



05

eCRIME RESEARCH REPORTS

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PAYBACK

TOWARDS A EU DATA MANAGEMENT SYSTEM FOR SEIZED ASSETS

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Introduction

This document is the final report (deliverable 5.3) of the project entitled *PAYBACK. Towards a EU Data Management System for Seized Assets*, coordinated by the eCrime research group of the Faculty of Law of the University of Trento (IT). It was carried out in cooperation with the Center for the Study of Democracy (BG), Institut national des hautes études de la sécurité et de la justice (FR), Centrul de Resurse Juridice (RO), Fondazione Nazionale dei Commercialisti (IT) (co-beneficiaries), and with the support of the following associate partners: Agence de gestion et de recouvrement des avoirs saisis et confisqués (FR), the Criminal Assets Bureau of Ireland (IE), the Commission on Illegal Assets Forfeiture of Bulgaria (BG), the Central Office for Seizure and Confiscation of Belgium (BE), the Asset Management Section of the Czech Ministry of Interior (CZ), Openbaar Ministerie, Functioneel Parket (NL) and the Rome Tribunal (IT).

The overall aim of the project was to develop and test in selected MS an innovative Data Management System for seized assets (i.e. Payback DMS prototype). The Payback DMS is intended to be a scalable ICT tool (transferable with adaptations to different EU national contexts and supporting multi-lingual interfaces) for the collection, management and automatic analysis of data on seized assets. In order to achieve this aim, the project set itself the following objectives:

1. to map existing databases and/or DMS for seized assets in the EU and identify strong and weak points;
2. to understand the needs of stakeholders in the EU in this area;
3. to develop the software prototype of an innovative DMS for seized assets (PAYBACK DMS prototype);
4. to pilot test the PAYBACK DMS prototype in selected countries and refine it;
5. to disseminate the project findings.

This report is organised as follows:

- chapter 1 maps and compares existing databases and data management systems on seized assets in the EU (deliverables 1.2);
- chapter 2 illustrates the expert opinions and stakeholders' needs in terms of management of seized assets (deliverable 2.1);
- chapter 3 introduces the Payback DMS prototype, with its updates until the final version (deliverable 3.1), and contains a user guide/manual for the PAYBACK DMS prototype (deliverable 3.2), as well as guidelines for transferability of the PAYBACK DMS prototype to other countries (deliverable 3.3);
- chapter 4 describes the piloting of the PAYBACK DMS (deliverable 4.1);
- chapter 5 deals with the remaining deliverables (i.e. deliverable 0.5, Extended internal evaluation report; deliverable 5.1, Project website; deliverable 5.2, Research articles).

Some documents are annexed:

- Annex 1 is the questionnaire used to map existing databases and DMS (deliverable 1.1);
- Annex 2 is the questionnaire used to understand the stakeholders' needs in the EU;
- Annex 3 is a more detailed technical guide for the Geolocalisation Module, which was sent to associate partners in preparation of the test visit;
- Annex 4 is a more detailed technical guide for the Report & Alert Module, which was sent to associate partners in preparation of the test visit;
- Annex 5 is a more detailed technical guide for the Photos, Videos & More Module, which was sent to associate partners in preparation of the test visit.

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Report on existing
experiences
(deliverable 1.2)

1.1 Mapping existing databases on seized assets in the EU

Most EU countries have a database in place, though not always dedicated and/or not always comprehensive in terms of information gathered.

A database exists in Belgium, Cyprus (with information on relevant court order, type and value of the assets), Czech Republic (with a dedicated database still in its infancy), Greece (not dedicated database), France, Germany (at Land level), Ireland, Italy (at national level: REGIO, ANBSC; at local level a variety of entities, including that of the Rome Tribunal), Lithuania, Netherlands (the so called 'Seizure Portal'), Portugal (info on type of assets, location, evaluation, probative value, etc.), Spain, Slovenia (kept by local courts), United Kingdom (JARD).

A database does not exist in Denmark, Romania (though an integrated IT system is under development), Latvia, Sweden.

We now discuss the key experiences in more detail, also considering the associate partners' data collection systems. In selecting these experiences the research team included countries at different stages of development - i.e. both with structured databases and with databases still in their infancy - so as to understand the variety of existing ICT arrangements to which the Payback DMS shall be able to provide added value.

1.1.1 Belgium

Background information

A key actor in the management of seized assets and in gathering related data in a database is the Central Office for Seizure and Confiscation (COSC), which was set up by law of 26 March 2003, recently amended by law of 4 February 2018.

COSC assists the judicial authorities in criminal cases in the following areas: asset seizure; the implementation of criminal procedure with a view to the confiscation of assets; the enforcement of final sentences and orders involving confiscation of assets. In order to do this, COSC is requested to:

- provide advice on its own authority, or at their request, to the Minister of Justice and to the College of Chief Public Prosecutors;
- provide centralized and computerized management of the data relating to its various responsibilities, in consultation with the College of Chief Public Prosecutors, with the Council of Public Prosecutors and with the Service for Criminal Policy;
- sell seized assets, after authorization by the public prosecutor or the investigating judge;
- take charge of the administration of seized assets, in consultation with the public prosecutor or with the investigating judge;
- coordinate the enforcement of sentences and orders involving confiscation of assets;
- assist the public prosecutor and the investigating civil service jurist;
- provide information on particular subjects to civil service jurists, police services and relevant civil service departments;

- help in providing judicial assistance to other countries, establish and maintain professional cooperation with equivalent institutions abroad and collaborate with them in such regulatory frameworks as are established by treaty or statute.

As mentioned in the above list, COSC is charged by law, amongst other things, to set up a mechanism to collect data on seized and confiscated assets. Article 4 of the above mentioned law states that “§ 1. The Central Office will gather, manage and process data relating to: 1° seizure and holding; 2° confiscation; 3° *enforcement of sentences and orders involving confiscation*. § 2. It will manage and store the data referred to in § 1, in a centralized and computerized manner, for a period of ten years, to be calculated from the first notification as stipulated in article 5, § 1, extended, where necessary, until the confiscation order lapses. § 3. Without prejudice to the provisions of article 17, § 2, the director of the Central Office is responsible for the processing of the aforementioned data. He will ensure compliance with the requirements and guarantees of confidentiality and protection of the processing of this data, as intended in article 16, §§ 2, 3 and 4, of the Law of 8 December 1992 for the protection of personal privacy with regard to the processing of personal data. *The director will keep a record of those persons and categories of persons who may consult said data and will immediately submit this register, together with any amendments which may be made to it, to the Commission for the Protection of Personal Privacy*”.

The database

COSC currently uses a desktop application to register information on seized assets, as well as on related proceedings and persons. This system is called DELFI and is a basic application supporting simple data storage; very few data elaboration can, in fact, be performed. This means that the systems does not produce any graphical, financial or statistical output. It can simply provide summary information of the data in the DB, via DB functions like SUM, AVERAGE, etc. Since this application is old fashioned and does not support daily asset management, COSC is in the process of migrating to a new system implemented with Microsoft Navision, that will replace DELFI. Since this system is not operational yet, we focus here on the DELFI system.

When a new asset is seized, the police fills in, on paper, an inventory with detailed information on the assets. This is sent by fax to COSC, where it is manually inserted into DELFI by COSC staff. The system permits the creation of a new case, called “Dossier”. The dossier contains many notices, which corresponds to the above mentioned inventories, i.e. the description of the seized assets. Persons who are linked to a single dossier

(prosecutors, investigators, defendants, etc.) are also registered. Furthermore, a list of court’s decisions is stored for every dossier, each of them linked to one or more assets.

DELFI assigns an unique identifier to each dossier, in this format: DOSSIERCODE/INVENTORYCODE/JUDGMENTCODE.

The system works on a Local Area Network. Everybody inside COSC can access the system from a terminal where it is installed. Authentication to the system is done through the IP address of COSC’s computers.

Some communication issues shall be here reported, because of their impact on data accuracy and completeness. Sometimes police forget to send inventory for a given asset, so it might happen that some seized money is credited on COSC bank account but COSC does not exactly know the procedure it relates to. The opposite can also happen: COSC receives the inventory for a given asset from the police, but the asset is not found in its depots. This obviously generates ambiguous and inconsistent data. These issues are going to be solved by using a barcode that uniquely relates an assets to its inventory (this will be incorporated in the new Navision system).

1.1.2 Bulgaria

Background information

It was decided to focus on the civil confiscation regime (forfeiture), which is managed by the Commission on Countering Corruption and Illegal Assets Forfeiture (CCCI AF). The key regulation is the Counteracting Corruption and Forfeiture of Illegally Acquired Property Act (CCFIAPA).

CCCI AF starts an investigation into the property of a person under three legal hypotheses:

- upon notification from the prosecutor’s office for the initiation of pre-trial proceedings regarding a person;
- upon a signal reporting a corruptive practice or an apparent conflict of interests;
- ex officio, when considering declarations submitted by public servants under the CCFIAPA.

The procedure is executed under the provisions of Articles 114 to 116 of the CCFIAPA and ends with a decision either to close the initial investigation or to bring a case before a civil court in order to secure an allegedly illegal property for future forfeiture and continue investigating.

After an asset has been secured by the court, under the provisions of Articles 117 to 134, it is put in the care of either its legal owner, with his/her rights being restricted, or of a custodian, appointed by the court. It should be noted that the National Revenue Agency (NRA) manages seized assets, while CCCIAF is a custodian only. CCCIAF then invites the owner to provide all the information necessary to prove the licit origin of the finances used to acquire the frozen property. This phase of the proceeding again concludes with a decision either to close the case or submit a request to the court to forfeit the assets. Following the procedure under Articles 153 to 159, the property is either given back to its legal owner or transferred into the care of the State.

The database

As per article 170 par 1 of CCFIAPA the Electronic Register for Secured Assets contains information about assets from freezing until the end of the civil forfeiture procedure. It is intended to provide an administrative service to other institutions, i.e. the National Police (Mol), the Customs Agency (MoF), the State Agency for National Security, the Prosecutor's Office, NRA. It collects and provides data regarding the identification and description of the property, its legal owner and the court decisions related to it.

It was set up in 2016 as a web application; it was developed by an external company. It is managed by CCCIAF on its own servers.

Data can be inputted only by CCCIAF staff, and manually. The following institutions can access the database: MVR, SANS, Prosecution, Customs, NRA. These institutions send a list of users; the users access a web-based interface and they register themselves. Then the system administrator checks the registration and authorises access. The database envisages two different levels of access: admin and user. CIAF can edit, while external users can read only.

When a notification reaches the chief inspector of a local investigation office, the chief can insert the notification into the system; then by a Random Assignment System (RAS) s/he can allocate the new case to an inspector. The RAS has been conceived and developed by a person working at CCCIAF. The system evaluates the amount of work each office inspector is already managing using a scale from 0 to 10. RAS also evaluates the amount of work needed to handle a new case notification and displays a list of suitable inspectors to the chief. The chief inspector can then select to whom the case shall be assigned, and the basic data are then sent to the target investigator.

In fact, two inspectors work side by side on each case: one is in charge of the legal aspects and one of the economic ones. They use the system only to acquire the basic information about the case and then keep working on paper. The legal inspector surveys the legal aspects of: properties, movables, gold, bank accounts, companies, etc.; while the economic inspector surveys all economic related issues, such as, for example, value of the asset, illicit amount derived from it and its economic history.

The system infrastructure consists of an off-line and an online part.

The offline part of the system is made up by two parts. One is the Case Management System (CMS). This is the part used by the inspectors to investigate; here they can perform research operations, update existing case files and upload new files. Search operations can be performed on people, assets and court decisions.

The other part is called "Register": it contains all the information about a case for which a freezing decision has already been taken. From here inspectors can perform research operations. It is very similar to the search operation that they can do from the CMS, but it only displays details about freezing cases.

This part of the application reads and writes from and to the Internal DB, which contains data that are constantly updated by the inspectors during investigations.

The online part is publicly accessible from a web browser. In order to access the system, one must first register and obtain a personal authorisation from an administrator. Once logged into the system, a user can submit requests for information about an asset or a court decision.

An administrator or inspector has to use the online application to accept or refuse the incoming request. If s/he decides to accept, s/he queries the system to obtain information. S/he can choose among the information which is relevant depending on the request. When the requested information is ready, it can be sent back by email to the applicant.

This part of the application reads and writes from and to the External DB, which contains only data about entities involved in cases for which a freezing decision has been taken.

Once a freezing decision has been taken for a case, the data concerning that case are manually transferred from the Internal DB to the External DB.

The system does not produce any automatic statistics, graph or map; users export data into excel format and then produce graphical results by hand from the excel suite. It does not envisage any alert.

The key problem affecting the database is its slowness, and this is one reason why inspectors do not use every feature it comes with and continue to work on paper. The slowness is probably due to the hardware on which the system runs. Currently, it is therefore underused and unable adequately to support daily asset management.

1.1.3 Czech Republic

Background information

The seizure order is either adopted by the police (and then shall be approved by the public prosecutor) or by the public prosecutor.

If there has been a seizure where the assets stay with the owner (freezing), the assets are left in the possession of the accused person. This applies to: real estate (with a transcription of seizure in the real estate register); bank accounts (that are frozen and the rights of the owner restricted); shares/stocks. With reference to movable assets taken under custody by the police, since the police do not have the resources to manage all of them, the vast majority are managed by the Centre for Seized Assets (CSA). This has been operational since 01.01.2017, within the Ministry of Interior.

Police manages the assets when: the case is simple and a final decision is expected in a few months (fewer than 6); assets shall be given back to their owner; assets have a probatory value. CSA manages the assets when: the expected duration of the case is longer than 6 months; large cases, where the police do not have the technical means to take all the seized assets (e.g. 20 cars located in various parts of the city); assets that do not depreciate (e.g. paintings, luxury cars, heavy construction machines). Since the enactment of act 86/2015 (effective from 1.6.2015), it is possible to sell seized movable assets.

Police can manage and sell the assets on its own, even if it is common practice to hand them over to CSA, once the above criteria are met. Usually CSA goes to the relevant police district (there are 14 in the country) and collect them from their management body. The only exception is when CSA is requested by the police to support them with the seizure (the “large cases” mentioned above), where CSA participates in the execution of seizure and takes custody of the assets directly at the seizure spot, also recording videos. The police must authorise CSA to manage and even to sell.

Depending on the phase of the proceeding, the sale order can be adopted by the police, the public prosecutor or the court. CSA can ask one of these authorities to sell; should the sale order be not issued, then CSA is no longer regarded as responsible. When CSA is authorised to sell, the sale is published on a dedicated website (www.cenza.cz), where assets for sale are listed and there is a link to online auctions. Online auctions are handed over by CSA to dedicated eshops (e.g. aukro), that are previously selected by CSA to optimize sale profits for each asset. CSA uses very popular eshops. When CSA is not authorised to sell, assets are managed so as to preserve their value (CSA is not allowed to act so as to increase asset profitability, since it would be too risky).

The database

There are two relevant databases: the police database (IS ETŘ - Informační Systém – Elektronické Trestní Řízení) and the CSA database, still in its infancy,

The police database is a nationwide database; it was set up in 2011 and has been fully operational since 2012.

When information is inserted in the db, what is first automatically generated is a case number related to the proceeding. After inputting the initial information about the crime, a menu with over 400 forms opens up. These change from crime to crime (e.g. if there are victims; forms to gather information from banks: these forms were previously transmitted to banks on paper, now they go via the digital post system; forms to order seizure are also in the system). When information on seized assets is available, this is inputted (e.g. legal basis for seizure, date, authority, type of asset, description, number of items/weight, estimated value, storage/location (and any change), photos, related judicial information, lifting of the seizure).

