be attributed to legal change. This emphasizes again the need for continuous monitoring of the market and provision of up-to-date information on NPS.

Related with drug policy it is important to ask the question: is banning NPS the solution? The case of 3-mmc can provide interesting insides in this sense. 3-MMC appeared on the European drug market in 2012 just after 4-MMC was banned. 4-MMC is a synthetic stimulant from the cathinone class that became popular very rapidly around 2010. As soon as it was banned this substance disappeared from the clear web and from head shops, but instead of losing capacity, its sellers moved towards the deep web and the use of 4-MMC until today is highly prevalent. Our findings clearly show that despite a ban on 4-MMC this substance has become one of the leading European synthetic stimulants. Due to the ban on mephedrone, clear web shops stopped selling 4-MMC, but switched to 3-MMC. This way a lot of 4-MMC fans were introduced to this replacement of mephedrone under the name of 3-MMC. The result is that over the years 3-MMC slowly became more and more popular until the prevalence became equal than his big brother 4-MMC. Since 3-MMC got banned in several countries, specifically in the Netherlands in October 2021, we see again a similar pattern occurring. Clearnet webshop stopped selling 3-MMC and replaced it with 3 other stimulants: 2-MMC, 3-MMA and 3-CMC. After only a few months it became clear that users preference for the follow up of 3-MMC is 3-CMC. The vast majority of webshops that were selling 3-MMC in the past found their new cash machine in 3-CMC. The real fans of 3-MMC are purchasing their preferred chemical on deep web sides. Findings from WP2 show us that the deep web is full of listings on 3-MMC and 4-MMC and the number of sellers was growing after 3-MMC got banned in the Netherlands. We conclude that banning popular NPS results in the replacement of these molecules with similar molecules, overall generating a broader and more widespread use of popular NPS. This is what criminologists define as ‘the paradox of repression’. The more repression the more transformation of the substance, it’s characteristics (such as price, appearance, …) and it’s user patterns. Drugs are like energy. It is impossible to destroy them, they will always transform themselves finding a way to their audience.

4.3.2. Collaboration between EU CSO, national and international stakeholders is key

The SCANNER project has proven the following values of combining several initiatives and why collaboration is key, when it comes to new psychoactive substances:

- Repetition of proficiency testing combined with research and purchases on Clear and Deep web markets, will support laboratories in tailoring their analysis, give the ability to continuously monitor the market and remain ever vigilant towards the ever-increasing predominance of NPS.
- The power of CSO’s: These projects shows that data collection on substance use patterns can be improved between CSO. CSO monitoring on NPS deepens the existing information about these new molecules. Data sharing between the national focal points, EMCDDA and CSO could be improved. It should be evaluated and discussed how data can be monitored in a permanent way and how these figures can be shared regularly and rapidly, even permanently.

- CSO’s and particularly DCS are able to give up-to-date information on NPS, directly coming from PWUD. To illustrate we take the example of DCS, were substances directly derived from people who use drugs (PWUD) are analysed within hours to days of submission. This gives the opportunity to detect unwitting consumption, were PWUD are not aware of possible adulteration of their sample.
- Collaboration between different harm reduction organisations, such as CSO’s and DCS, could help defining how to integrate self-testing interventions, such as fentanyl test strips, inside the broader package of harm reduction interventions and support.