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I-Trend Project Overview

Internet tools for research in Europe on new drugs

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Activities

- Monitoring user forums
- Monitoring online shops
- Online survey among NPS users
- Monitoring of substance content
- Top list (prioritisation) and technical folders

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Czech Republic, France, the Netherlands, Poland, United Kingdom

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Introduction

Until now, most of our available knowledge on the NPS (new/novel psychoactive substance) phenomenon originated from traditional information systems on drugs and drug addiction (data on seizures and treatment demands, monitoring in a recreational setting, etc.). Meanwhile, the development of growing Internet supply, especially for NPS, makes it easy for users and substances to evade monitoring by these reporting systems. Therefore, new monitoring methods are required in order to study both supply and demand, to shed more light on the risks and challenges, and to allow stakeholders to better adapt their decision-making processes.

The general purpose of the I-Trend Project was to develop specific tools suited to monitoring trends in the NPS phenomenon, via Internet channels, in addition to existing information systems. The fields taken into consideration were supply (types of shops, dealer strategies, components of the substances sold, etc.), user profiles and purchasing practices, NPS use and information search patterns, points of interest among NPS users on online forums, and health problems reported by users. Identifying the most widely circulated and used substances (confusion with supply or relying on seizures, having proved to be a biased source, is common) took on a rather important role in the project as the first step for other activities, but also as an independent objective. Information on these specific substances was expected to be reported via technical folders.

I-Trend was developed in five countries offering a relevant overview of situations with diverse drug use profiles: two eastern countries, three western countries.

Implementation of the project faced three major challenges.

- This was a relatively new and unexplored area of research, and national contexts differed, both from a cultural and legal perspective, according to the countries involved. Therefore, the first achievement of the I-Trend Project was to agree on a common definition of NPS (new psychoactive substances) and on the scope of the projects, let alone the objectives.
- The methodologies were also experimental and needed to be developed and, of course, tested. In nearly all activities, unexpected problems led to the methods being reworked and major losses of time. Software had to be developed concerning two activities in order to ensure the future sustainability of the project via automated data collection on the Internet. Legal issues raised problems in the context of substances travelling across borders.
- Finally, working on a rapidly changing field gave rise to other difficulties as situations changed between planning and implementing action, as was the case for online purchase and monitoring of NPS.

The project was divided into 5 distinct sub-projects or areas of activities, referred to as workstreams or WS, which were nonetheless closely inter-dependent. Main activities or workstreams involved:

WS1. Monitoring user forums, with both qualitative and quantitative methods: in order to achieve this objective, complex methods had to be designed, firstly to measure levels of interest among NPS users and, secondly, to enable qualitative analysis of forum content. Data had to be extracted from forums, then prepared and analysed. Lastly, software was developed for automated quantitative data extraction and processing, together with an interface to display charts on demand.

WS2. Monitoring online shops: research questions and methodology were designed. A market study was conducted to find available software suited to the purpose of the project. It then appeared necessary to develop a software program to identify shops, and another to extract data. Shops were analysed in order to identify those targeting partner countries and some were selected for monitoring. The data were then extracted and analysed.

WS3. An online survey among NPS users without a sample frame was carried out. Communication on the survey was the main way to recruit respondents.

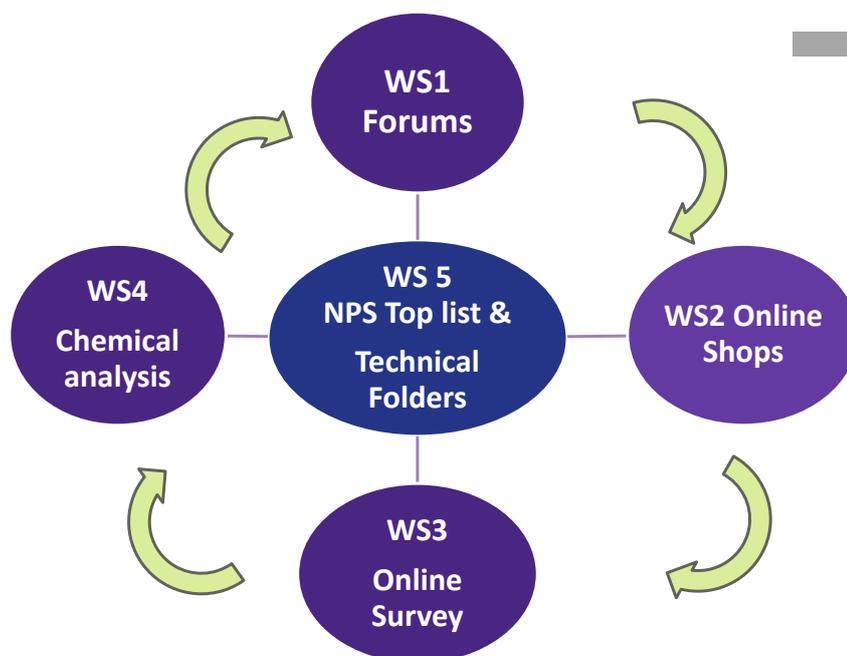
WS4. Monitoring of substance content: sample purchase and toxicological analysis. Purchases of the top-listed substances were processed for the web-shops selected in WS2 as the most relevant for a given country. Standard references needed for quantitative toxicological analysis were purchased and sent to laboratories. Substances were then sent to toxicological laboratories for analysis.

WS5. Selection of the most popular NPS circulating in each participating country (top list), including data collection for WS1, WS2 and WS4. Two rounds were carried out, the first in 2013, and the second in 2014. During the first round, only available data were used, such as national law enforcement seizures and case reports. During the second round, data from other WS were aggregated (using WS1 findings on user forum monitoring and WS3 online survey of NPS users).

This WS also included the creation of **technical folders** on the most popular NPS, mostly at national level, based on the literature and data collected in the context of other I-TREND activities.

Figure 1: I-TREND Project design

Internet Tools for Research in Europe on New Drugs



Key results

The NPS phenomenon follows dynamics specific to each country but shows converging trends

The countries involved in the I-Trend Project set out different situations regarding the public reached by NPS, the framework of NPS spread and the effects sought by users (see also box 1 on disparities between countries p. 13). The NPS phenomenon initially appeared to develop according to existing patterns of drug use in each participating country. Analysis of forum content, together with the online survey, in fact, showed that NPS users are primarily drug users, irrespective of country (WS1, WS3). A pre-existing national context can, for instance, be observed in terms of preference for chemical categories evidenced by I-Trend activities. For example, chemical preferences can be more or less driven by stimulants (in the Netherlands, United Kingdom and Poland) or psychedelic substances (in France and Czech Republic). However, other factors play a role in NPS spread. It thus seems clear that using trade names for NPS, whether among forum contributors, shops or ultimately NPS users, facilitated the expansion of the NPS audience in order to reach more young people (WS1, WS2, WS3 and WS5). This is particularly apparent in Poland, but also in the United Kingdom. The existence of smart shops in a given national territory appears to promote both the use of trade names and the spread of NPS (WS1, WS2) in the country.