The db is very wide (400 forms), but regarding seized assets only about 25 are relevant. Information on persons are part of the wider db, not of the forms regarding the assets.

The database records information until the final confiscation order (including the court order), but does not include information about the sale of the assets (including the sale price). Data can be inputted, manually, by the police. Only police have access to the database via registered computers at the police office. All information from prosecution and courts is inputted by police, in order to preserve the high level of security of the database.

The database does not automatically produce reports intended to measure asset management efficiency. Neither does it include any automatic alert; however, it

is possible to ask (manually) whether certain deadlines have been met.

Outputs/analytical tools are available, but are limited: e.g. number of assets seized by a given police office in a given timeframe, by crime type; number of assets managed by a given police office in a given timeframe.

Because of its key role in asset management and considering that the Police database does not fully meet the needs of the Centre, CSA started its own data collection, which is still in its infancy, however. CSA has 3 types of db: 1. per type of assets and flow of money (a simple excel table), with a file number; 2. to register issued docs related to each file number (e.g. authorisation to sell, sale order, official appraisal, sale contract, their internal notes - basically these are all pdf docs). Everything relevant and important (crucial info) is loaded in the GINIS system of the Mol. GINIS is basically a file storage similar to Dropbox, but everything is stored locally not in cloud. 3. catalogue of products (cenza). Is used for sales, with very detailed description of the assets, including QR code. It includes both open web-pages and hidden ones.

1.1.3 France

Background information

Key actors involved in asset management in France are:

- local actors: the magistrate who orders seizure can task AGRASC with the sale of seized assets; the magistrate can also task AGRASC with the management of assets regarded as complex because of specific issues (e.g.: a seized boat in danger of sinking in a harbour); the registry of the district court also plays a role: the clerk must record all movable assets seized that are being stored within the district court or at an external depot. All the fees related to the depot are legal fees paid by the registry office of the district court;
- central actors: AGRASC is the national agency in charge of the management of seized assets. It is a public administrative body directed by a magistrate of the judiciary and has exclusive jurisdiction in the management of seized assets throughout the country. It has a unique jurisdiction for seized money, as well as most seized banking accounts. Because of this, it executes judicial decisions related to money, like restitutions, compensation to victims, confiscation. For real estate, there is no "management" because in France a seized real estate remains under the responsibility of the owner; here, the role of the AGRASC is to register seizure orders on a dedicated official register; it is only when the real estate

has been confiscated that AGRASC will manage the asset so as to sell it. In the case of seized movable assets, AGRASC has also exclusive jurisdiction to sell movable property before judgment, as soon as a judge decides to do so.

The database

Since its creation AGRASC has registered and traced its files on an Access database, designed in-house, called Base AGRASC.

The main goal of the database is to ensure total traceability of data in connection with seizures and confiscations. Since AGRASC centralizes all the money seized (cash) and most of seized bank accounts, it is essential to know the traceability of these assets so as to execute any confiscation or restitution. The same goes for real estate, since AGRASC has exclusive jurisdiction to ensure its seizure and then execute confiscation. It was also important to set up a database to upload all scanned court documents (allowing access to all information without using paper files).

A project to redesign this base was launched in 2014 with a twofold purpose: identical functionalities (but without ACCESS) and integration into the Ministry of Justice IT system to ensure better IT security. The database was then modified so as to more closely meet the needs of the AGRASC staff in the management of the assets (especially the real estate).

The project manager of the database within the AGRASC is the General Secretary. The IT Division of the Ministry of Justice manages the database and the General Secretary has a supervisory role.

The database of the AGRASC gathers information on:

- all seized money and most banking accounts (saving or deposit accounts);
- all seized real estate;
- the seized movable assets that AGRASC is requested to sell before the final judgment.

For all these assets, the database collates information related to all the different phases (seizure, confiscation, disposal, restitution) because AGRASC has exclusive jurisdiction to execute the court decision on these assets.

Only the staff of the AGRASC can have access to the database and can input data. For the data inputting, the Registration and Monitoring Department at the Agency does this huge amount of work (more than 1

000 files are registered a month) for the money and banking accounts, and two other units do so, one for movable assets, the other for real estate. The database was formally declared to the National Committee for Data Processing and Civil Liberties (CNIL, the French Data Protection Supervisor), which validated it by a deliberation dated 10 November 2011. Subsequent to this validation, a ministerial order was issued on 20 January 2012 and published by the Ministry of Justice; as a result, the database was validated and all the AGRASC staff is entitled to manage it. Data are inputted manually.

First, data related to the case are inputted (e.g. registration number in the district court, location of the district court, name of the magistrate who ordered seizure, date of adoption of the seizure order). Then, each file contains the decisions of the court and details about the asset: location, type (vehicle, jewellery, real estate), etc.

In terms of access, only the AGRASC staff can access the database, via a web application that requires a login, as well as the IT company which helped AGRASC to develop the new database (they have only access for technical maintenance).

Each member of the AGRASC must have a security clearance, and this member will have access to all or only a part of the database according to his/her responsibilities in the agency.

The database automatically produces outputs such as the number of the cases registered in the last 3 months. More outputs shall be included in future (there is an ongoing discussion on the topic).

The database does not automatically produce reports intended to measure asset management efficiency; this process is ongoing for the next developments of the database (e.g. average number of days assets have been under management before their disposal).

Some automatic alerts like deadlines related to timelines of the proceedings are envisaged.

1.1.4 Ireland

Background information

Within the Payback Project it was decided to focus, in Ireland, on the civil confiscation regime. The Criminal Assets Bureau deals with this; the key regulation is the Proceeds of Crime Act 1996 (and following amendments).

The starting point of the procedure is the adoption of a freezing order, under either Section 2 or Section 3 of PCA. Under Section 2, it is a short-term freezing order (interim order), lasting 21 days, based on an *ex parte application* (i.e. without notifying parties). Under Section 3, it is a long-term freezing order (interlocutory order), lasting 7 years, and adopted following a full hearing.

Another relevant provision is Section 7 (receiver), which states that where *“an interim order or an interlocutory order is in force, the Court may at any time appoint a receiver (a) to take possession of any property to which the order relates, (b) in accordance with the Court’s directions, to manage, keep possession or dispose of or otherwise deal with any property in respect of which he or she is appointed, subject to such exceptions and conditions (if any) as may be specified by the Court, and may require any person having possession or control of property in respect of which the receiver is appointed to give possession of it to the receiver”*. Usually the appointed receiver is the CAB Legal Bureau Officer. In managing the assets, s/he is assisted, within CAB, by the Asset Management Office (AMO), which is currently consist of three people.

In all instances, investigators make pre-seizure planning, so that assets which could be subjected to a freezing order are profiled. This is of crucial importance, since different assets have different needs (e.g. planning the freezing of 10 cars, one of which is a Ferrari, which requires a special container to be moved). In terms of management options, 4 key options are available. The key principle is that minimum steps should be taken to secure assets:

1. the lightest level is the freezing order itself, and leaving the assets with the person e.g. a car used by a disabled person, or to transport children;
2. the next level is seizure: assets are taken away from their owner and secured elsewhere;
3. disposal (i.e. sale before an order under Section 4): for a house, for example, it should first be determined if the house has valid insurance; if not (insurance is invalidated in 95% of cases after a freezing

order) the receiver (with the power to sell granted by the High Court) will sell it;

4. destruction, for things bad in themselves (cigarettes, alcohol, drugs).

The database

The relevant database is CSSOAccess. It provides information on an asset-by-asset basis and was created in 2012. It was developed within the Bureau by the then head of the Chief State Solicitors Office (Criminal Assets Section) Mr Declan O'Reilly who is now the Bureau Legal Officer. It was created to provide information as part of a requirement under a Management Information Framework project. This was targeting not on assets, but on the management of legal files. Management information for assets was subsequently developed.

It has been significantly amended over the years. As said, phase one concerned solely the management of cases rather than assets. The second phase involved inputting every asset that was the subject of an order together with ancillary information.

Each asset is given a unique number on entering the system. This allows for assets to be tracked as the asset changes, e.g. from a car, to being sold, to being money then lodged in a bank account. It also allows for reports to be generated to identify which assets have been made the subject of what court orders and when.

The database tracks the asset as it progresses through the stages. Section 2 (temporary freezing), Section 3 (permanent freezing), Section 7 (appointment of a manager receiver) to final confiscation under Section 4. It covers on a national basis all assets subject to court orders which are within CAB's remit. It does not track or cover post-conviction confiscation.

Only limited personnel within CAB can input data relating to the assets manually. This is to ensure data quality. The system has a number of features that generate user- and management-based reports. The user-based reports allow the data inputters to carry out their work more easily if they input the data which encourages compliance. Management reports have inbuilt audits to identify potential missing data. It is primarily the lawyer (solicitor) who makes the court application that updates the records.

It is a multi-relational database. Each asset is assigned its own unique number but this is cross-linked to other cases and proceedings.

The following data are inputted:

- ID number;
- Chief State Solicitor's Office File number;
- Asset ID Number;
- Bank account number associated with asset;
- Asset Schedule Number (as listed in court order);
- Total number of assets listed in case);
- Asset Type;
- Asset Description;
- Date of orders relating to asset;
- Value of asset;
- File reference number;
- File location associated with asset.

As the database is a cross-relational database it allows *ad-hoc* sql queries to be made creating new linkages.

Data input is as user friendly as possible. However, it relies on a non current form of MS Access. The current version of MS Access would allow for more development.

All the fields are not mandatory in terms of data input. Only system critical fields are mandatory. However, audit and compliance checks are run on a periodic basis to ensure that fields are filled in.

In terms of data access, case filehandlers within the CSSO and Senior Officers within CAB have full access to the database on a read/write basis. An asset manager has limited access to the database.

In terms of outputs, as the system was designed in house and is maintained in house, any amount of reports can be created. A number of standard reports for end of year statistics and tracking of assets are maintained. However, when the need arises, the database is structured in such a way as to allow for rapid SQL queries to be run to allow for outputting of targeted responses.

Certain alerts are inbuilt as part of the system to ensure data compliance by inputters. Certain logic tests were designed to highlight inconsistencies such as impossible dates (sequencing of dates) or the inputting of null values.

Data may be outputted to any system capable of taking an MS Access export.

Because the system is bespoke and designed in house, it supports information management to the extent necessary. However, this could/should be enhanced further to provide more granular details regarding asset management.

The system runs on a secure inhouse server with a full air gap to external systems. Any data exports across the air gap are automatically logged.

1.1.5 Italy

Background information

In Italy there is a database run by ANBSC (Agenzia nazionale per l'amministrazione e la destinazione dei beni sequestrati e confiscati alla criminalità organizzata) at the national level and a variety of databases at the court level. It was decided to pay attention to the database of the Rome Tribunal, considering that it was regarded as a particularly promising and interesting experience on the occasion of the meeting of the ARO Platform and of its Subgroup on Asset Management.

The database

The database maintained by the Rome Tribunal was set up in 2014. It makes it possible to map all assets seized by the Tribunal (any typology). It has been set up for operational purposes. The db - which is supported by a software developed by Aste Giudiziarie INLINEA S.p.A. - was created in just two months, and at no cost: two officers from Guardia di Finanza developed the db; Aste Giudiziarie created the software for free. The system is accessible to registered users, including law enforcement agencies and entities that have signed protocols with the tribunal, such as Libera (that supports allocation of the assets by identifying suitable users).

This db has been developed on the basis of a similar system created by the Milan Tribunal. It has been set up because there was and there is a very high number of seized assets in Rome: for example, in 2013 there was a +700% increase in the number of preventative proceedings (from 10 to 70); at present, there are 200 companies and 200 immovable assets under management at the Rome Tribunal, worth half a billion euros. It was necessary to set up an IT system to support their management, and to use it also to dialogue with other entities that can assist with asset management/disposal issues. The database is used to develop a network with different relevant actors, so as to promote a prompt management (e.g. national bank association, to ensure that seized and confiscated companies can keep having access to credit).

The database makes it possible to keep track of assets seized in the so-called preventative proceedings (*sequestro di prevenzione*). It is composed of two interfaces:

- Data entry section is a *restricted area* to officers from Guardia Finanza and
- Registered users section is a *public area* for accredited public and/or private bodies like public administrations, trade associations and authorities.

The former contains data on seized assets, while the latter includes the fundamental information that enables accredited entities to identify assets for their interest potential. Both areas are accessible by prior authentication.

Regarding the data entry section, it has a control panel which makes it possible to show, integrate and modify data on seized/confiscated assets stored in the database. It is made up of six main macro-categories:

- Homepage;
- List of the assets;
- Registering assets;
- National map of the assets;
- Map of Rome's municipal district (*Mappa dei municipi di Roma*).

The homepage describes the functionalities of the system and shows the amounts of the proceedings and the key actors/bodies (judicial administrator, judge in charge of the case, defendants, third parties, companies/shares) involved in the procedure.

The list of the assets contains a table which shows a list of all assets by macro-type (company, movable asset, other form of aggregation, real estate, etc.), at the territorial level, along with their current status. It is also possible to export some data in CSV format file by various filters (by state, district, city, address or asset color) in order to run statistical analyses.

The registering assets command makes it possible to insert any type of asset (such as real estate, movable asset and company), to search for a given asset, for example, by unique identifier, proceeding, state, district or macro-type, and to look at the status of a given asset.

The user's management keeps track of users' operations (e.g. adding, deleting or modifying their data) stored in the db users.

The national map of the assets (companies/other forms of aggregation/real estate/ventures) makes it possible to visualize the location of the assets registered in the db on a map.

The map of the municipalities of Rome makes it possible to check the amount of the assets stored in the db and to look up a given category of asset by macro-typology or type of proceeding at the municipal level.

Regarding the registered users section, the system is accessible to registered users, including law enforcement agencies and entities that have signed protocols with the tribunal. The database allows the potential beneficiary to see detailed information, such as location, photographs and further information about a given asset and, to search for a specific asset by type, state, district, area or asset number.

In addition, the system makes it possible to communicate directly, through P.E.C, with the judicial administrator in charge of the procedure in order to gather other relevant information to describe a certain type of asset.

The key steps to record an asset are the following:

- 1) the data input users should log in via the web application;
- 2) the following data should be preliminarily recorded:
 - judicial administrator;
 - judge in charge of the case;
 - defendants;
 - third parties;
 - companies/shares
 - proceedings;
 - joined proceedings;
 - assets.
- 3) When a given asset has been registered manually into the system, a unique identification number is created.

All fields (except a few) are not mandatory.

The system generates reports automatically in CSV format. Reports contain all types of information registered in the database.

1.1.6 Netherlands

Background information

There are two data collection systems on seized assets, one is for the case itself (Compas/GPS), in use for some decades now, and one is for goods which have to be logistically moved from one place to another (Beslagportaal – Seized Goods Portal, henceforth SGP). Considering the vast amount of assets managed within the BSG system and that it is in the process of being extended also to non-movable seized assets (e.g. real estate, bank accounts, money), it was decided to focus on it within the Payback Project.

SGP is under the responsibility of the Movable Goods Agency (Domeinen Roerende Zaken - DRZ), within the Ministry of Finance.

This Agency basically executes the public prosecutor's decisions regarding seized assets. The public prosecutor in charge of a given case (or the AMO, i.e. Functioneel Parket) can take five types of decisions regarding seized assets:

- a) lift the seizure order and give assets back to the owner (art. 118a);
- b) return for a surety;
- c) storage (based on article 94/94a);
- d) sale (art. 117);
- e) destruction (regulated under a variety of provisions).