However, a general trend appears to be driven by strong converging factors: despite the highly flourishing NPS supply, few substances truly circulate among NPS users. A core of users, “psychonauts”, aim to experiment with numerous new NPS, although most of these substances will not spread beyond this group or be used if they do not meet user expectations. Consequently, top lists of most “popular” or most widely circulated substances tend to stabilise around a handful of molecules that change much more slowly than newly emerging and experimental substances (WS5, WS1, WS3).

Moreover, despite existing differences in the preferences for chemical categories between different countries, “star-molecules” have ultimately emerged, which are gradually tending to gain ground in large geographical areas, across borders (WS5, WS1, WS3). During the first round (2013), comparison of the top lists of the most popular NPS in each country reported only 5 NPS shared by not more than 3 out of 15 countries in total. During the second round (2014), 3 out of 13 NPS were shared by 4 countries, and another 5 by 3 countries. However, it cannot be claimed that a genuine change occurred as a more robust method was used for the second round than for the first round¹. The second list of sources appeared more reliable as it displayed a high degree of convergence between the countries. “Star-molecules” over the whole period included methoxetamine, ethylphenidate and 4-MMC.

¹ The second round used more sources to prioritize NPS and notably involved I-Trend internal sources such as data from forum monitoring and online surveys.

Suppliers develop strategies to attract new users and to hide illegal retail

This study confirmed the structure of the NPS online markets, divided into two archetypal models: “research chemical” shops (RC shops) selling substances under their chemical names and therefore designed for users with a high level of background information; and “branded/commercial” shops, where substances are mainly offered with a more “commercial” trade name intended to reach a larger audience (WS2). “Herbal” shops should be added to this list: these primarily offer plant-related substances, together with commercial products. Very visible and reaching a wider range of potential users than NPS, due to the underlying appeal for natural products and psychedelic effects, “herbal” shops are able to draw interested NPS users towards more discreet and less licit sale offers (Czech Republic, France). Despite the diverse range of shops in different countries, most online survey respondents who purchased NPS in the last 12 months did so via RC shops (66% for French and Polish users to 91% for Dutch users).

The organisation of supply underwent rapid changes, with some even still ongoing during the two-year period of the I-TREND Project. For example, a fall in the number of unique online shops was highlighted in WS2, despite the fact that this trend was concealed by certain strategies adopted by stores to enhance their visibility, particularly by creating duplicate websites. This observation could indicate the concentration of supply. At the same time, segmentation strategies were observed, creating different levels of visibility: greater discretion is observed for certain online store areas selling the most illicit substances. These are accessible by gateways that allow selected users to access hidden areas. Retail sites can also adapt to changing legal environments, by ceasing to sell newly scheduled NPS on the Surface Web, as observed in United Kingdom (WS5), while some shops (targeting the French market for instance) continue to sell scheduled substances. Finally, changes in shipment packaging have been observed, probably in order to evade monitoring by customs: certain commercial shops now use very austere packaging, just as RC shops have always done, instead of the attractive packaging previously used. However, the attractive glossy packaging received, with no mention of the enclosed substances, showed that certain suppliers still use the opposite approach.

Numerous lessons learned from the difficulties encountered

Definition of NPS

A working definition of NPS needed to be established for this research project since current definitions are based on legal texts which encompass too many types of substances and are not easily understood by the general public. Emphasis was notably placed on the fact NPS mimic the effects of traditional drugs, and the Internet is an important factor affecting the NPS market.

Brand names in NPS monitoring

The use of trade names by NPS users, retailers or forums, as mentioned above, is a factor for the spread of NPS among wider and younger populations, closer to the general population than drug users. Trade names most commonly used for NPS in certain countries such as Poland and the United Kingdom. In France, although researchers perceived the use of trade names as a marginal phenomenon, the I-Trend Project revealed steady growth in this trend. Although the decision was made to include brand names in the scope of the project, to enable them to be selected in the top lists of the most widely circulated NPS, none were ultimately selected. This was not because these substances were not in circulation, but because they were not seen in the available information sources. All monitoring sources only use chemical names (seizure data, toxicovigilance data, etc.). Forum monitoring, supply monitoring and surveys among NPS users can offer an insight into branded NPS; however, objective indicators of their diffusion could be obtained if trade names were reported as an indicator in conventional databases. Further projects should also routinely examine their actual content.

European legislation is not conducive to facilitating monitoring of NPS content and substance sharing between laboratories, for scheduled or unscheduled substances.

The analysis taking place in the context of WS4 showed that 20% of all NPS samples purchased online did not contain the substance stated on the label, with this figure reaching 45% in the Netherlands. The average purity of the substances received was 80%, reaching only 56% on the Polish market. Hence, there is a genuine incentive for regular monitoring, by harm reduction services, of the chemical substances actually sold. The I-TREND experience clearly evidenced the lack of framework for the safe, legal and official implementation of this monitoring process. The online purchasing process completely relied on the individual responsibility of the researchers involved. The international transfer of standard references, which would serve as the basis for an international network, involved a complex procedure incompatible with routine use. European Council Decision 2001/419/JHA² should be used.

² [Council decision 2001/419/JHA](#) of 28 May 2001 on the transmission of samples of controlled substances, Official Journal L 150, 06/06/2001, p. 1-3.

Collection of essential information for drafting top lists relies on political will and decision-making

The top list was drawn up in each country with available data. It was sometimes difficult to obtain existing data from relevant sources. Data collection from different sources with a view to compiling the top list of the main circulating substances entails cooperation between national data producers. The sustainability of this process over time (i.e. at a bi-annual rate) depends on the ability to gather data. It requires a single national entity officially in charge of gathering data and producing an overview on the general situation.

Useful knowledge for prevention

Forums are a relevant way to reach a significant proportion of NPS users

NPS user groups can be roughly modelled in concentric circles around a core of psychonauts, expert users who normally follow harm reduction measures correctly. External circles include users frequenting the alternative recreational scene, together with a fringe of users in the gay party scene, comprising more vulnerable drug users, according to different countries. The circles moving away from the core correspond to NPS users increasingly closer to the younger general population, who use substances on certain occasions and who have limited awareness of harm reduction measures. Insight into the characteristics of each above-mentioned circle (e.g. user practices and representations) is essential in order to adapt prevention programmes.