Domeinen executes these decisions:

- if there is a decision to sell, Domeinen arranges on a monthly basis auctions, and profits flow to the AMO/PPO bank account;
- if there is a decision to ask the defendant for a surety, Domeinen gets the money and sends it to the AMO/PPO bank account;
- if there is a decision to destroy or store, Domeinen executes it and inputs information into SGP.

The database

On 4 June 2012 the development of the Seized Goods Portal, a web-based application, started under the responsibility of the Movable Goods Agency (Domeinen Roerende Zaken - DRZ), in cooperation with the Police and the Public Prosecutor (OM). On 1 December 2012 all Chain Confiscation Houses (KBH's) - which are the

depots at the police where assets are stored and are registered - were connected to the Seized Goods Portal. Since then the Public Prosecutor only makes decisions based on information in the Seized Goods Portal. SGP focuses on seized movable assets only, to be logistically moved from one place to another. The portal was significantly amended in 2017 from the technical viewpoint (e.g. update of the technical components, coding, audit trail). Various developments are currently under discussion, including changes to make it suitable for all seized goods (e.g. real estate, bank accounts, money). This is also because some assets were lost, and the Ombudsman took a stance to protect citizens' rights, submitting a report to the Government titled "Where is my car?". There are also problems of data input (missing information).

The reason for developing a Seized Goods Portal was to create an automated process for effective and efficient support of the confiscation of goods. Previously, there had been no central registration system for the parties involved and there was no unique registration number. This could lead to great integrity risks. The portal was created to gain a better overview of certain seized goods, and to create a logistical process among the various partners in the chain. SGP was developed to at least get rid of the old system, where PPO sent information on the assets to Domeinen on paper. There was the ambition to create a single system, but it failed, since each of the three agencies involved had (and still has) separate ICT systems, so that a clear separation between data on the case and data on the assets has been kept. As a consequence, SGP is not connected with another key system developed for the case itself (Compas/GPS, in use for some decades now within the prosecutorial system).

In regard to the partners involved, it should be considered that a key role is played by Domeinen Roerende Zaken, which is tasked with management of seized assets (storing, selling, destroying or returning to owner), based on decisions taken by the public prosecutor. Even if there are other agencies with this role (for specific assets, such as money, guns and animals) - that are also part of the SGP - Domeinen is the biggest agency with this mandate.

Stakeholders are the following:

1. National Police Department (NP)
2. Special Investigation Agencies (BOD-en)
3. Public Prosecutor (OM)
4. Central Judicial Collection Agency (CJIB)

5. 7 different conservators, depending on the type of good:

- Unit Logistic Service (ULD), for ammunition and weapons
- The Dutch Bank (DNB), for all kinds of money, real and false, collections.
- Immigration and Naturalization Service (IND), for identity papers, passports etc.
- National Road Traffic Service (RDW), for car registration certificates
- Expertise Centre Identity Fraud and Documents (ECID), for identity papers and documents
- Netherlands Enterprise Agency (RVO.nl), for live stock, liquor etc.
- Central Counter Conservator (CLB), for motor vehicles, boats, bicycles, etc. - *this is the Movable Goods Agency*

Each good has its own flow in the Seized Goods Portal. When the good has been registered in the system (automated or manually), the Public Prosecutor takes a decision about what has to be done with it: return it to the owner, lift the seizure, destroy or sell it.

After the decision has been made, the good is (logically) transferred to the Movable Goods Agency (DRZ). The MGA has the role of Central Conservator. It will transfer the good to one of the other conservators listed above if necessary, depending on the type of good.

An asset moves along the system by changing status (there are 99 statuses currently). Each stakeholder has its own role in the Seized Goods Portal and its own statuses.

The key steps are the following:

- there is an initial registration of the assets in the police system (and in the system of the special investigative bodies). This is summary information, registered in one of the two police systems, called BVH and SUMM-it. Information is then exported automatically to the SGP. Registration is status 1, and is done either manually (inserting data into the portal) or automatically by importing data from BVH and SUMM-it. *Automated: by importers picking up files sent to Domeinen through BVH and Summ-IT every night (by the Police and the Special Investigation Service). Manually: by Police or Special Investigation Service.*

Assets are taken at the deposits of the police and of these special investigative agencies; Domeinen and the other stakeholders will pick them up at a later stage.

It should be noted that some assets never leave status 1; the Domeinen and the police look at the lists of these assets to understand what is happening (e.g. never registered, double registration, destroyed already with another ID);

- when the good is at the police deposit, information on the asset is updated by accessing the SGP directly (status 2);
- police follow assets until status 13, when the public prosecutor decides what to do with the assets: sale, destruction, return to owner or storage, and orders that these are assigned to Domeinen (all goods in all categories above - so not just vehicles but all movable assets from the above categories);
- Domeinen steps in at this point. For assets different from vehicles, Domeinen orders the relevant agency (see list above) to collect them. Hence, with respect to assets different from vehicles Domeinen has a role of mediator. For vehicles, Domeinen goes to the police deposits and picks them up and takes them to their own locations; Domeinen has 4 locations in total, plus the central office in Apeldoorn, which is not for storage but for administration only.

The information included in the SGP stops at this phase of the procedure, i.e. with the execution by Domeinen of the decision taken by the public prosecutor. The case continues and then there will be a provisional and final confiscation order (art. 36e of the Penal Code), and its execution by CJIB (Centraal Justitieel Incassobureau; <https://www.cjib.nl/>).

1.1.7 Spain

Background information

Seized assets can be managed either directly by the judicial bodies or by the Office for Asset Recovery and Management (Oficina de Recuperación y Gestión de Activos, ORGA):

- the management is carried out by the judicial body, via the chancellor's office. When seized assets shall be sold, the judicial authority can either appoint a specialized entity (e.g. auction house, specialised company) or proceed with the sale on its own;
- the judicial body can entrust the management of the property to ORGA at different times, i.e. goods that have been seized or assets already confiscated. Assets are valued and a proposal of action is submitted to the judicial body. This can be one of the following: transfer of the seized money to the ORGA bank account, adoption of measures to preserve the assets, assignment to a public administration for provisional use, sale, destruction. For the time being, ORGA cannot manage companies and cannot be in charge of the deposit of the goods which are entrusted to it.

The database

The EXPORGA database was set up by ORGA in 2016, based on article 10 of Royal Decree 948/2015. All assets managed by the Office shall be recorded in EXPORGA, an inventory of seized and confiscated assets, with information about their nature and value and a description of any management intervention. The database makes it possible to ensure total traceability of data in connection to seizure and confiscation. More in detail, it:

- brings together and systematizes information essential for the localization, tracking and recovery of the assets;
- registers all the data and actions related to a given asset: value, cost saving from the action proposed by the Office, actions taken (sale, destruction, use by a public body, etc.), income and expenses derived therefrom;
- promotes progressive integration with existing applications in the field of electronic communications with the judicial and prosecutorial bodies, the electronic procedures for the realization of the goods, and the electronic accounting procedures within ORGA;

- generates statistics to assess the effectiveness and efficiency of ORGA, in compliance with principles of transparency and accountability.

A first version of the application was in Access 2010. It was followed in 2017 by a computer application in Web environment. Its features are as follows:

- inventory of goods (detailed list of the goods managed by the Office);
- actions undertaken;
- automatic alerts (e.g. deadlines to respond to certain communications; dealines related to auctions, etc.);
- statistical production;
- accounting: control of expenses, income, bank movements, etc., related to seized assets.

EXPORGA gathers information from when it is tasked with the management of a given seized asset until the end of the procedure (confiscation).

Data are inputted manually, by ORGA staff only. The file number is determined by the judicial procedure. In addition, a number is assigned to assets as well.

The following data are inputted:

- type of asset (taking into account that all kinds of goods can be entrusted to ORGA; they can be movable assets (vehicles, boats, works of art), real estate, cash, animals, food, etc.);
- data of the asset's owner;
- if under seizure or confiscation;
- physical location of the asset;
- details of the judicial procedure;
- activities that ORGA should undertake in relation to the asset;
- details of the management activities carried out at a given time (e.g. date of the auction);
- financial information: income, interests, estimated value, auction price, etc.;
- invoices associated with the management.

Data input so far is user friendly. There are no mandatory fields.

Envisaged is data access both by ORGA staff and, for consultation purposes only, by judicial authorities.

Outputs that can be produced so far are limited: the application has a report module that provides basic information, such as the number of assets seized, managed, no longer under management, etc., by type of asset, on a monthly and quarterly basis. Some statistical reports will be gradually added, based on needs. Charts or maps are currently not generated. Some automatic alerts, as mentioned above, have been incorporated; some more will be added in future.

1.2 Comparing existing databases on seized assets in the EU

The databases described in the previous paragraph are herein compared by looking at their strengths and weaknesses (see Table 1).

Table 1 – Strengths and weaknesses of existing databases on seized assets in the EU

Country (and related db)	Strengths	Weaknesses
Czech Republic IS ETŘ (police db) and CSA db	<p>Police db:</p> <ul style="list-style-type: none"> • one integrated system • speediness • automatic transfer of data to a variety of modules • simplicity: the system is user friendly <p>CSA db:</p> <ul style="list-style-type: none"> • more capable than the police db to support daily management activities, in principle 	<p>Police db:</p> <ul style="list-style-type: none"> • implementation problems (training, data collection, incomplete files due to human inaccuracy). So, for example, final court decisions are sometimes not inputted due to court omission to notify the decision or to failure to register by police officers • limited availability of graphs • no automatic production of reports intended to measure asset management efficiency • no automatic alerts • limited use of available information on asset valuation to support asset management <p>CSA db:</p> <ul style="list-style-type: none"> • still in its infancy (to be fully designed, consists now of an excel file with few variables of interest)
Spain (EXPORGA)	<ul style="list-style-type: none"> • access is relatively cheap and programming easy • DB development specifically targeted to ORGA needs and future developments 	<ul style="list-style-type: none"> • limits related to Access (e.g. no web access, data limit set to 2 Gb; in terms of data security) • limited outputs can be generated • limited automatic alerts
FR (Base AGRASC)	<ul style="list-style-type: none"> • data input is easy to do (even though a bit tedious) • designed to respond optimally to AGRASC needs • all docs are scanned and uploaded into the db • allows AGRASC to see the evolution of all the assets the Agency is in charge of 	<ul style="list-style-type: none"> • currently no automatic production of reports intended to measure asset management efficiency (but ongoing process) • limited automatic alerts incorporated • limited production of outputs
IE (CSSOAccess)	<ul style="list-style-type: none"> • the system produces reports in a timely fashion tailored for the needs of the office 	<ul style="list-style-type: none"> • the system is person critical. It was designed and maintained by the current Bureau Legal Officer • more focused on the management of legal files than on the management of assets
NL (Seized Goods Portal)	<ul style="list-style-type: none"> • gives a good overview of seized assets (lots of details) • it makes it possible for several partners to work together in one system • constantly under development, based on the needs; soon will register other types of goods (not only movable ones) 	<ul style="list-style-type: none"> • issues related to implementations, knowledge of the people who work with the system etc. • does not keep track of the exact location of the assets over time • does not include pictures of the assets at different times of the procedure, so as to track their conditions • limited use of available asset valuation data • limited automatic alerts incorporated

Country (and related db)	Strengths	Weaknesses
BG (Electronic Register for Secured Assets)	<ul style="list-style-type: none"> in principle, the database shall support the civil confiscation regime and promote inter-agency cooperation 	<ul style="list-style-type: none"> slowness of the database, and as a result limited use of the db by inspectors, due to its slowness (they continue to mostly work on paper) the db is therefore underused and unable adequately to support daily asset management technical issues (one reason for the system's slowness is probably the hardware on which the system runs) extracting precise information about an entity (court decision, person, asset) is difficult since the db stores almost everything in a text description field; the Register is somehow a duplicate of the CMS. It was developed only to meet the legal obligations in this area; no automatic production statistics, graphs or maps; users shall export data into excel format and then produce graphical results by hand from the excel suite no alerts envisaged
IT (db of the Rome Tribunal)	<ul style="list-style-type: none"> gathers very detailed information on the assets and on related criticalities (e.g. parallel proceedings, mortgages, bankruptcy), thus allowing better planning of interventions; few people insert data (2), thus ensuring, overall, data quality and consistency accessible to registered users, to promote a prompt management, These users include LEAs and other entities, such as Libera (that supports allocation of the assets by identifying suitable users) and the national bank association (to ensure that seized and confiscated companies can keep having access to credit) 	<ul style="list-style-type: none"> exact asset location is not always registered, and when this is done it is in a text description field pictures of the assets can be uploaded, but this is not always done no automatic alerts incorporated limited and burdensome production of outputs most fields are not mandatory, so data quality and completeness is person sensitive limited use of available asset valuation data
BE (DELFI)	<ul style="list-style-type: none"> gathers detailed information about seized assets, and related proceedings and actors 	<ul style="list-style-type: none"> static repository of information about seized assets does not produce any statistical and graphical output; it does not allow any data elaboration communication problems between police and COSC (e.g. police inventory/no asset at COSC; no police inventory/asset at COSC) no automatic alerts incorporated

Source: eCrime elaboration of the replies to the questionnaire mapping existing experiences.

In short, it is possible to conclude that:

- there is a great variety of existing ICT arrangements across the EU, with countries at different stages of development (some with a structured database, others with databases still in their infancy);
 - existing databases are continuously evolving, based on the concrete and changing needs of relevant national institutions (transition from one db to another or redesign e.g. BE, IE, FR, NL);
 - existing databases are closely connected to national regulations, institutional building arrangements, available resources; each database is strongly influenced by the laws and institutional building arrangements in a given country, as well as by the level of commitment and resources devoted so far to this issue;
 - there is a scant level of completeness and quality of key data: so for example, a key information such as the exact location of seized assets at a given time is not a mandatory field (e.g. in IT, NL), and is not updated;
 - existing databases are based on different ICT solutions, e.g. web based vs. Access;
 - in most cases, current databases do not envisage any automatic alerts;
 - in most cases the production of statistics, graphs and maps, within current databases, is limited/unfriendly;
 - in most cases current databases do not envisage any automatic production of reports intended to measure asset management efficiency;
 - in most cases current databases make limited use of available asset valuation data to inform asset management activities.
- be easily and fully integrable in pre-existing systems, so as not to replace existing ICT systems, but rather complement and boost them;
 - boost the automatic production of outputs, in order to support daily asset management activities, measure asset management efficiency and promote accountability of relevant institutions;
 - make practitioners' jobs easier with automatic alerts.

This review made clear, together with the findings from WP2 (see chapter 2 of this report), that, in order to provide each country with a real added value, the Payback Data Management System shall:

- focus on three key topics widely recognised as crucial at the EU level but still largely neglected or scarcely addressed by current national ICT systems: exact location of seized assets, changes in their economic value over time and conditions thereof;
- be flexible, so as to adapt to different environments and to current, as well as future, needs;



Report
with expert opinions
and stakeholders'
needs in terms
of management
of seized assets
(deliverable 2.1)

2.1 Introduction

The report organises the views and needs regarding a data management system (DMS) for seized assets of the relevant stakeholders and experts from asset recovery offices, asset management offices and other relevant organisations (e.g. Ordine Dottori Commercialisti in Italy). The report presents the needs of stakeholders in the EU in terms of management of seized assets in order to substantiate the development of the Payback DMS.

In conducting the research, we identified numerous day-to-day aspects and details that are relevant to an effective and efficient data management system. Thus, the report refers more to an ideal database (DMS) able to harmonize different legal and procedural systems, different needs and expectations and, at the same time, ensure comparability among countries in a more integrated Union. Building a comprehensive tool of this kind is work in progress, but our research stresses the need for a common basic platform for all EU member states envisaged by Directive no. 2014/42/EU.