Forums are a relevant way to reach a significant proportion of NPS users, notably those who are less visible, who do not attend recreational events, or visit specialised care systems or harm reduction facilities (WS1, WS3). The online survey showed that the majority of NPS users turned towards forums when seeking information, although the Polish situation stood out with less than 30% of users obtaining information in this way, while 29% claimed to have no information and 25% claimed that they did not need information.

Moreover, WS1 reported that focusing on some forums enabled various NPS user profiles to be targeted.

Users in need of harm reduction measures

Analysis of the chemical content of NPS in WS4 showed that users face risks due to consuming NPS purchased online, and it is essential for them to follow very strict harm reduction measures when choosing to use NPS. Consumers do not always receive what they ordered: more than 20% of all purchased NPS samples did not contain the alleged substance. Substance purity shows major disparities (from less than 50% to nearly 100%, averaging around 80%). Hence, substances can be much stronger than those tried previously. They may also contain unknown compounds.

Approximately half of NPS users experienced unpleasant effects after the last use in all partner countries, possibly due to these uncertainties. This level seems rather high and some of the unexpected effects sounded quite serious. The most widely reported unpleasant effects varied according to the different countries, as did the number of different effects reported for the last use only: this ranged from 2.9 for the Netherlands to 5.6 for Poland which has the youngest NPS user population (3.5 for France and 4.4 for the Czech Republic). Very few users sought medical attention.

In all participating countries, NPS were most frequently taken with friends (for more than 3 out of 4 users), which is a protective factor for overdose prevention. Conversely, in each country, more than 1 out of 10 users took NPS alone at home, which is more dangerous.

Tools developed in the I-Trend Project proved their ability to provide both a national vision of the NPS phenomenon and a dynamic vision.

Tools and software were developed aiming to focus on each national context, i.e. software developed in WS2 does not only improve snapshot tools (feasible in a regular way, providing wider ranging and more reliable data, etc.) but also makes it possible to focus on targeted national markets.

Tools were also developed to allow for long-term sustainable monitoring and repeated data collection. Furthermore, forum monitoring software provides graphs displaying user interest in NPS, ranked either by chemical compound, chemical classification, psychoactive effect or country (if the country is involved in forum surveillance). If necessary, any changes identified using this quantitative monitoring tool can be explained by qualitative investigations carried out on the discussion threads concerned.

Analysis of disparities within the different national contexts provided nationally relevant data, but also enabled researchers to better unravel the central lines of the phenomenon, except for elements specific to the national context. Furthermore, the dynamic view on several countries reveals converging and diverging trends in the developing phenomenon.

Cross-checking data from various approaches (forum analysis, supply analysis, online survey) as well as qualitative data collected on the sidelines of the I-Trend Project helped distinguish between the roles of demand and supply, and clarify disparities between countries.

Furthermore, WS5, via aggregation of data from various sources, provided a method for determining which products were actually available and diffused, relying not only on traditional sources such as seizures and toxicovigilance, but also on more closely user-related sources such as forum monitoring and online surveys.

The development of methodologies, software tools and guidelines to help interpret collected data is the result of a significant undertaking. It now appears important to distribute our findings across other EU countries. Tools have to be specifically tailored in order to be used within other countries. This involves technical and specialised assistance in order to carry out this task and learn how to use the tool. This could be the subject of a future project.

Box 1: Disparities between countries

Even if all data did not allow for comparison, due to differences in implementing the methodologies, disparities were observed on several points:

- **NPS audience**

The first disparity between countries concerns the NPS audience: the I-Trend online survey, despite disparities in dissemination methods that limit comparison between countries, identified rather different NPS user populations depending on the countries involved. In Poland, respondents were mostly very young adults, still students, who mainly used NPS with friends in the countryside. Czech and Dutch users were a little older (25.6 and 23.4 years old) and more frequently used NPS in a recreational setting (clubs, parties, etc.), while French users were much older on average and were more likely to use these substances at home. Dutch users were the most frequent Internet users in terms of purchases or seeking information. For example, the main source of information on NPS clearly proved to be web forums for Dutch and French users, while Polish users experienced a very peculiar situation with nearly one-third claiming that they had no information and a quarter that they did not need any information at all. Some key points appear to be shared by all partners involved: for instance, the online survey reported that most NPS users also used other psychoactive substances, although this observation is much more apparent among French and Dutch users compared to Czech and Polish users. Most of these users do not believe that NPS are safer than conventional illicit drugs.

- **Extent of trade name use by NPS users**

Another diverging trend is related to the extent of trade name use by NPS users, forum contributors and shops, which appeared to be a facilitating factor for NPS spread especially reaching a younger audience. Poland can be used as an example: (very young) survey respondents mainly used trade names when quoting substances. Polish forums use commercial names and this is tolerated to a greater extent than on Dutch or French forums. Furthermore, the existence of smart shops on a national level appeared to promote both the use of trade names and the spread of NPS. A similar situation was observed in the United Kingdom.

- **Different kinds of forums**

Different kinds of forums exist, reflecting various underlying objectives and the different cultures from which they originate. The first type of forums, integrated into wider platforms, tend to target an audience with limited knowledge on NPS. Other forums are essentially split into two main categories, each including several sub-types: those which are part of a community approach (known as the "Dutch School") and those influenced by a more Anglo-Saxon culture, which display greater proximity, to varying degrees, with supply stakeholders.

- **Online indicators with more differences than expected**

WS2, which enabled I-Trend staff to work on online shops specifically targeting the market in each country, highlighted a number of differences between these online shops: for instance, concerning the geographical location of servers or proportions of duplicate shops which reflect the strategic choices of supply stakeholders, as well as the proportion of "RC shops", "branded/commercial shops" and "herbal shops".

Finally, the characteristics of retailed substances showed clear differences depending on the country targeted by the shops: shops targeting the UK offered substances which were mostly labelled correctly (92%) and with an average purity of up to 93%. In contrast, NPS from the Netherlands market did not contain the expected substances in approximately 45 out of 100 cases, while the average purity of substances purchased from shops targeting the Polish market barely reached 56%.

WS1 Monitoring user forums with both quantitative and qualitative methods

Objectives

- Identify and describe effects and use patterns of NPS discussed in online forums in order to compile national technical folders (see WS5)
- Identify the most popular substances on forums as a source for selecting NPS included in the top list of the most widely circulated substances according to different countries (WS5). This objective included the development of a method suited to monitoring user interest in each NPS or NPS categories on forums.
- Describe NPS user profiles, practices and relationship in terms of NPS

Scope

- Surveillance system
- Monitoring of NPS spread
- Knowledge of NPS users and practices

Countries

Czech Republic, France, the Netherlands, Poland and United Kingdom

Activities

- Drafting of methodologies for selecting forums, together with quantitative and qualitative monitoring of forum activities

Quantitative step:

- design of a set of indicators
- creation of a procedure to collect quantitative data from forums
- telephone support and assistance to help partners to implement the method.

Qualitative step:

- development of a database structure for coding forum content
- one and a half day training session in Paris, followed by telephone support to help partners implement the method

- Selection of forums to be monitored, according to common criteria
- Regular collection of quantitative data: this stage was initially conducted manually and was therefore highly tedious and time consuming.
- Regular database mining and processing
- Creation of a program for automated substance identification when listed under different names
- Development of software able to automate the latter two activities
- Qualitative data collection and analysis
- Compilation of the report

Main outputs (all reports are available online: www.i-trend.eu)

- A report on the methodology and results of WS1 (I-TREND_WS1_Final_Report, 71 p.)
- A software program and method specially tailored to monitoring user interest in NPS over time: results can be presented with different levels of precision, from a molecule to a complete category, according to expected effects or cross-disciplinary subjects, such as pattern of use. This software can be adapted to other countries. (I-TREND_WS1_Handbook, 23 p.)

Methodological contribution and lessons learned

- Definition and creation of a variable reflecting the concept of user interest in a substance or a special issue. The indicator excludes noise related to other content using the search terms from professionals or suppliers and multi-referencing of content by SEO (search engine optimisation). On the other hand, the figures measured take into account the overall audience (readers) of a discussion thread and not only the core group of writers.
- Development of a method (methodological guidance, in progress) for the implementation of both quantitative and qualitative forum monitoring. The qualitative approach allows for an in-depth understanding of the quantitative results; the quantitative approach helps structure the qualitative research focusing on the most viewed discussion threads.
- Providing keys (report WS1) to guide interpretation of data (levels of user interest, understanding of changes and signals, etc.) and how data can be used notably in the context of substance evaluation.
- Data collected from forum content were not considered sufficiently reliable to be used to evaluate substance toxicity. The reported unintended effects are too divergent and not specific enough for a given molecule.

Key results

- Different kinds of forums exist, reflecting various underlying objectives and the different cultures from which they originate. The first type of forums, integrated into wider platforms, tend to target an audience with limited knowledge on NPS. Other forums are essentially split into two main categories, each including several sub-types: those which are part of a community approach (known as “the Dutch School”) and those influenced by a more Anglo-Saxon culture, which display greater proximity, to varying degrees, with online supply stakeholders.
- For a given country, forums are often characterised by a specific audience of NPS users even if a same country can host several types of forums. This is evidenced by specific history, rules, language and discussion content. It is therefore possible to link the changes in audience (related to a substance or an issue) with an internal renewal of member’s forums or with events emphasized by media. This provides information on groups that are particularly concerned by the spread of a substance or practice. Furthermore, it makes it possible to better target some groups of users when carrying out prevention programmes.
- Quantitative and qualitative monitoring of NPS user forums enable a better understanding of the development of the NPS phenomenon:
 - Initially, by helping to make a distinction between demand-related factors and supply-related factors.
 - A relevant analysis of the collected data enabled researchers to identify the most likely NPS to spread in the long term, and the results appeared to be highly predictive of the top list content³.
 - Quantitative monitoring of user interest enabled researchers to spot acute events related to user “interest” and to document these by collecting qualitative data on the most popular discussion threads. It is therefore possible to distinguish a fad or a systematic peak following the release of a new product from a long-term trend, and to differentiate an activity in connection with negative effects from the impact of a media release or new scientific data. For example, this has made it possible to observe a growing interest in the “do-it-yourself” issue among French NPS user forums.

³ Including the potentially most widely circulated NPS within a 6-month period in a country

- The use of trade names in forum content seems to contribute to the expansion of the NPS, appealing to potential users with limited knowledge.
- Demand for NPS first follows the main existing framework for conventional drug diffusion in the general population. NPS classes with the highest user interest in partner countries reflect use profiles for conventional drugs.

Difficulties encountered

- Ethical issues: public forum monitoring has been the subject of debate. France chose to communicate with forum leaders in order to be transparent with regard to forum users; other partners chose not to do so.
- Due to the novelty of the method created by French staff, many methodological adjustments were required. Data collection, together with database cleansing were much more time-consuming than expected (3 full days a month for data collection only, for each partner) and unexpected activities emerged, such as creating and updating an ongoing script to recognise spelling errors and numerous synonyms in substance names employed by forum users. Our main conclusion was that software was required in order to automate this process; however, an unknown time-frame was also required in order to develop this software as no such relevant tool was available on the market.
- Concerning the qualitative analysis of forum content, the main output should have been to document numerous items in the national technical folders (see WS5) such as the mode of intake, adverse effects, dosage, etc. The available materials on a given item and substance proved too limited and too divergent in order to be summarised or representative of a group of users. Some partners carried on compiling the NTF using these materials while French staff decided to analyse cross-disciplinary issues (e.g. types of forums) and focus on the creation of monitoring tools.

WS2 Monitoring online shops

Objectives

- Develop new tools in order to better monitor NPS supply on the Internet.
- Regularly monitor the online availability of substances using a less expensive resources/methods than that used for the EMCDDA surveys (semi-automated software);
- Obtain a better estimate of NPS market size according to the different countries;
- Analyse the supply framework and the business strategies implemented;
- Select the most popular online shops for each country in order to focus on scheduled NPS purchases according to WS4 on these websites.

Scope

Supply monitoring

Countries

Czech Republic, France, the Netherlands, Poland and United Kingdom

Activities

The main activities were:

- Agreement on common research questions and creation of a common methodology, leading to an initial version of a methodological guide
- Analysis of recent search technologies: automation and optimisation tools for initial website crawling and data mining (products, prices, quantities, etc.) (WS leader, Czech Republic) leading to the conclusion that no existing commercial/open-source software would fit the project requirements. Hence, the decision was made to contract a programmer and to build a software program tailored to the specific project needs.
- Creation of a new reporting format compared with the EMCDDA method. In order to better identify the characteristics linked to web shop popularity, the Czech partner performed an analysis of the web pages providing such information, conducting interviews with marketing specialists.