Asset management is a key issue throughout the process leading to the confiscation of unlawful/criminal assets/property. The project focused on management of assets both under a freezing/seizure order and under a provisional confiscation order. The results of the criminal property confiscation process are key indicators of the effectiveness of a given criminal law system.

2.2 Methodology

In identifying the requirements of an ideal database, the following themes were analysed:

- Problems affecting the management of seized assets (covering issues such as critical factors hampering the timely and successful management of seized assets);

- Current database/s on seized assets in the selected countries (if any);
- Stakeholders' needs in terms of:
 - purpose of a database for seized assets (DMS);
 - coverage (stages of proceedings);
 - data input / outputs / integration;
 - security, privacy and data protection.

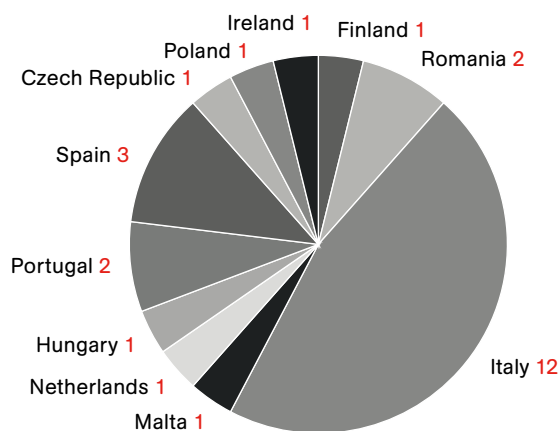
The above topics were identified upon consultation with project partners, associate partners and selected stakeholders.

The main research instrument was a questionnaire (see Annex 2). The questionnaire was prepared and sent to identified stakeholders. It covered the entire range of research issues, from problems affecting the management of seized assets to the current needs and expectations regarding an ideal DMS. The questionnaire's results were complemented by interviews and meetings with key experts and stakeholders.¹

The questionnaire was sent to over 100 stakeholders in the EU, and 26 replies were registered from 11 MS (see Figure 1). It is worth being noted that these countries have experience with asset management.

¹ One of the project experts, Jesus Palomo, intensively disseminated the project results and gathered replies to the questionnaire from stakeholders across Europe.

Figure 1 – Number of replies to the questionnaire aimed at understanding the stakeholders' needs in the EU, by country. Absolute values.



Source: CRJ elaboration of the replies to the questionnaire aimed at understanding the stakeholders' needs in the EU.

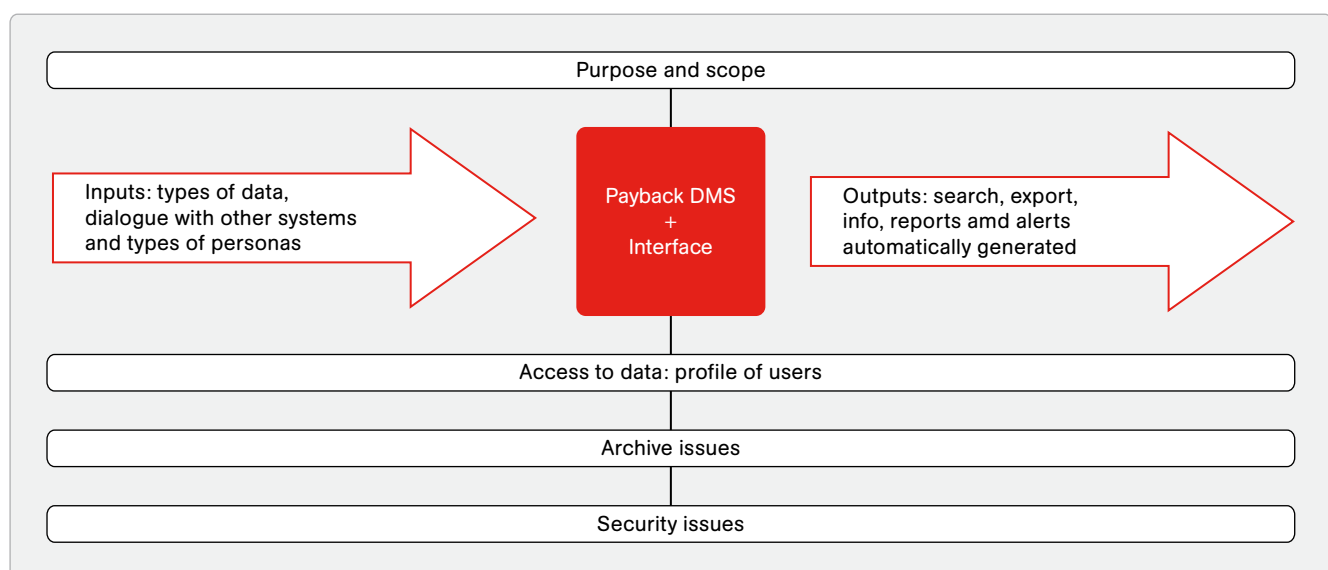
The data collection process was challenging because many stakeholders did not see themselves as having a role in the asset management process or they lacked experience in this matter. Some stakeholders did not respond to the questionnaire because they considered other organisations more competent or experienced.

2.3 Management of seized assets

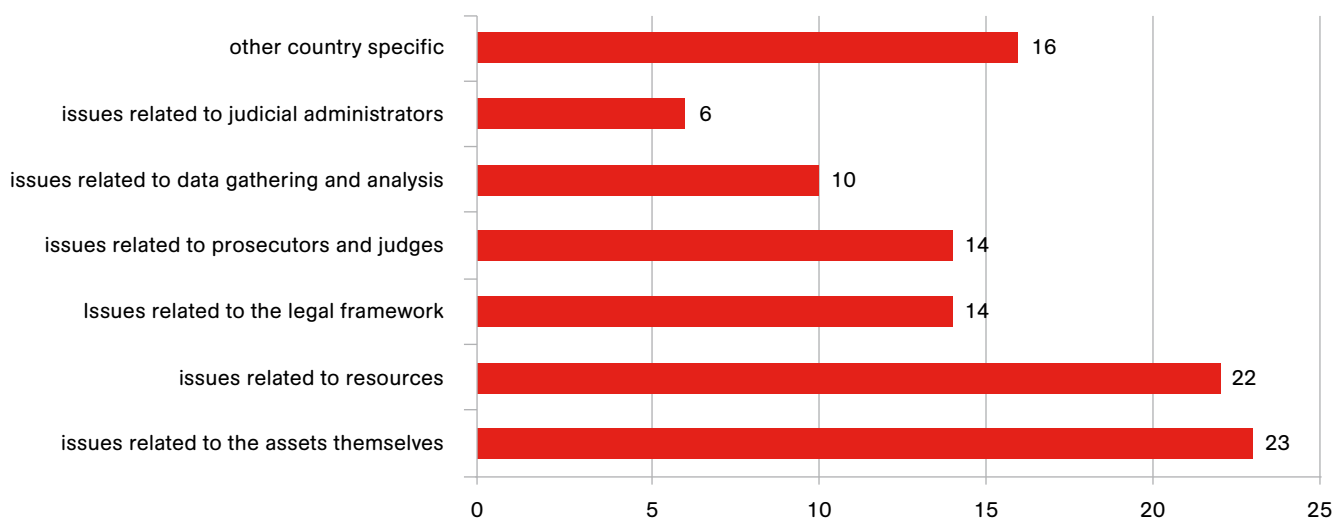
The stakeholders deal every day with critical factors that hamper the efficient management of the seized assets. The main problem is with the seized asset itself: because of the long criminal procedures, the assets deteriorate and lose value; there is not proper storage available; assets are under joint property; they cannot be physically identified; assets are under mortgage or other institutions claiming the rights over the same assets (third parties rights). The second problem is lack of resources (human as well as material). For instance, there are no resources available to invest and preserve the value of the assets. The third problem concerns the legal framework insufficient to cover all the circumstances. The critical factors tend also to be country specific. In Italy, the stakeholders reported that seized companies operate under lease contracts which in fact make it difficult if not impossible to continue their activity after the judiciary takes over. ANBSC lacks capacity to coordinate the process (e.g. late responses to judicial administrators) and communicate efficiently with Courts after the 1st degree confiscation. In Ireland, the lack of general experience with seized assets is an issue.

Despite these complex issues, almost all stakeholders reported the need to maintain a proper list of all assets that keeps track of the assets through the legal and management procedures until the final disposal. Such ideal software should ensure an efficient flow of information between relevant national institutions in charge

Figure 2 – The ideal database on seized assets



Source: CRJ elaboration of the replies to the questionnaire aimed at understanding the stakeholders' needs in the EU.

Figure 3 – Critical factors in the management of seized assets²

Source: CRJ elaboration of the replies to the questionnaire aimed at understanding the stakeholders' needs in the EU.

and facilitate the exchange of information with other EU countries and at international level.

The report outlines the main types of data that the stakeholders expect to find when using such an ideal software:

- Data on the criminal file concerned;
- Data on the interim measure;
- Data on the court file;
- Data regarding the asset (e.g. geo location);
- Data regarding the procedures (e.g. evaluation, interlocutory sale, storage, responsible persons, disposal etc);
- Data on cooperation or international requests.

EU countries are very different in terms of databases used (France, Netherlands, Belgium) or under development (Romania, Czech Republic, Portugal, and Spain). Some countries work to develop their own data management system while others continue with the current provisions. The MS are reluctant to share their entire database with other countries or give access to such data to the EU level.

Given these different national contexts and current systems in place, it is not possible to develop a comprehensive software able to cover all the countries and situations, but rather a scalable ITC tool to be adapted by each stakeholder according its needs.

2.4 Main problems affecting the management of seized assets in the stakeholder's view

The management of seized assets is a complex process involving several specialized agencies at national level. Coordination of these agencies is paramount for ensuring efficient management of the asset and respect for property rights. This paragraph addresses the problems identified by our sample of stakeholders (see Figure 3).

The main type of problem identified by the stakeholders concerned the assets *per se* and their day-to-day management. The stakeholders reported that the assets tend to be in a poor condition, if they are even physically identified. Assets are registered in book-keeping, but they do not exist on site (e.g. Romania, Italy). Further investigation and police work is needed to identify the asset, and sometimes resources for this type of work are simply non-existent. For these reasons, some assets are impossible to sell or investments/improvements are needed in order to secure their sale. In some cases, real estate is built without proper permits, it being impossible to register or sell it (Spain, Romania). Storage may also become a problem in the case of large amounts of assets. Unfortunately, in many countries there are no public resources available for

² Q1. In your daily work, are there any critical factors hampering the timely and successful management of seized assets?

the management of the seized assets, not even for regular maintenance. At the same time the necessary resources are hard if not impossible to find in the banking sector. Interlocutory sale is a solution for perishable assets or those that tend to lose value over time. Nevertheless, interlocutory sale is an extraordinary procedure applicable to preserve the value of the assets, and in many MS there is not any authority specifically in charge of that. In the case of real estate, further procedures of eviction may be needed, and it is impossible to separate the property from the location in which it is situated (e.g. in mafia-intensive areas). Another order of problems relates to mortgages (mainly with banks) and joint property. Assets are under mortgages or third parties claim rights to the same assets. In many countries, there are no sufficiently clear rules on third party rights and procedures in place (e.g. order of preference, conflicting jurisprudence). Thus, time-consuming legal procedures begin between the state and the affected third party. In the case of joint-ownership, a partition suit is needed, which takes extra time and resources.

The second category of problems concerns resources. Many MS do not have standards for management (including storage) of seized assets. They have insufficient infrastructure (ITC systems, flow of information, communication). Insufficient human resources and training were also mentioned as an issue (e.g. Spain, Italy). For instance, many stakeholders in Italy highlight a shortage of specialized personnel and lack of adequate training. In Malta, one stakeholder reported a lack of communication with other entities. In Romania, there is a lack of experience regarding virtual currencies. Problems in information flows were reported also in Finland.

The rest of the critical factors tend to be country specific because the legal and constitutional framework sets different challenges in each MS, institutional cooperation being also an issue. In Italy, stakeholders reported challenging relations between Agenzia del Demanio and ANBSC. In Spain there are several agencies involved in the recovery and management of seized and confiscated assets. In Romania, the current property databases are not always properly compiled, while other real estate databases are not in electronic format (only 22% of real estate was registered in the electronic cadastre).³ Regarding the legal framework, stakeholders from Italy reported regulatory discretion, a specific lack of consistent rules on types of freezing orders, and lack of a receipt by the Revenue Agency. Moreover, even the implementation of value confiscation rules tends to differ within national borders.

In Italy and Spain the issue of the management of seized companies is a priority. In Italy, the stakeholders reported that seized companies operate under lease contracts which in fact make it difficult if not impossible to continue their activity after the judiciary takes over. Sometimes, judicial administrators have to take hard/opportunity decisions as the appointing Court provides little support, due to the lack of dedicated staff or overworked chancelleries focusing their attention on more urgent matters. The judicial administrators simply cannot do their job in ensuring day-to-day operations because there is a lack of flexibility and slowness in approval of management decisions (by the Courts or late response from ANBSC). In Spain there are not enough experts in management of seized companies.

In Hungary, there is no assigned authority /agency responsible for managing seized assets. Each investigative and judicial organization (i.e. police station or court) is responsible for managing the assets that it has seized under the criminal procedures conducted. The storage conditions are not optimal (e.g. vehicles parked outdoor). Sometimes authorities have to rent parking areas which generate costs over long periods of time. Interlocutory sale is allowed by legislation but is seldom enforced. Statistical evidence is poor. The police maintain a database of seized assets, but it does not trace the assets in a later stage of the procedure, and it does not retain all necessary information. Information on seized assets is instead collected on paper.

2.5 Databases in place across the EU

Authorities in all EU member states have some kind of register to account for seized assets. Nevertheless, most of the registers/databases do not cover the entire judicial process or the national level (on this see also chapter 1 of this report).

In Hungary, although there is a register kept by the police, there is no integrated database able to track seized assets from the initial seizing order until the end of the judicial procedure or disposal. In Bulgaria, the National Revenue Agency has developed a database of enforced confiscation orders. In Spain, the Oficina de Recuperación y Gestión de Activos (ORGA) has developed a database (called EXPORGA) with seized assets under its management, while a complete national database is not available. The Spanish Delegation for the National Plan on Drugs (SDNPD) also has a new database (from 2017) covering seized assets suitable for social/institutional reuse.

³ In 2016, according to the National Cadastre and the Land Registering Program 2015-2023.

In Romania, the National Anticorruption Directorate (the specialized anti-corruption prosecutor's office) has a database comprising all criminal files. The database has two areas designed to accommodate information about seized assets (two text fields limited to 255 characters: special and extended confiscation). In these fields, the registrars may input data such as the date and number of the seizing order, sums involved, and the nature of the assets⁴. Romania established a specialized agency for asset management (ANABI⁵) that became operational in 2016, and it has developed a national database of seized assets. In 2017, ANABI reported the following seized assets at the national level: 4610 real estate properties, 25 mobile assets over 15,000 euros, and 155 million euros in bank accounts.⁶

In the Netherlands, the management of seized assets is centralized under the supervision of the Prosecutor Services. Actual management is undertaken by the Dutch AMO, with specific personnel such as Asset Managers. Italy, Ireland, Czech Republic also have national databases, while Portugal, Poland and Latvia do not have a national database.