- Creation of the first part of the software tool for automatic selection and categorisation of online shops (shop finder), followed by the second part (product scraper) to collect structural data from online shops. Both were developed in 4 stages: developing the IT tool, setting it with relevant keywords and search engines specific to each country, testing it within a time period and adjustments.
- Definition of a multi-criteria classification process to rank the shops according to their popularity
- Select the shops to be monitored with regard to variables providing key information the countries targeted by each shop. Each country selected keywords to describe top-list substances and types of shops.
- Data extracting (Czech Republic staff) and database checking (each partner)
- Initial analysis and interpretation of data

Main outputs (all reports are available online: www.i-trend.eu)

- A methodological guideline and a final report on activities over a two-year period (I-TREND_WS2_Final_Report, 43 p.)
- A software program running semi-automated snapshots. As the major part of the work only has to be done once (sorting relevant websites to be monitored, deletion of duplicates, etc.), this software enables snapshots to be produced on a regular basis and changes to be observed. The software also enables extraction of more indicators on shops and substances sold compared to the EMCDDA method. This software is [open source](#) (I-TREND_WS2_SASF_Guidelines, 16 p.)
- A unscheduled report on 4 NPS was produced for the EMCDDA based on WS2 monitoring of online shops (I-TREND_WS2_Risk_Assesment on 25I-NBOMe, AH-7921, methoxetamine and MDVP, 8 p.)
- Two scientific papers
 - MARTINEZ M. and all., [A method for exploring the number of online shops selling new psychoactive substances: initial I-TREND project results](#), Chapter 10 in Insights EMCDDA collection, Luxembourg, Publications Office of the European Union, February 2016
 - Belackova V. and all., [Assessing the impact of laws controlling the online availability of 25I-NBOMe, AH-7921, MDPV and MXE – outcomes of a semi-automated e-shop monitoring](#), Drugs: Education, prevention and policy, January 2017

Methodological contribution and lessons learned

- Major effort to focus observations on national markets can provide a better understanding of how online supply targeting one country is structured, and enable a better understanding of the information collected in the context of national demand.
- Focusing analysis on national supply is facilitated by defined snapshot process:
 - using for queries the most widely circulated substances and the most popular search engines in one country;
 - ranking online NPS shops according to their popularity in a country based on a multi-criteria classification process.
- The main technical improvement is the reduced length of time required to run the snapshot, thus enabling repeated data collection. The tool ultimately allows dynamic monitoring of NPS online supply. This results from the improvements in the specific IT tools, although some manual work is still needed.
- The WS2 process enabled duplicate websites for the same shop to be identified. This proved that it was not possible to identify all duplicates solely on the basis of the visual information provided on the website and that further analysis was required for identification purposes. Consequently, WS2 also showed that the scale of supply was overestimated in previous snapshots.
- A new snapshot reporting format has been implemented.

Key results

- This study confirms the framework of the online NPS markets, displaying two archetypal shop models: “branded/commercial” shops, where substances are mainly offered with a more “commercial” trade name and “research chemical” shops, where substances are mainly displayed using their chemical names. Two other categories should be added: “herbal” shops where the sites primarily offer plant-related substances together with commercial products and a final category (“other”), grouping sites offering products related to sexual performance, health or general wellness. These categories aim to distinguish between supply intended for users with a high level of information and that targeting a more generic less-informed audience.
- Since the beginning of the commercial NPS phenomenon, the market has become increasingly fragmented with different levels of visibility. In addition to public, private and underground spaces, sales also take place in the cracks, between light and shadow. Suppliers use two types of strategies: either to maximise their visibility on the Internet or to keep a discreet, targeted presence.

- Since suppliers act as businesses, they try to be more visible than their competitors, using rough or sophisticated spamdexing practices. This study, conducted using dedicated software, showed that 18% of active websites were duplicates. Online NPS shops use spamdexing practices to improve their visibility on search engines. Consequently, previous studies may have overestimated the number of online shops. Our monitoring enabled researchers to observe, in the course of the project, a false rise in the number of online shops due to the creation of numerous duplicate websites, whereas the actual number of shops actually decreased once these duplicates were discarded.
 - At the same time, some of these suppliers prefer to maintain anonymity and offer specialised supply in spaces which cannot be detected by our snapshot methods. These suppliers organise the digital space with gateways, a kind of grey zone, between the Surface/Visible Web and the Deep Web.
- The NPS phenomenon does not follow the same pattern across different countries. For example, the geographical location of servers depends on the targeted national market: for the Czech Republic, Poland and The Netherlands, most servers appear to be located on their own territory. As regards France, these shops are all abroad, mainly in the Netherlands and in the USA. This could be due to the absence of smart, herbal or head shops on French territory. Sales sites used by UK users are also mainly outside the territory, notably in the USA. Otherwise, the most popular web shops were “RC shops” for all countries, although these were challenged by “herbal” shops in the Czech Republic and by “herbal” shops and “branded/commercial” shops in France. Lastly, the proportion of duplicates within the list of shops identified as targeting a specific country, an indicator which reflects a kind of strategy employed by these operators, proved to be very different according to the different countries (0% to 47%). As regards France, which has no “real life” smart shops, online “herbal shops” attracted new clients via a “herbal” entry point, leading them towards more hidden NPS shops.

Difficulties encountered

- The development of a dedicated tool, due to the lack of suitable software on the market, and the unexpected difficulties encountered during this task caused the process to be delayed. The team was consequently unable to complete the analysis. The last database has not yet been analysed, but is available.
- Ethical issue: in the first software program, the visibility of selected data had to be adjusted (encrypted format) (e.g. IP address, domain owner, etc.) in order to comply with the national legislation of each partner country relative to the collection of sensitive information.

WS3 Online survey among NPS users

Objectives

- Gain knowledge on NPS user motives, profiles and practices, etc.

Scope

- Knowledge of NPS users and practices
- Monitoring of NPS spread

Countries

Czech Republic, France, the Netherlands and Poland

Activities

- Analysis of previous experience on the implementation of drug surveys, particularly concerning NPS, conducted by the WS leader (SWSP) and review of the scientific literature in the field.
- Development of a common questionnaire and test phase
- Development of the online questionnaire
- Design of a strategy for the promotion of the online survey in order to recruit NPS users (without a sampling frame). Partners identified the targeted populations and the different ways to reach them: negotiating entry points on relevant websites, mailing lists to introduce the survey and distribute the links to the questionnaire, press releases, etc.
- Promotion of the survey during its entire duration
- Data collection
- National analysis and aggregated analysis.

Main outputs (all reports are available online: www.i-trend.eu)

- One final report (I-TREND_WS3_Final_Report, 44 p.), three national reports (I-TREND_WS3_nat_Dutch_report, 24 p., I-TREND_WS3_nat_French_report, 57 p., I-TREND_WS3_nat_Polish_report, 101 p.)
- Methodological guideline (I-TREND_WS3_Methodology, 30 p.)

Methodological contribution

The most effective distribution tools were Facebook ads (for Poland), entry points on NPS user forums and communication on NPS in the media, for France. New surveys should take this experience into account.

A sort of filter question enabled entry into the questionnaire so as to document the way in which users came into contact with NPS. The results revealed the most suitable criteria for selecting NPS users in further surveys.

Key results

NPS users

- According to our results, NPS user profiles differ from one country to another: Polish users were mostly very young adults, still students (mean age 20.2) who predominantly used NPS with friends in the countryside; Czech and Dutch users were a little older (25.6 and 23.4) and more frequently used NPS in a recreational setting (clubs, parties, etc.), while French users were older on average and were more likely to use these substances at home. Dutch users were the most frequent Internet users in terms of purchases or information seeking. Hence, it is difficult to determine whether these differences are mainly related to disparities in the spread of the NPS phenomenon or diverse survey distribution strategies. These variations should be borne in mind when commenting on differences.
- NPS users also consumed other psychoactive substances; however, this observation is much more apparent among French and Dutch NPS users than among Czech and Polish users. In addition to alcohol, tobacco and cannabis, NPS users also consume stimulants and hallucinogens, with the exception of Polish users for the latter.

Contexts, motives and practices

- In all countries, NPS use frequently took place among groups of friends (more than 3 out of 4 users followed this pattern). This context is an important protective factor against overdose, while, in contrast, more than 1 out of 10 users in each country took NPS alone at home, which is more dangerous.
- In all countries except France, NPS were mostly used in a public context (clubs, parties, countryside, etc.). This situation accounted for up to 69% of last intake context for Czech users, but only 38% in France where NPS use mostly takes place at home.
- Routes of administration of NPS were variable according to countries except for snorting, used by a significant number of respondents in all partner countries. This was the most popular method of use in the Czech Republic, in the Netherlands and, to a lesser extent, in France where

ingestion was the most popular method, while in Poland smoking and snorting were used equally. Routes of administration were likely to vary depending on the chemical class and the form (powder, plants, etc.) of the substances.

- Reasons to take NPS were also variable according to countries, due to cultural differences or to disparities in the populations reached by the survey: “to modify perceptions”, “to get high” or “to bond with others” were important reasons for all partners, but not with a similar weight. “To modify perception” was, by far, the most important reason to use NPS in France and the Netherlands while it was “to bond with others, to socialise” in Poland and to “provide energy” (sexual performance not included) for Czech people.
- In all countries involved in the study, around **half of NPS users experienced unpleasant effects after the last intake**. The most widely reported unpleasant effects varied according to countries, as did the number of different effects reported after last intake: the latter ranged from 2.9 for the Netherlands to 5.6 for Poland where NPS users are the youngest (3.5 for France and 4.4 for the Czech Republic). **Very few users sought medical attention**.

Mode of access

- Most users did not purchase NPS in a shop (online or not) but on the informal market (illicit market or given for free): 3 out of 4 NPS users were, in this case, in eastern countries where 1 out of two users obtained NPS for free or bought them from a friend. In western countries nearly half of NPS users purchased online. The amount spent on the last purchase suggests that a proportion of respondents purchased for a group or for trafficking purposes. This indicates the important role of the “real market” in the spread of NPS.
- Most of the respondents who had purchased during the last 12 months used RC shops (66% for French and Polish users, and up to 91% for Dutch). While Dutch users almost exclusively resorted to RC shops, situations were more balanced in France and Poland.
- Reasons to choose an online shop to buy NPS were clearly related to experience sharing. The most chosen criteria were indeed “I followed the advice of other users”, “I had a good experience with the shop already” and “It had a good profile on the pages where the clients shared their experience (i.e. SafeOrScam)

Information seeking

- The main source of information on NPS was clearly web forums for Dutch and French users (87% and 69%) who also turned to “friends/family/acquaintances” (51%, 40%). The situation was more balanced for Czech users (50% relied on web forums and 47% on “friends/family/acquaintances”). Polish users appeared to be in a very particular situation with less than 30% of users procuring some information by each of these methods while 29% claimed they did not have information and 25% that they did not need any information. This observation is perhaps linked with the fact that Polish users are very young. On the subject of the last intake, users stated that, by far, they lacked information related to health risks.

Opinions

- On the one hand, in all countries, NPS users clearly think that NPS are not less harmful or less addictive than conventional drugs. On the other hand, regarding the following claims on NPS including “NPS are of better quality than conventional drugs” and “NPS are stronger than conventional drugs”, opinions are split between disagreements and the idea that this is true for some of them.

Difficulties encountered

- Due to various local situations regarding NPS spread and different approaches to the survey by partners, compilation of the questionnaire was a long and complicated task.
- Online surveys without a sample frame lead to some interpretation limitations in one country. These limitations are difficult to overcome when the survey is carried out in several national contexts. It is indeed quite impossible to know if disparities observed between countries are due to differences in NPS user profiles or in survey distribution strategies.
- Furthermore, it has been difficult to determine actual NPS users, as sometimes users are not even familiar with the term “NPS” or the exact chemical name of the substance they took.
- Moreover, as partners could not rely on national estimates of the prevalence of NPS use, as these are not yet available, there was no possibility to weight national data to obtain international estimates.
- The sustainability of the project is linked to the ability of I-Trend to communicate on the value of the tools created in order to monitor the NPS phenomenon and to provide guidance in order to adapt these tools for other countries.

WS4 Monitoring of substance content

Objectives

- Test the feasibility of monitoring the content of substances sold online (purchase, toxicological analyses, interpretation).
- Improve cooperation between European laboratories in order to increase their capacity for identifying new substances.

Scope

- Supply monitoring
- NPS identifying ability

Countries

Czech Republic, France, the Netherlands, Poland and United Kingdom

Activities

- Design of a common methodology:
 - aiming to guarantee that researchers take no personal risks and that shops do not identify researchers or administrative agents behind a purchase;
 - including database format.
- Recruit toxicological laboratories;
- Define a top list of NPS to be purchased and analysed (see WS5) and a related list of reference standards to purchase;
- Reference standard purchase and delivery to laboratories (including compulsory authorisations);
- NPS sample purchase via online shops, delivery to researchers and dispatch to laboratories;
- Database input (toxicological results and data on purchase details);
- Analyses and reporting.

Main outputs (all reports are available online: www.i-trend.eu)

- 1 final report with emphasis on the lessons learned and the encountered difficulties (I-TREND_WS4_Final_Report, 28 p.)
- One scientific paper: Brunt T. and all., [Online test purchased new psychoactive substances in 5 different European countries: A snapshot study of chemical composition and price](#), Drug Policy, June 2017, Volume 44, Pages 105–114

Methodological contribution

Legal issues set real limits in terms of pursuing this monitoring beyond the I-Trend Project.

- No safe solution has been found to order and pay for online samples: researchers had to purchase samples themselves as if for personal purposes with the risk of getting blacklisted by customs and having their personal credit card hacked. Pre-paid credit cards are not accepted by shops as well as dubious identity or address.
- Above all, the European legislation is not adapted to substance transfers performed on a regular basis between laboratories. European sample transmission under [Council Decision 2001/419/JHA](#) appeared to be an empty gift in that way that it was largely unknown and unused (see below, Difficulties encountered). [Both online monitoring of substances sold and enhancing cross-border laboratory cooperation by exchanging reference standards require an adapted legal framework taking into account the specific requirements of research programmes.](#)
- To analyse new substances, it seems that the best way to obtain reference standards is to have them created by toxicological laboratories from a pure sample of the molecule (purchased via the Internet or obtained from customs seizures).