2.6 General purpose of an ideal seized assets database

While the management of seized assets may be challenging, most of the stakeholders mentioned the need for a database able to track a given seized asset throughout the judicial procedures until its final disposal (including social reuse options) (see Figure 4). Such a database shall also ideally monitor the characteristics of assets over time and support their daily management with automatic alerts. It should be able to connect different responsible agencies and support the exchange of information with other countries. According to other views, the database should keep track of the assets during the entire proceeding, up to when the victim of the crime is reimbursed or post disposal monitoring.

An ideal national database of this kind is considered able to enhance the transparency and accountability of the asset management process by generating sound statistical data required by the citizens/public, including online maps. Such a database will become also a tool for evaluating the efficiency of the financial investigations carried out by the prosecutor. Prosecutors will also benefit from a database of this kind because they will be able to check in real time if the targeted assets owned by the suspect that they are investigating have already been seized in relation to a different court procedure or police investigation.

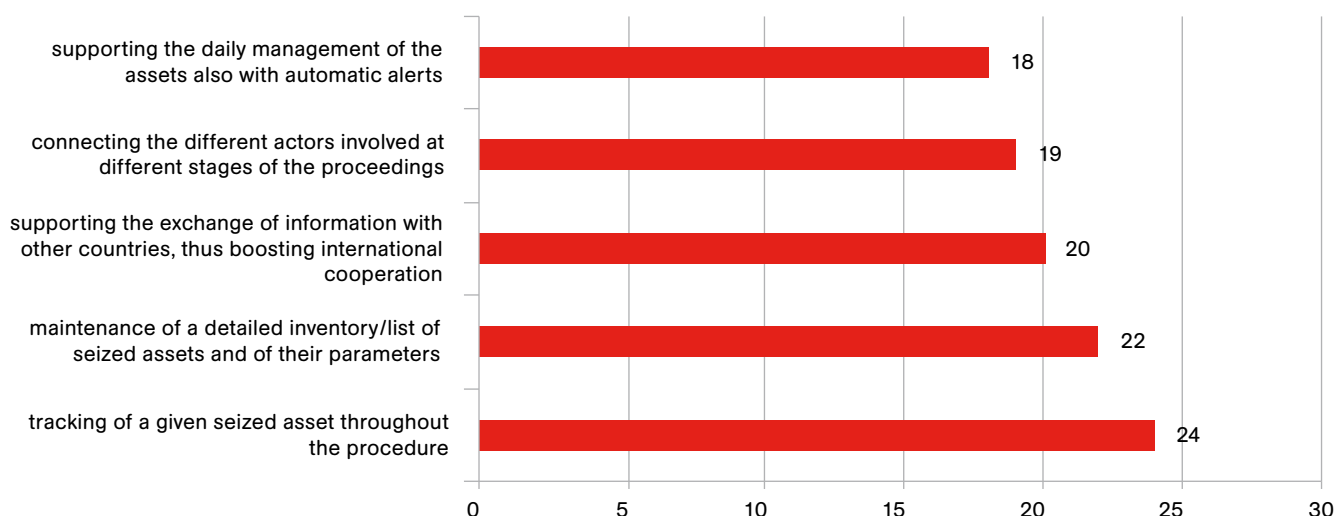
Last but not least, the stakeholders would expect an application with different modules/utilities, compat-

⁴ Communication no. 2097/VIII/2/2016.

⁵ <https://anabi.just.ro/>

⁶ ANABI Annual Report 2017 (<https://anabi.just.ro/Raport+anual+ANABI>).

Figure 4 – The purpose of an ideal database on seized assets



Source: CRJ elaboration of the replies to the questionnaire aimed at understanding the stakeholders' needs in the EU.

ible with the very diverse ICT arrangements in place in the Member States. The stakeholders mentioned several key features that this application should ideally incorporate, such as: geolocation, alerts, statistics, and photo/video uploads.

2.7 Stakeholders' opinions about data input, data access, data outputs and security issues

Most stakeholders consider that a national database entails cooperation among multiple agencies. Data should be inputted by diverse experts: police, prosecutor offices, courts, bailiffs, public revenues/tax entities, asset management offices, judicial administrators, etc.

Nevertheless, this inclusive approach would require the database to have a strong standardization (insertion constraints) and minimum subjectivity.

The key variables to be inputted into the database identified by the stakeholders are the initial freezing order, asset characteristics, criminal file and court file/disposal phase (see Table 2).

Regarding the archive/deletion of such a dataset, stakeholders' options were extremely diverse while some stakeholders did not express their opinion at all on this matter, considering *"they do not know/do not have enough information"*. Some stakeholders (from Italy, Finland, Poland) considered that the entries in the database should be deleted after the end of the disposal phase while other stakeholders (from Spain, Romania, Netherlands) considered that e-archiving, even for an indefinite time/30 years could be a solution. Those advocating for indefinite/30 years e-archiving considered that *"data could be kept in a separate inoperative database for statistical reasons, and could be used only on behalf of specific requests"*. The stakeholders disagreed also on the type of deletion: automatically (Portugal) or manually/case by case (Italy, Malta). Several stakeholders indicated that archiving issues should follow the specific regulation in each country.

Regarding the right to access such a database, the stakeholders identified the same authorities that are also required to input data plus other entities that may have an interest, such as beneficiaries of social reuse policy (associations, municipalities) or decision-makers. The access to the database should be differentiated according to the type of user. Several types of users were identified (see Table 3).

Thus, two major types of users emerge based on the right to edit/alter data stored in the system: input personal and data users. Each category should be divided into subcategories on the basis of a need-to-know basis – the scope of data visible to different authorities should be limited to data necessary to perform the given role established by law.

In terms of outputs, stakeholders' expectations are diverse and challenging. The most needed outputs are statistics (frequencies, cross-tabs, tables, correlations) on any type of data and geolocation of assets (for instance, in order to map seized assets related to different types of crimes). Statistics are needed in order to measure indicators (for instance: length of procedures, overall volume of assets seized and confiscated by geographical location and nature of the assets). Geolocation is needed for easier management but also for investigative and risk analysis reasons. Several stakeholders identified the need to provide open data to the public in raw, anonymized manner. Other mentioned training needs as an output of such a dataset.

Regarding how these data should be available to users, most of the stakeholders (17) requested that an export function to excel, word and pdf should be built in. Other stakeholders (7) considered that being able to access data through a web portal was enough.

The search function of the data base should be complex enough to cover at least the criteria listed below:

- name of any party involved in the criminal file (suspect, victim);
- date of confiscation order;
- court/prosecutor;
- owner;
- type of asset;
- value of asset;
- location;
- a specific sentence or keyword;
- existence of an international order regarding the asset;
- type of offence;
- case number;
- name of potential buyer/disposal unit;
- name of the actual buyer/disposal unit;
- year.

Table 2 – Selected list of key variables to be inputted into an ideal database on seized assets

1. Initial seizing order
1.1. information on issuer of the seizing order (name of the court & prosecutor)
1.2 Date of the seizure order
1.3 The name and contact details of the police officer who identified the asset and enforced the seizure measure
1.4. The clerk(s) who registered the data
1.5. The existence of a trans-border issue and which legislation should be applied (EU conventions, bilateral treaties, international agreements)
1.6 The procedural phase in which the measure was ordered (investigative phase; preliminary chamber phase, the trial phase)
1.7 The type of the interim/seizing/ freezing measure
2. Data on the criminal file
2.1. Criminal file number
2.2 Crime allegedly committed
2.3 Last name/first name/name of the person accused and type: legal entity or natural person
2.4 Reference to the accused: suspect/defendant/civil liable party
2.5 Personal Identification Number/Unique registration code for legal entity
3. Data on the interim measure
3.1 Description of the regulatory and legal framing of the title-deed
3.2 Motive for issuing the order of seizure or confiscation
4. Data regarding the asset
4.1 Description of the asset, required conditions for storage
4.2 Status of the asset at the moment of freezing (quality, mortgages, debts, other procedures in which the asset is involved, estimated loss of value in the next 5 years)
4.3 Asset type, model and brand (e.g. auto, boats, furniture, animals, appliances/industrial/commercial, IT and telephones, etc.)
4.4 Number of assets
4.5 Owner of the asset (split ownership)
4.6 Estimated value of the seized/frozen asset and currency
4.7 Under which authority is the seized asset = Custodian/natural person/legal entity holding the property
4.8 The location of the seized asset = Storage place and geo-location references
4.9 Possible destinations for disposal phase
4.10 Photos, videos over time (timeline), Periodic inspections, Maintenance actions
4.11 Sums paid in connection with storage, transportation, expert examination, maintenance actions etc.
5. Data on court file
5.1 No. of court file
5.2 Name of the court
5.3 The judge and the clerk (for the measure disposed during this phase)
5.4 The judge who is in charge with the enforcement of the freezing order; estimation date of final ruling
5.5 Court ruling
6. Data regarding the disposal phase
6.1 Entity responsible for disposal phase and contact details and disposal procedure
6.2 Purchase value if the item was sold / Evaluated value at the time of disposal
6.3 Details of person/organization who received/bought the asset

Source: CRJ elaboration of the replies to the questionnaire aimed at understanding the stakeholders' needs in the EU.

Table 3 – Selected types of users of an ideal database on seized assets

Type of user	Rights
1. System administrator	Allocate user names and passwords, maintenance, Maintain an access log and system changes, who, when, what and why
2. Data insertion (also at district level)	viewing/adding/modifying/removing data only in his/her competence
3. Data insertion supervisor (including court staff)	full access to own institution data (approve/add/extract/modify) and restricted access to other institutions' data
4. Magistrates (prosecutors, judges)	full viewing/extracting data, access to all modules (not able to add/modify/remove data)
5. AMO	full viewing/extracting of data, access to all modules (not able to adding/modifying/removing data)
6. Policy-makers	All statistical data/statistical modules
7. Social reuse beneficiaries	Access only to final confiscated assets

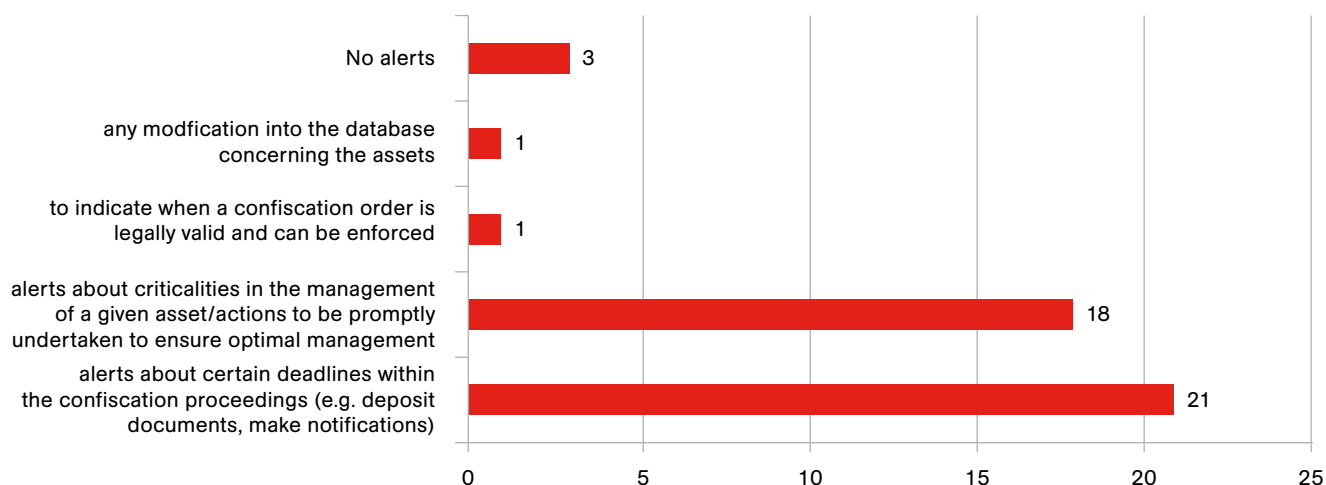
Source: CRJ elaboration of the replies to the questionnaire aimed at understanding the stakeholders' needs in the EU.

In the stakeholders' view, a key feature of an ideal database is the alerts module. Such a module would automatically inform the individuals in charge with asset management on specific deadlines and measures to be taken.

Another issue discussed with stakeholders was the communication between asset management database and other databases. Several databases were considered critical (land and building registry/cadastre,

trade register office/companies, police database) and a dialogue with such databases was considered to add extra value/avoid extra work of investigators and asset managers.

On the security side, all stakeholders agreed that such a database has vulnerable information, and security and data protection measures are needed. The most basic security is access by user name and password and confidentiality rules/statements for the users.

Figure 5 – Alerts in an ideal database on seized assets

Source: CRJ elaboration of the replies to the questionnaire aimed at understanding the stakeholders' needs in the EU.

2.8 Conclusions

Stakeholders from 11 MS participated in the research and expressed their views on what an ideal data management system for seized assets should look like. Stakeholders' views proved to be very diverse, considering the national constraints (legislation, institutional development, administrative capacity, political commitment etc). Nevertheless, all acknowledged the need for an ITC tool to help with the day-to-day management of seized assets. Such a tool is also important for transparency and accountability reasons because the public is more and more interested in the results of the criminal law system and asset recovery.

Three areas of interest are widely recognized at EU level as essential to ensure an effective management of seized assets:

- location of the assets (geolocation);
- value of the seized assets and ongoing updates on the condition/value of assets;
- statistical analysis, reports and notifications (e.g. trend lines).

The data extracted from such an ideal system must help decision-makers to identify policies that need to be addressed. Using the results generated by the system, the authority dealing with the asset management can anticipate and develop its storage facilities and purchase proper management services.

Several countries have their own DMS (France, Netherlands, Belgium), others are working to build one (Romania, Czech Republic, Portugal, Spain). Many MS do not have a national database (e.g. Finland, Latvia, Poland). The key challenge is to ensure tools available for each country and a common set of indicators at European level to be collected in each country.

Payback DMS has to be a flexible solution/tool able to meet the needs of MS with a database in place as well as Member States which do not have one. Payback has to complement the existing database and be able to integrate into existing infrastructure. Payback has to be scalable and implemented gradually.



This chapter presents the Payback Data Management System prototype (from now on Payback DMS prototype), with its three key areas of interest (and resulting Modules) and its five solutions (paragraph 3.1). The initial prototype was refined and updated many times, until the final version (as explained in paragraph 3.2). A user guide/manual for the PAYBACK DMS prototype is included (paragraph 3.3), as well as guidelines for transferability of the PAYBACK DMS prototype to other countries (paragraph 3.4). Some conclusions on the Payback DMS prototype are drawn, and information about how to get it free of charge is given (paragraph 3.5).

3.1 The PAYBACK DMS

3.1.1 An EU-driven philosophy: “Know Your Assets”

The Payback DMS focuses on **three areas of interest** that are widely recognised at the EU level as essential for ensuring the effective and efficient management of seized and provisionally confiscated assets. These three areas are as follows:

1. knowing the exact location of seized assets, distinguishing between a) in-door location (typical of movable assets stored in deposits) and b) map location;
2. knowing changes in the economic value of seized assets, via 1) automatically generated outputs representing depreciation/appreciation/stability over time, and b) alerts to selected recipients;
3. knowing seized assets’ conditions by gathering and storing photos, videos and any other relevant document, uploaded at different times, so as to know the exact conditions of a given asset at any time.

It therefore stems from an EU-driven philosophy, that can be referred to as “Know your Assets”.

As a result, the Payback DMS comes in **three modules**: 1. Geolocalisation; 2. Report & Alert; 3. Photos, Videos & More.