Key results

- Users take risks by consuming NPS purchased online if they do not follow very strict harm reduction measures:
 - Consumers do not always receive what they ordered: more than 20% of all NPS samples purchased did not contain the substance stated on the label.
 - Major differences are observed in substance purity (less than 50% to nearly 100%, with an average of 80%). This means that a substance can be much stronger than another sample of the same substance previously tried. This also means that the product contains compounds other than those stated.
- These characteristics (samples not containing the substances ordered and average purity level) clearly differ according to the country targeted by the shops (see WS2): shops targeting the UK offer substances which are mainly labelled correctly (92%) and with an average purity of up to 93%. Conversely, NPS from the Netherlands market do not contain the expected substances in

approximately 45 out of 100 cases, while the average purity of substances purchased from shops targeting the Polish market barely reaches 56%.

- In line with toxicological results, certain changes could be observed concerning delivery. For example, for France, in contrast to findings before the I-Trend Project, certain substances ordered via “commercial” shops and displayed online with attractive packaging and brand names were delivered in austere packaging with only the molecule name which typifies “RC shops”⁴. This is one of the elements suggesting connections exist between “commercial” shops and “RC shops”. The impact of this change in packaging means that packages from commercial shops are less visible than before, hence more elusive to customs services. Conversely, one received package was extremely visible, wrapped in glossy colours as though a gift.

Difficulties encountered

- No processes have been found to prevent researchers from taking personal risks when ordering NPS online and receiving the substances. It appeared that the sole effective method was to place orders using a personal non-pre-paid credit card and to receive the substance at a personal address.
- A problem was observed related to scheduled substances. It was not possible to obtain authorisation to purchase illegal substances without taking serious personal risks. For the UK partner, one problem encountered was that newly scheduled substances were no longer available via shops on the Surface Web. *It has therefore been impossible to fully monitor illicit substances on the top lists, and “operational” top lists have served as a basis for project activities.*
- The reference standards, required in order to quantify substance purity, took a long time to be obtained from the supplier laboratory. Some substances were so new that reference standards were not even commercially available and had to be synthesised. We purchased all standards from the same supplier, mainly so as to negotiate the price. The OFDT laboratory partner was expected to receive all reference standard samples, share those requested by several countries and dispatch them to the different EU partner laboratories using the European protocol defined by Council Decision 2001/419/JHA (see methodological contribution). However, this protocol could not, in fact, be used as the laboratories required different forms (powder or liquid) of the reference standards, and it was decided that standards would be delivered directly to each laboratory. The requested authorisations to allow the cross-border transfer of standards resulted in a long delay. The same problem was encountered when sending samples purchased by Polish staff to the French toxicological laboratory, and the decision was ultimately made to send the samples via the standard postal system.

⁴ Online shops which only deal with molecular names with limited marketing effort on substance packaging.

WS5 NPS Top list (prioritisation) and compilation of National Technical Folders

Objectives

- Select the most widely circulated NPS in order to focus observation on these substances
- Draw up templates for national technical folders and aggregated technical folders on the main NPS

Scope

- Monitoring of NPS spread
- Distribution of information

Countries

Czech Republic, France, the Netherlands, Poland and United Kingdom

Activities

Four main activities took place in WS5

- Initially, after several rounds of discussions between the partners, LJMU (United Kingdom) reached an agreement on a common definition of NPS.
- A process was then initiated in order to determine, at regular intervals, the most widely circulated substances on national territory, using all available sources (law enforcement services, health data, and national EWS data, etc.). The national top lists obtained described NPS requiring investigations in WS1 (online forums), WS2 (online supply) and WS4 (analysis of substances purchased online). National top lists were drafted on two occasions, in the second semester of 2013 and in the second semester of 2014. During the second round, data from the I-Trend Project was used, such as the popularity of substances on forums (WS1), together with the “last used substance” or “substance used within the last 12 months”, both data being collected from the NPS user online survey (WS3).
- The third activity involved the creation of a template in order to compile the national technical folders (NTF), aiming to collect, for each substance in the national top lists, information obtained from user forums (WS1), supply study (WS2) and results of toxicological analysis (WS4), and from the online survey for certain partners (WS3).

- Lastly, all partners compiled a number of NTF. For certain partners, this constituted a heavy workload in terms of information research in addition to the data collected in the I-Trend Project. An aggregated national folder was completed by LJMU staff.

Main outputs (all reports are available online: www.i-trend.eu)

- A final report with templates for national technical folders (I-TREND_WS5_Final_Report, 27 p.).
- A method for creating national top lists based on the French case (I-TREND_WS5_Toplist_Elaboration_French_case, 12 p.).
- 1 aggregated technical folder (I-TREND_WS5_International Technical Folder _5-MeO-DALT, 20 p.) and 29 national technical folders

Methodological contribution and lessons learned

- A working definition of NPS needed to be established for this research project since the official definitions based on legal texts encompass too many types of substances. Emphasis was notably placed on the fact that NPS mimic the effects of traditional drugs, and the Internet is an important factor affecting the NPS market.
- The top list methodology cannot be implemented the same way in all countries, according to available data. NPS-related harm data are fundamental in order to cross-check law enforcement data; however, surveys among users and forum monitoring were very relevant for that purpose.
- The method is not conducive to branded products. Forensic, health and national EWS (early warning system) sources provide chemical names (without information on possible branded names), while users in some countries mostly consume branded products. For example, the UK partner was very keen to include branded names on the top list, with regard to the extensive use of these trade names in the UK. UK staff were, in fact, unable to include branded NPS due to the reason given above. [Further research should investigate methods to include branded products more easily in the scope of monitoring.](#)
- For national technical folders, it appeared that the molecular details were too precise in order to enter certain important items in the template, notably data from online forums. For example, health issues reported by users were not specific enough and information on the use of NPS was too limited in order to be associated with a molecule. It could be relevant to address chemical categories instead of molecules.