3.1.2 The three Modules of the Payback DMS

Geolocalisation Module

Seized and provisionally confiscated assets amount to thousands and thousands in every country. It is incredibly difficult to keep track of their exact location during proceedings. Module Geolocalisation allows the localisation of an asset either as a point on a map (e.g. a real estate property) or as a 3D object in a model representing buildings, cabinets, etc. Locating assets on a map along with other elements (schools, police stations, etc.) can also orient asset disposal so as to respond to the needs of a given area.

Report & Alert Module

Preserving the value of seized assets and optimising the costs associated with their management is crucial. The Report & Alert Module creates graphs showing how the value of an asset (or group of assets) changes over time. It can also display management costs and net value (calculated as the difference between value and management costs) over time. In these cases, the x-value on the graph is a date. However, it can be whatever one wishes: e.g. a court or judicial administrator, showing how many assets are managed by a given actor, shedding light on workload and performance issues.

Based on data analysis, the Module is able to predict future asset values and activate a notification system to inform the user of value changes below a threshold.

Photos, Videos & More Module

Different assets’ conditions require different interventions. Moreover, once an asset is taken into custody by an entity, this is in charge of (and legally responsible

for) its custody. The Photos, Videos & More Module responds to these needs by making it possible to upload and display images/files related to an asset and to represent them on a timeline. It also records how assets' conditions change over time.

For more detailed information on the three Modules, please see par. 3.3 and Annexes 3, 4 and 5.

3.1.3 The five Solutions of the Payback DMS

The Payback DMS is composed of four solutions, ranging from one providing basic features to a complete solution; it also envisages a basic database structure. It can assist both countries having a db in place looking for new functionalities and countries not yet having one (or having a db to be replaced).

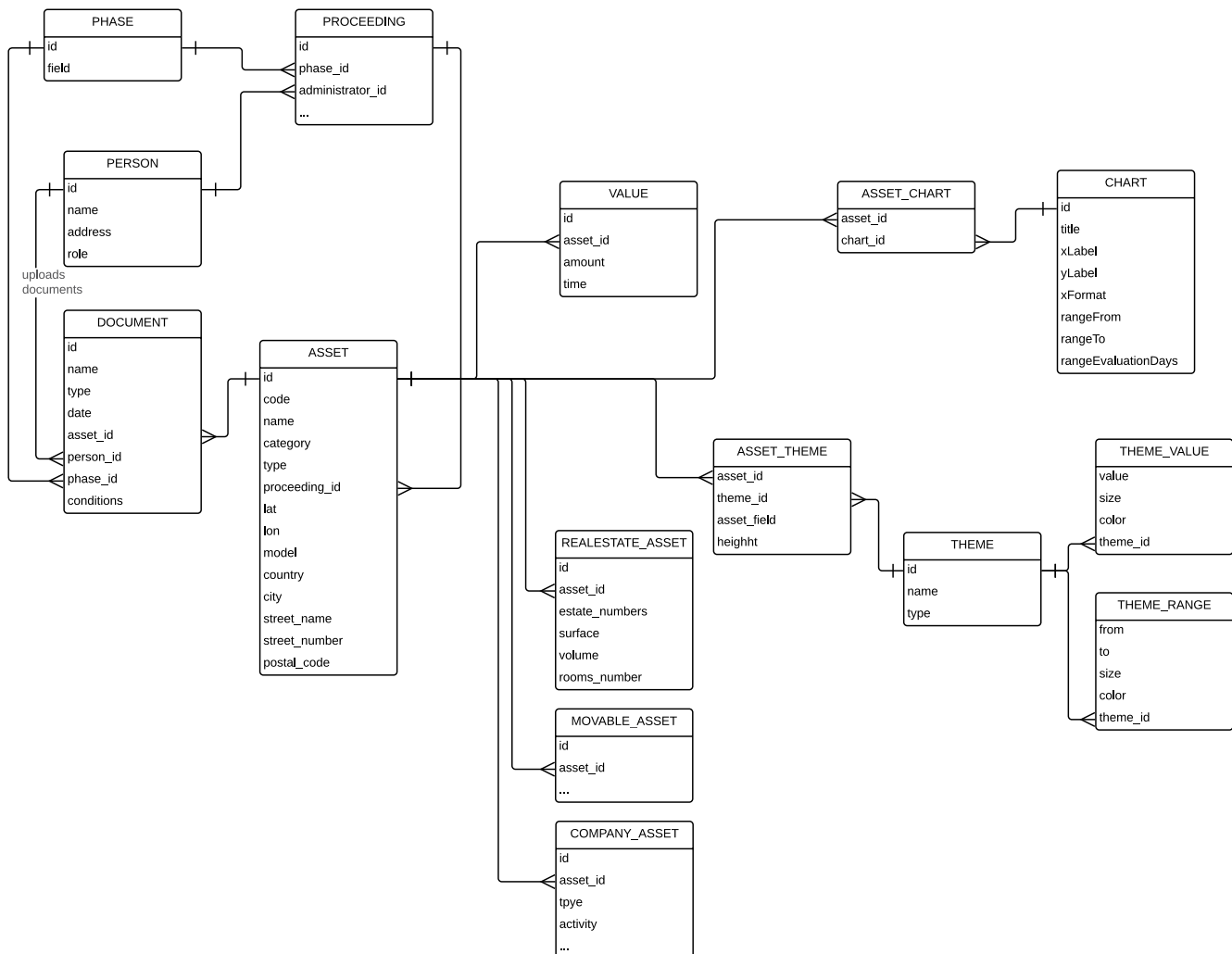
Payback-BASIC SYSTEM

This solution provides the basic structure of a database for countries lacking it. It offers, moreover, some SQL queries to extract from the database and an example of business logic to feed Payback API. In designing this solution the consortium received some inputs from the Rome Tribunal, via Aste Giudiziarie INLINEA S.p.A. (which is the company that developed the software for the Rome Tribunal's database on seized assets). The consortium is particularly grateful for this support.

Payback-API

At the heart of the Payback DMS are API (Application Programming Interfaces). These HTML/JavaScript widgets (one for each Module) can be integrated into a pre-existing system. Once fed with data coming from the system, they can enrich a given web application

Figure 6 – Payback-BASIC SYSTEM

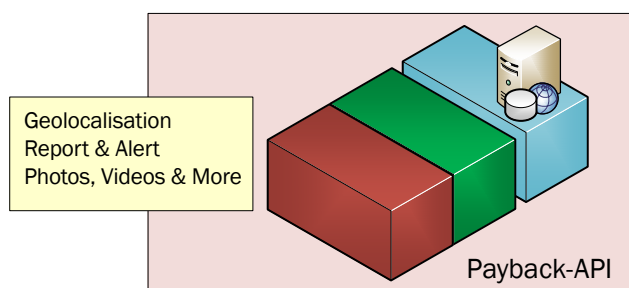


Source: eCrime.

adding advanced features to those available. The Photos, Videos & More Module comes with an empty database schema (SQLite) and its business logic to make its features available and be able to store/serve files uploaded.

Payback API provides a set of features and corresponding graphic representations that can accept a wide variety of input data, e.g. ranging from movable assets to buildings, from assets' value over time to number of items by person, time or place, from images to docs, tables and videos. Depending on the needs, one just has to select one's own data, prepare input files for the Payback API and enjoy the result fully integrated into one's own IT system.

Figure 7 – Payback-API



Source: eCrime.

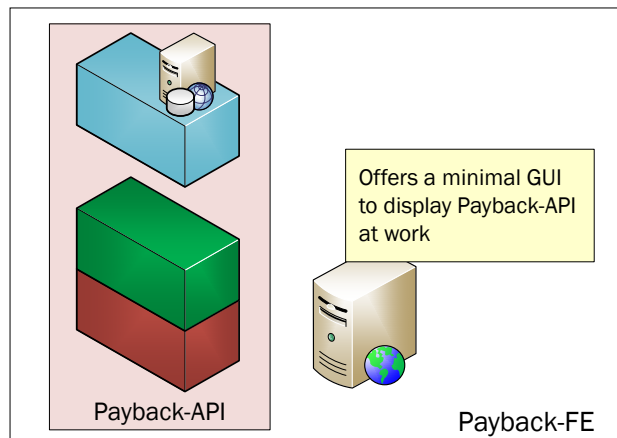
APIs are released as separate libraries, so that it is possible to integrate one, two or all of them in a given existing system.

Payback APIs are based on open-source third parties' libraries; no commercial licences are needed. Furthermore, it is fully integrated into one's system and does not store any information: no additional privacy issues on sensitive data arise; these remain bounded to the user's working network.

Payback-FE

Payback-FE (Front End) provides a very small and minimal web application that includes the Payback-API described above. The APIs are fed with pre-existing data. Therefore it does not need any additional storage system. This solution could apply if the existing system is either a web or a desktop application.

Figure 8 – Payback-FE



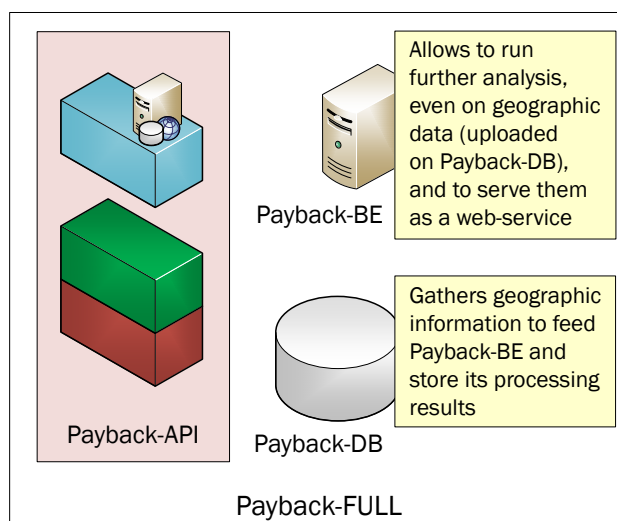
Source: eCrime.

BASIC SYSTEM, API and FE are the solutions implemented in the Payback prototype delivered by the end of the Project. Two more solutions were designed within the Project, and could be developed in the future to further enrich the Payback DMS.

Payback-FULL

This solution would come together with a dedicated database (and related management software) which could serve as a storage for data (mainly geographic) not present in the pre-existing db. Moreover, this solution could add new features to the system, for example, statistical or topological analysis and other data processing functions.

Figure 9 – Payback-FULL

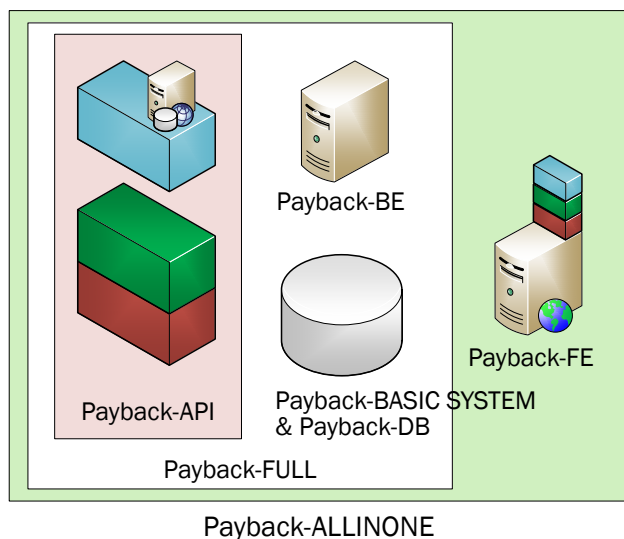


Source: eCrime.

Payback-ALLINONE

This solution would provide a brand-new system promoting the use of Payback-API, which could be integrated into the web portal (graphical user interface). Furthermore, it would comprise all the above-mentioned solutions. Basically, this would be a monolithic application.

Figure 10 – Payback-ALLINONE



Source: eCrime.

3.1.4 The stakeholders of the Payback DMS: asset managers, policy makers and those in need of statistics

The analysis performed by the Payback DMS can refer both to a single asset and to groups of assets. This means that it can be of interest both to asset managers striving for optimal management and to those benefiting from the “broader picture”. The latter category includes those involved in the decision making process (e.g. in seizure preplanning: which assets shall be preferably seized in a case?; after seizure: which is the most efficient management option for a given group of assets?), as well as entities requested to produce statistics for transparency and accountability, and to orient regulatory changes.

3.1.5 To sum-up: an EU-driven, flexible, accessible and easily integrable ICT tool

In short, the Payback Data Management System (DMS) is intended to be an EU-driven, flexible, accessible and easily integrable ICT tool.

Its key features are in fact EU focus, flexibility, accessibility, and easy and full integration in existing ICT systems on seized assets.

“EU focus” means concentrating, via three modules, on three issues widely recognised as crucial at the EU level but still largely neglected or scarcely addressed by current national ICT systems: exact location of seized assets, changes in their economic value over time and conditions thereof.

Flexibility means:

1. adaptability to different environments: with its five solutions, it can be of interest both to countries having a database on seized assets in place and looking for new functionalities and to countries which do not yet have one;
2. scalability: Member States vary greatly in terms of willingness to progress further in the area of data collection and analysis regarding seized and provisionally confiscated assets. The Payback DMS is scalable, since it can be implemented gradually, depending on each country's budget and political commitment;
3. ability to support different stakeholders, i.e. asset managers, policy makers and those in need of statistics;
4. readiness for future needs: the Payback APIs provide a set of features and corresponding graphic representations that can accept a wide variety of input data, e.g. ranging from movable assets to buildings, from assets' value over time to number of items by person, time or place, from images to docs, tables and videos. Depending on one's needs, one just selects the data, prepares input files for the Payback API and enjoys the result fully integrated in one's own IT system.

Easy and full integration in pre-existing systems means ability to be easily incorporated into any extant ICT environment: at the core of the Payback DMS are APIs (Application Programming Interfaces). These can be integrated into a given system with just a few lines of programming, and since they do not store any informa-

tion, no additional security and privacy issues arise. Three APIs are available, one per module. In addition, the Payback DMS is based on open-source third-party libraries; therefore no commercial licences are needed.

Last but not least, the Payback DMS has been designed so as to be accessible to the highest number of countries: its APIs are based on open-source third-party libraries; therefore no commercial licences are needed.

3.2 Updates on versions 1, 2, 3, final (deliverable 3.1)

The first version of Payback prototype was released on 5 June 2018, and contained the first implementation of Payback API and Payback FE with most features available in the final release.

On the basis of the Steering Committee (Trento, 6-7 June 2018), we released on 19 June 2018 the second version of the Payback prototype, including the implementation of Payback BASIC SYSTEM to provide a fully functional platform to those Member States lacking an IT system on managing seized assets.

The third version was released on 29 June 2018 with implementation of features requested by some Member States; in particular, in this version it is possible to define threshold as percentage in Reports & Alert module and to connect Photos, Videos & More to several JDBC databases, like Oracle and PostgreSQL.

The final version was released on 6 July 2018. It contained mainly minor bug fixes and some more features requested by Member States during test-visits. The files with the final version of the Payback prototype are enclosed in the cd with this final report.

3.3 User guide/manual for the PAYBACK DMS prototype (deliverable 3.2)

3.3.1 User guide

Geolocalisation Module

This Module allows the localization of the asset from a geographical point of view, i.e. either on a map Geo2D (e.g. a real estate) or in an indoor storage Geo3D (movable assets in the deposit).

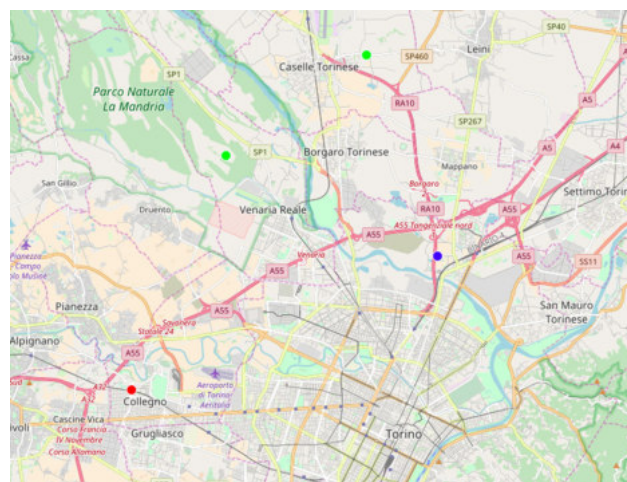
It allows interactions with the entities (assets) displayed on the map giving further information about the asset itself and calling back the containing application.

The following are the functionalities of the Module:

- Geo2D
 - Showing the exact position on a geographical map, providing layers such as the satellite and street views.
 - Performing filtering on the displayed assets according to selected attributes of the assets (e.g. filter by current economic value, filter by type of asset etc.).
 - A selection on the map returns the identification of the selected asset; this can be used by the hosting application for other purposes.
 - It is customizable, since it is possible to choose which attributes of the assets will be displayed on map.
- Geo3D
 - It is intended for indoor storage tracking.
 - Provides a 3D virtual representation of a depot or of a generic building along with its internal design, that is, it is possible to display shelves, boxes, closets, etc.
 - As in Geo2D interactions with displayed entities, it is possible to gain further information about an asset, building, premises, etc. Again, an interaction returns the asset/building identification to the hosting application.

Figure 11 shows a map centred in Turin with four example points, which represent dummy assets coloured according to different filters.

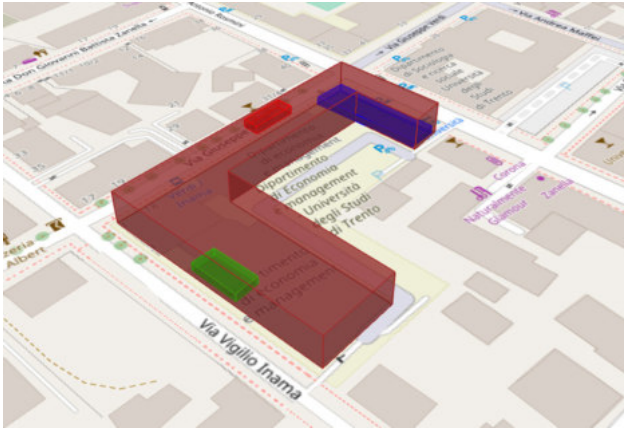
Figure 11 – Map with dummy assets coloured according to different filters



Source: eCrime.

Figure 12 shows a kind of realistic representation of the Department of Economics of the University of Trento. One can see the building in faded red, and three different rooms within the department coloured according to different filters.

Figure 12 – 3D representation of a building



Source: eCrime.

The expected input data for the sub-module Geo2D is a JavaScript object consisting in an array of JSON objects where each of them describes a theme and the assets that follow that theme. An example of two different themes could be for example the distinction between real estate and cars.

The input data for the sub-module Geo3D is supposed to be a JavaScript object consisting in an array of JSON object; each object describes a theme and the assets that are going to be displayed according to that theme (see section 3.3.2 for further information).

After the selection of a point or an entity displayed on the map, both sub-modules return the control to the hosting application along with data associated with the selected point (see section 3.3.2 for further information).

This Module comes as a stand-alone JavaScript package. The installation consists in the creation of an empty HTML div element and of a very simple script that is in charge of drawing the Module's content into the mentioned div.

Report & Alert Module

The Report & Alert Module will perform statistical and estimation analysis using simple regression (linear) on a whole set of data or on a subset of data grouped by type/category/zone related to assets. This will make it possible to create a trend line for each set or subset of

data. The resulting value from the regression is necessary to predict the estimation of the economic value of an asset or a set of assets over time, in order to help users monitor changes in such a value over time.

It will then provide a notification system that will inform the user - be it the manager of a given seized asset or a decision-maker for a given set of seized assets - of fast depreciation, so as to support optimal asset management by asset managers and optimal seizure planning and regulations by competent decision-makers.

The following are the functionalities of the Module:

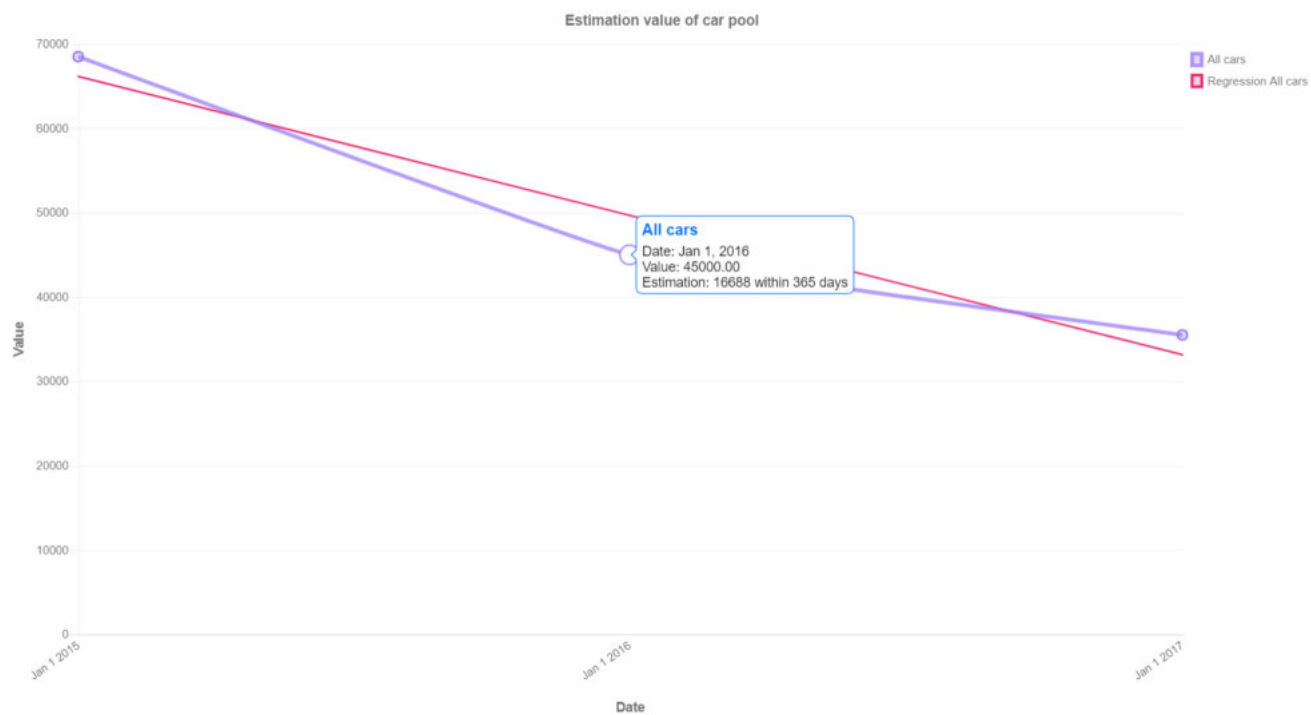
- To draw different types of graph (bar chart or line chart with regression) for different data representations.
- To plot line graphs that show changes in the economic value and the trend line of an asset or a set of assets over time.
- To let users define a threshold (both lower and upper) as absolute or percentage value to monitor value of assets in prediction.
- To send a notification to integrating system when the estimation of the economic value of assets goes above or below the threshold.
- To give information on single chart items (x value and y value).

If the x-value is a date or a number, we will use a line chart to plot data points on a line. We will apply linear regression to data points and use a line chart to show trend data: the idea of a trend line is to reveal a linear relationship between two variables, x and y, in the $y=mx+b$ form. Deriving the line equation that links two variables x and y allows us to predict how one variable will change given any change in the other. Therefore, we will use linear regression to fit a predictive model to an observed data set of values of x and y, in order to determine the estimated value which distinguishes ranges of values where the behaviour predicted by the regression model varies in some important way.

This Module will provide a notification system which will inform the user in the case of depreciation of an asset or a certain typology/group of assets. This information will be shown in a pop-up window within the chart or in a simple JavaScript alert on the web page of the hosting application.

Figures 13 and 14 show data values as line charts for date and double input data on x-axis.

Figure 13 – Graph representing the value of a car pool over time

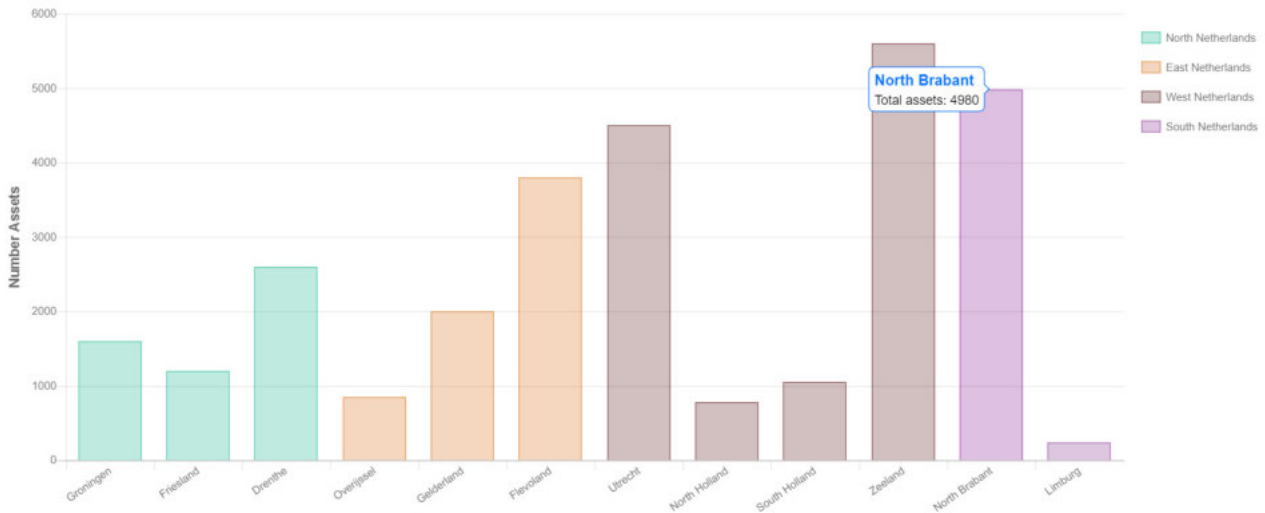


Source: eCrime.

Figure 14 – Pop-up window automatically notifying users of asset depreciation



Source: eCrime.

Figure 15 – Graph representing the total number of seized assets, by Dutch region

Source: eCrime.

In the case at hand - x-value is a string - we will not apply the linear regression model to data points and determine the threshold value of an asset or a set of assets.

Figure 15 shows data values as a bar chart for label input data, which the x-values are represented as a string.

Images, Videos & More Module

This Module provides support for the upload and display of images/files related to an asset. This Module stores files data in an ad-hoc storage or in an existing JDBC database. It gives a temporal perspective on the history and conditions over time of a seized good with the uploaded pictures and files. This is achieved by displaying a timeline where each element is an uploaded document.

The following are the functionalities of the Module:

- Document (such as /image/audio/video) upload.
- Representation on a timeline of the files concerning a certain asset.
- Download of the uploaded files.

The system can provide two outputs. The main output is obviously a timeline displaying all the uploaded files regarding an asset. Every timeline's leaf displays, by default, a picture miniature (or a document icon, if the

file is not a picture), title, document type and date. The timeline automatically sorts the files according to their date.

The timeline takes an array of JSON objects as inputs, which are served by a Java servlet.

Furthermore, each leaf contains a link that allows the user to download the document.

The upload of an image/document is made feasible by an HTML form, which requires the insertion of the following data:

1. Asset identification number;
2. Title: a brief description of the document;
3. Date when the document was created or the picture was taken;
4. User who uploaded the file;
5. Phase of the proceeding in which the file was uploaded;
6. Description of the asset conditions;
7. Actual file.

Figure 16 shows an example of the form.

Figure 16 – File Upload Form of the Payback Images, Videos & More Module

Source: eCrime.

It is possible to initialize the upload form to refer to a specified asset or to pre-set some form fields. To do this it is sufficient to pass a JSON object to the form initialization function. Figure 17 shows an example of the form instantiated passing a JSON object.

Figure 17 – File Upload Form of the Payback Images, Videos & More Module. Example of the form instantiated passing a JSON object

Source: eCrime.

For further information about the JSON input file see the Developer guide.

3.3.2 Developer guide

Geolocalisation Module

The data for Geo2D geolocalization should be in the JSON format shown in Figure 18.

Figure 18 – JSON format for the data for the Payback Geo2D Geolocalisation Module

```
var themes = [
  {
    "title": "Cars",
    "type": "exact",
    "values": [
      {
        "value": 1,
        "from": null,
        "to": null,
        "label": "Ferrari",
        "color": "#0000",
        "size": 10
      },
      [ ... ]
    ],
    "items": [
      {
        "theme_value": 1,
        "theme": 1,
        "lat": 45.0808785,
        "lon": 7.5667916,
        "assetid": 5240,
        "asset_code": "FerrariCODE",
        "description": "Ferrari Description"
      },
      [ ... ]
    ]
  },
  [ ... ]
]
```

Source: eCrime.

The data for Geo3D geolocalization should be in the JSON format shown in Figure 19.

Figure 19 – JSON format for the data for the Payback Geo3D Geolocalisation Module

```

var themes3d =
{
  "themes": [
    {
      "title": "Building",
      "type": "exact",
      "values": [
        {
          "value": "Depot",
          "from": null,
          "to": null,
          "label": "Police Depot",
          "color": "A52A2A"
        },
        [ ... ]
      ]
    },
    {
      "title": "Movable",
      "type": "exact",
      "values": [
        {
          "value": "Small Object",
          "from": null,
          "to": null,
          "label": "Small Object",
          "color": "00ff00"
        },
        [ ... ]
      ]
    }
  ],
  "items": [
    {
      "id": "Depot",
      "description": "Police Depot",
      "json":
      {
        "type": "FeatureCollection", "features": [{"type": "Feature", "properties": {}, "geometry": {"type": "Polygon", "coordinates": [[[11.117565929889679, 46.06643846488254], [11.117724180221558, 46.06570523373761], [11.118091642856598, 46.06574803683863], [11.117981672286987, 46.06631936200881], [11.118764877319336, 46.066401245262114], [11.118815839290617, 46.066170483055295], [11.118979454040526, 46.066196536901145], [11.118890941143036, 46.066574316284154], [11.117565929889679, 46.06643846488254]]]}]},
        "offset": "0.0",
        "height": "12.0",
        "thema_values": {
          "Building": "Depot",
          "Movable": "",
        }
      },
    },
    {
      "id": "",
      "descrizione": "Ring",
      "json":
      {
        "type": "FeatureCollection", "features": [{"type": "Feature", "properties": {}, "geometry": {"type": "Polygon", "coordinates": [[[11.118244528770447, 46.06649801622304], [11.118252575397491, 46.06644404782345], [11.118464469909668, 46.06646637958139], [11.118451058864594, 46.06652034795916], [11.118244528770447, 46.06649801622304]]]}]},
        "offset": "9.0",
        "height": "12.0",
        "thema_values": {
          "Building": "",
          "Movable": "Small Object"
        }
      },
    },
    [ ... ]
  ]
}

```

Source: eCrime.

The code snippet (Figure 20) gives a working example of how to install an instance of 2D sub-module.