Key results

- Changes in the top lists of the most widely circulated substances between the second semester of 2013 and the second semester of 2014 were limited for all partner countries and, despite the constant renewal of NPS supply, the majority of users appeared to remain interested in only a handful of substances. However, interpretation of changes between the two periods was limited by the changes in the methodology: more sources were available in the second round. Comparison will only be possible when the methodology is stabilised.
- Moreover, comparisons of partner top lists, collection of the most widely circulated NPS in each country during the first round (2013) reported only 5 NPS shared by not more than 3 out of 15 countries in total. During the second round (2014), 3 out of 13 NPS were shared by 4 countries, and another 5 were shared by 3 countries. However, it cannot be claimed that a genuine change occurred as a more reliable method was used for the second round than for the first round as it used more sources to prioritise NPS and notably I-Trend internal sources, such as forum monitoring and online survey. The second list of sources displayed extensive converging trends between countries. “Star-molecules” for the whole period were: methoxetamine, ethylphenidate and 4-MMC.
- Adverse effects reported by users were not particularly molecule-specific.

Difficulties encountered

- Scheduled substances, even when they appeared among the most widely consumed substances, could not be monitored in the same way as other NPS as the partners were unable to find a safe process in order to meet the objectives of WS4 (purchasing online and performing analyses). Therefore, operational lists were used in the I-trend Project, excluding all illicit NPS.

Box 2: I-Trend working definition of NPS

The European definition of NPS

The [European Council Decision 2005/387/JHA](#) defines new psychoactive substances as any new narcotic drugs or psychotropic drugs in pure form or in preparation that are not controlled by the [1961 United Nations Single Convention on Narcotic Drugs](#) (amended in 1972) or the [1971 United Nations Convention on Psychotropic Substances](#), but which may pose a public health threat comparable to the substances listed in these conventions. While the European Council decision focuses on new emerging substances, or “novel” substances, synthetic, natural or medicinal products created decades ago can also be grouped as NPS given evidence of new recreational use and misuse.

In 2013, the EMCDDA created six new categories of NPS to account for the increasing diversity of substances being grouped as new psychoactive substances. The NPS classification system now contains a total of 13 categories: Phenethylamines, tryptamines, piperazines, cathinones, synthetic cannabinoids, opioids, arylcyclohexylamines (eg. Methoxetamine), aminoindanes, arylalkylamines (eg. 6-APB), benzodiazepines, piperidines and pyrrolidines, plants and extracts of plants and others.

To date, few NPS have been recommended for control by the Council of the European Union. However, Member States have introduced their own legislation, leading to an array of policy responses. This, in turn, complicates the law, given that a substance can be controlled at a national level in one EU country, but not in another, and vice versa. Moreover, a substance can also be controlled at a national and/or international level prior to its production or evidence of use.

I-TREND and a working definition of NPS

Given the European Council’s 2005 Decision, the I-TREND project defined NPS as any “new or novel psychoactive substances”. This broad and dynamic definition can be adapted to each participating country’s cultural context - without losing the comparative nature of research findings. However, it is worth emphasizing that the I-TREND project ultimately identified a subset of products of interest that were categorised as “new synthetic substances”.

The European Council's definition of NPS is based on a legal perspective and covers a wide variety of substances that embrace a plethora of diverse consumers. However, in the context of the I-TREND project, the broad nature of this definition was not practical for focalized research.

For example, the European Council classifies medicinal products that are used for recreational purposes, such as Tramadol, Quietapine, Dextrometorphan, as NPS (European Council Decision 2005/387/JHA). However, these substances were not covered in I-TREND given that their monitoring requires tools typical of traditional information systems rather than the methodology developed for the Internet. Moreover, the misuse of these products reflects practices and life trajectories that are largely independent from the consumption of new synthetic drugs.

Moreover, a similar classification issue exists for some natural and vegetal products. While I-TREND acknowledges that vegetal/natural products can be NPS, they were not ultimately included in the project. At the outset of the project, some partners wished to include both synthetic and natural products, given that research shows that natural substances are among the most commonly retailed NPS available on the Internet (i.e. Salvia Divinorum, hallucinogenic mushrooms, kratom and peyote) (EMCDDA). It is especially important to take natural products into consideration, because vegetal products are used by webshops as leader products, before the supply of chemical products, in some national contexts. This is a technique that is used to draw the attention of young consumers. However, despite their plant-based form, they are not actually vegetal products, because synthetic substances have been vaporised on them.

It is also important to note that the term 'new' might be misleading as many of these substances are not new in terms of their existence and have been around for many years. What is 'novel' about some of these substances is not their actual existence, but the pattern of their use (i.e. newly 'consumed' substances).

To some extent, employing a definition based on legislative texts may be restrictive as it suggests that once a substance has been controlled, it is no longer an NPS. Such a legal definition creates a situation where a substance may initially be seen as an NPS due to the lack of legislation controlling its production, sale and use, but that may be excluded from the list of NPS contingent on a change of its legal status. Thus, the unique history of a substance is important and may provide justification for a substance's continued classification as an NPS.

Thus, the I-TREND Project highlighted the following characteristics as key elements defining NPS:

- NPS are substances that have psychoactive effects and mimic the effects of traditional drugs.
- NPS are often synthesised in order to circumvent and bypass national and international laws controlling drug use, with the intention to avoid prosecution for users and retailers.
- The ever expanding manufacturing of NPS is the result of new advances in academia and chemistry, as well as the rise of the Internet age.
- Research shows that NPS are appealing to consumers for a number of reasons: ease of availability (particularly through internet), legal status in some countries, the perception that a legal status implies safer use, and also the potential to produce unique subjective effects.
- NPS can include substances that have existed for some time ('novel') and substances that have recently been synthesised ('new') with the sole purpose of being sold and used as a psychoactive substance.
- The Internet is an important channel in the NPS market and sale, making NPS widely available to a large number of people. NPS are also sold in retail 'head shops' and 'smart shops' in some countries and are available through traditional dealing networks.
- On the whole, NPS are manufactured and imported from outside Europe (e.g. China).
- There has been increased interest and concern around NPS and a significant increase in the number of NPS being manufactured since the emergence of 4-methylmethcathinone (mephedrone) in 2006.
- There is a relative lack of research on NPS compared to other traditional drugs. In particular, there is a lack of data on prevalence and harm, and a dearth of research allowing for the comparison of use across countries.
- NPS compounds can be distinguished from 'classical drugs of misuse' (e.g. amphetamine, cocaine, heroin, cannabis) because NPS have had little or no history of medicinal use*.

* King L.A. and Kicman A.T. (2011) [*A brief history of 'new psychoactive substances'*](#), Drug Testing and Analysis, vol.3, n°7-8, p.401-403

Examples of NPS appearing in project partner countries:

- 5-IT, MXE, 4-HO-MET, MDAI, 4-FA, 3-MMC, N-ethylbuphedrone, and some branded products such as “Spice”, “Benzo Fury”, “Dove”, “Funky”, “Cocolino”.

Examples of substances that have been excluded:

- Modafinil and DXM as they are sold over the counter and have national marketing authorisation.
- GHB and Ketamine because they are traditional products in that sense that they have a longer history of recreational use. Their toxicity and effects are also widely described in the scientific publication.