Figure 20 – Code snippet for the Payback Geo2D Geolocalisation Module

```
<div id="p3dt-map" class="p3dt-map"></div>
<script>
    var p3dmaps = new geo2d.Maps({
        maps: 'it',
        layers: ['OSM', 'RV']
    });
    p3dmaps.init().then(function () {
        p3dmaps.loadTematismi({
            events : {
                "onclick":func-
tion (feature) {
                    alert("selection on "+feature);
                },
                data : data
            }
        });
    });
</script>
```

Source: eCrime.

The code snippet (Figure 21) gives a working example of how to install an instance of 3D sub-module.

Figure 21 – Code snippet for the Payback Geo3D Geolocalisation Module

```
<div id="p3d-model" class="p3d"></div>
<script>
    var p3d = new geo3d.Plani3D({ });
    p3d.init().then(function () {
        p3d.loadTematismi(function (fea-
ture) {
            alert("selection on "+feature);
            }, testdata);
        });
</script>
```

Source: eCrime.

As is evident, the script is very easy, and could be used with third-party JavaScript module loaders (e.g. RequireJS). The data variable contains data concerning the assets, as described above. The "onclick" function is the function returning an asset's data to the hosting application after an in-map selection. A simple JavaScript alert is placed inside such function but any logic can be performed by the hosting application.

Report & Alert Module

There are three expected types of x-value in input data. All types are supposed to be a JavaScript object consisting in an array of JSON object. They will contain in-

formation such as title of the graph, alert object (which includes the data needed to determine the estimated value of an asset), labels of x and y in the chart and the group by field (which indicates the valuation measure of a set of assets).

The structure of the input data is very similar, but there is a relevant difference: the date field is made up by a dateFormat field that specifies the date format of estimation of seized asset/s, whereas the double field performs the conversion from a string to float point number.

The only constraint concerns the date format, since it is required to be as specified in the table below. Table 4 provides details on the expected date standard patterns.

Table 4 – Expected date standard patterns. Example

Example	Date Standard Patterns
14/07/22	ShortDatePattern [yy/MM/dd]
2014/22/07	ShortDatePattern [yyyy/dd/MM]
22/07/2014	ShortDatePattern [dd/MM/yyyy]
2014/07/22	ShortDatePattern [YYYY-MM-DD]
June 22, 2014	YearMonthPattern [MMMM d, yyyy]
2004-07-01T22:30:00	SortableDateTimePattern [yyyy-MM-ddTHH:mm:ss]

Source: eCrime.

Furthermore, the input data also contain the values array, which includes the points. Each point is specified by an object containing x and y fields. The y-axis will be used to plot the values and the x-axis to plot dates of estimation, numbers associated with a certain asset typology or names of judicial administrators/etc. (see appendices A and B for guidance).

The Report & Alert Module comes as a stand-alone JavaScript library. The installation consists in the creation of an empty HTML div element and a very simple script that is in charge of drawing the Module's content into such div, in the user's web pages.

The Report & Alert library deals with the creation of a HTML canvas element, which is used to draw charts, on the fly, via JavaScript.

List of the expected data formats needed to feed the Report & Alert Module shown in Table 5.

Table 5 – Expected data formats needed to feed the Payback Report & Alert Module

Name	Type	Description
minY	Integer/Float	Minimum threshold value by a single asset or a set
maxY	Integer/Float	Maximum threshold value by a single asset or a set
dx	Integer/Float	The delta (dx) variable indicates the value, which is expressed in terms of days or floating point number, within which to evaluate if the threshold value decreases/increases with respect to the expected threshold range [min, max]. This value is not mandatory.
X (label)	String	The label of the x axis in a cartesian chart
Y (label)	String	The label of the y axis in a cartesian chart
dateFormat	String	If the dateFormat field is present within the input data, we need to parse the x-value string to date the object
Double	Boolean	If the double field is present within the input data, we need to parse the x-value string in order to get a floating point number
groupBy	String	The groupBy field indicates the valuation measure of a set of assets
X (values)	String	X can be represented as dates/numbers/labels (e.g. "2019/05/24", "1234.78", "Number of the case 1234-345") by an asset or a set of assets
Y (values)	Integer	Y can be represented as values of estimations of an asset or a set of assets

Source: eCrime.

Input Data Model sample (Figure 22) representing dates of estimation of a set of confiscated cars.

Figure 22 – Input Data Model sample

```
var data = {
  "title": "Estimation value of a cars by type",
  "alert": {
    "minY": "20%",
    "maxY": "50%",
    "dx": 365
  },
  "label": {
    "x": "Date",
    "y": "Value"
  },
  "groupBy": "type",
  "dateFormat": "yy/MM/dd",
  "values": [
    {"x": "2015/01/01", "y": 5000, "type": "Fiat"}, {"x": "2016/01/01", "y": 4000, "type": "Fiat"},
    {"x": "2017/01/01", "y": 3500, "type": "Fiat"}, {"x": "2017/01/01", "y": 1000, "type": "Fiat"},
    {"x": "2015/01/01", "y": 3000, "type": "Fiat"}, {"x": "2016/01/01", "y": 2000, "type": "Fiat"},
    {"x": "2017/01/01", "y": 1500, "type": "Fiat"}, {"x": "2015/01/01", "y": 2500, "type": "Fiat"},
    {"x": "2015/01/01", "y": 8000, "type": "Fiat"}, {"x": "2016/01/01", "y": 6000, "type": "Fiat"},
    {"x": "2017/01/01", "y": 2000, "type": "Fiat"}, {"x": "2016/01/01", "y": 5000, "type": "Fiat"},
    {"x": "2015/01/01", "y": 20000, "type": "Ferrari"}, {"x": "2015/01/01", "y": 30000, "type": "Ferrari"},
    {"x": "2016/01/01", "y": 28000, "type": "Ferrari"}, {"x": "2017/01/01", "y": 27500, "type": "Ferrari"}]
};
```

Source: eCrime.

The data variable contains data concerning estimation of the value of an asset or set of assets. Furthermore, an “onThresholdAlert” function is created, and it is the function returning information about an asset’s threshold value in the case of fast depreciation over time.

Images, Videos & More Module

The installation of this Module requires the installation of JRE 7.x or JRE 8.x and a Tomcat local web server (or on different kinds of web-servers or application-servers; e.g. Jetty, JBoss, etc..).

The following are the data needed to feed the API: asset identifying number, files related to that asset and description, date of file creation, asset condition description for each file and name of the user who uploaded the file.

It is possible to customize the input on page bypassing the configuration. There follows an example (Figure 23):

Figure 23 – Code snippet for the Payback Images, Videos & More Module. Example of how it is possible to customize the input on page bypassing the configuration

```
var formConfig = {
  assetId : 123,
  phases : ['Investigation',
    'Freezing', 'Seizure'],
  creators : ['Yuly Sanchez',
    'Alex Pellegrini', 'Barbara Vettori', 'Marco
    Angheben'],
  server_url: 'http://local-
    host:8080/payback-api/timeline/upload'
}
```

Source: eCrime.

The code snippet (Figure 24) gives a working example of how to install the upload module in an HTML page

Figure 24 – Code snippet for the Payback Images, Videos & More Module. Example of how to install the upload module in an HTML page

```
<div id="upload"></div>
<script>
  var item = new timeline.Upload({ });
  item.create();
</script>
```

Source: eCrime.

The module comes as a WAR (Web application Archive). This will be installed on the Tomcat server mentioned above. The Sqlite3 database file can be placed any-

where in the filesystem, as long as the path variable in the project.properties file is updated with the new DB location.

The code snippet (Figure 25) gives a working example of how to install the timeline module in an HTML page

Figure 25 – Code snippet for the Payback Images, Videos & More Module. Example of how to install the timeline module in an HTML page

```
<div id="search"></div>
<div id="myTimeline"></div>
<script>
  var item = new timeline.Time-
line({ });
  item.create();
</script>
```

Source: eCrime.

The above code prints a small form in the search div. The output of the search form, i.e. the actual timeline, is printed into the myTimeline div element. This search requires a single input, which is the asset identification number (Asset ID in the above table).

The only constraint on form fields concerns the date, since it is required to be in the following format:

YYYY-mm-dd

As mentioned above, it is possible to initialize the upload form through a JavaScript JSON object (Figure 26), which should look like the following:








Figure 26 – Code snippet for the Payback Images, Videos & More Module. Example of how to initialize the upload form through a JavaScript JSON object

```
var formConfig = {
  assetId : 123,
  phases : ['Investigation',
    'Freezing', 'Seizure'],
  creators : ['Yuly Sanchez',
    'Alex Pellegrini', 'Barbara Vettori', 'Marco
    Angheben'],
  server_url: 'http://local-
    host:8080/payback-api/timeline/upload'
}
```

Source: eCrime.

Passing this object to the upload create function will set up the form in order to have the assetId field of the form already filled in, and to make the Process phase and Created by field become dropdowns. If the above JSON is missing, every form field will be a free text field.

Figure 27 – Structure of the Sqlite3 database connected to the Payback Images, Videos & More Module

	Name	Data type	Primary Key	Foreign Key	Unique	Check	Not NULL	Collate	Default value
1	Id	INTEGER							NULL
2	title	STRING (256)							NULL
3	date	DATE							NULL
4	bytes	BLOB							NULL
5	assetID	STRING (256)							NULL
6	mime	TEXT (256)							NULL
7	phase	STRING (256)							NULL
8	conditions	TEXT (256)							NULL

Source: eCrime.

This Module connects to a Sqlite3 database or another JDBC database. The former is very simply designed; indeed, only one table called “files” makes it up. Figure 27 better describes its structure.

The actual file is not stored in the filesystem; rather, it is stored in the above table as a blob data type (bytes field).

3.4 Guidelines for transferability of the PAYBACK DMS prototype (deliverable 3.3)

The solutions implemented in the Payback DMS prototype delivered by the end of the Project (BASIC SYSTEM, API and FE) are ready to market because they expose every designed feature and respond to the MS needs gathered during the in-country visits. Furthermore, feedbacks from test-visits were useful for gauging whether the implementation is fully functional on prototype release.

The collection of the three solutions included in the prototype will allow MS lacking an ICT system on seized asset management to start developing their custom solution from a generic but effective infrastructure. The only prerequisite for re-use of the Payback project prototype is to have an installed server with Java 8+ and Apache Tomcat 8+.

More advanced MS (already owning and using an ICT system or planning upgrades or refactoring on it) can consider integrating Payback API into the system just by gathering data as needed from APIs and deploying components in their current solution. In this case, the

integrating system must have been developed as a web application (HTML, DHTML, ASP, JSP, Angular, etc.).

Therefore, all associate partners in the project will be able to use Payback prototype results: by formatting data as detailed above to feed Payback-API components, the system will benefit from georeferencing assets, monitoring their value over time and tracking their conditions.

Considering its open-source-software based nature (which means that no commercial licences are needed) and its flexibility, modularity and scalability, the Payback DMS prototype is ready for every institution or agency interested in Payback features.

3.5 Final remarks on the Payback DMS prototype and how to get it free of charge

The key achievement of the Payback Project is the Payback DMS prototype. It is the first ICT tool for the collection, management and automatic analysis of data on seized assets that could be implemented in all Member States (and beyond) to increase the efficiency of asset management. It responds to common EU needs, yet takes into account national peculiarities.

Its key features, as discussed, are flexibility and easy and full integration in pre-existing systems. Last but not least, the Payback DMS has been designed so as to be accessible to the highest number of countries: its APIs are based on open-source third-party libraries.

In order to further enhance accessibility of the prototype to all countries, in agreement with the European Commission the Payback consortium decided to make the Payback DMS prototype available to all countries free of charge, with a Creative Commons license. Interested countries can request it by email at this address: ecrime@unitn.it.

Implementation of the prototype by countries shall hopefully result in the following benefits, in the short and long run:

- 1) *increased effectiveness of freezing/seizure procedures* (in terms of better pre-seizure planning, knowledge-based choice of storing solutions and asset management actions (what to do, when and how is best to do it), better management of critical assets, reduction of management costs, reduced depreciation, quicker sale/provisional assignment of assets), via the functionalities provided by all the three Modules of the Payback DMS;
- 2) *as a result of point 1 above, increased effectiveness of confiscation and disposal procedures;*
- 3) *increased accountability of AMOs and other relevant agencies*, via the statistics automatically produced by the Payback DMS, Report & Alert Module;
- 4) *better assessment of performance issues*, via the functionalities provided by the Report & Alert Module, which amongst other things, can create graphs showing, for example, how many assets (and therefore the workload) are managed by a given actor (e.g. court, judicial administrator);
- 5) *institutional continuity within a given AMO/other competent agency*: the Payback DMS can provide a given entity, in the mid and long run, with an objective standard (backed, in time, by thousands and thousands of records) to asset management decisions.

The key challenge is now for countries to gather good quality input data to feed the Payback DMS, so as to fully enjoy its potentialities.



04

Report on the piloting of the PAYBACK DMS (deliverable 4.1)

Visits to the associate partners' premises to test the Payback DMS prototype took place in June-July 2018, as follows:

- Rome, Tribunal of Rome, Sezione Misure di Prevenzione, 07-08.06.2018;
- Dublin, CAB, 12-13.06.2018;
- Prague, 20-21.06.2018;
- Apeldoorn, Functioneel Parket and Domeinen Roerende Zaken, Ministry of Finance, 18-19.06.2018;
- Brussels, COSC, 18-19.06.2018;
- Sofia, 06.07.2018.

The agenda for the visits was as follows:

- Short introduction to the Payback prototype;
- Testing the Geolocalisation Module;
- Testing the Report & Alert Module;
- Testing the Photos, Videos & More Module;
- Associate partner's feedback on the prototype;
- Participation of the associate partner in the Payback workshop in Brussels (11.07.2018);
- Possible future developments/cooperation.

In the last part of the test visit the feedback of the associate partner on the prototype was gathered. This gave the researchers a chance to gather opinions on the results of the Project against planned expectations, as well as on a variety of topics (adequacy of the three identified areas of interest, completeness of the architecture and of the proposed solutions, compatibility of the Payback DMS with the associate partners' information system, ability of the Payback DMS to add functionalities to the associate partners' information system and to respond to their current and future needs, clarity of the documentation provided, user-friendliness of the Payback DMS prototype's installation and use). Overall the prototype was well received and was regarded by the associate partners as useful for their organisations.

Some of the comments gathered were used by developers to fix bugs, improve functionalities and release software updates, up to the final version. For example, the following bugs/features were fixed/implemented: Photos, Videos & More Module: ability to connect to other JDBC databases; filters on timeline item; Report & Alert Module: threshold as a percentage; bar chart representation; Geolocalisation Module: automatic reload representation on dataset change.



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Other deliverables

5.1 Extended internal evaluation report (deliverable 0.5)

This report includes the internal evaluation of the Project by the Steering Committee, which was tasked with internally assessing the results of the Project against planned expectations, as well as its ability to involve and to have an impact on its target groups/beneficiaries.

It was decided to enrich the originally foreseen internal evaluation by requesting relevant stakeholders (i.e. the associate partners) to express - at different points in time (test visits, see chapter 4, and final conference) - their opinions on the results of the Project against planned expectations, as well as on a variety of topics (adequacy of the three identified areas of interest, completeness of the architecture and of the proposed solutions, compatibility of the Payback DMS with the associate partners' information system, ability of the Payback DMS to add functionalities to the associate partners' information system and to respond to their current and future needs, clarity of the documentation provided, user-friendliness of the Payback DMS prototype's installation and use).

Regarding the internal evaluation performed by the Steering Committee, it can be summed up as follows.

Project implementation was, overall, smooth. Two key issues – in terms of problems encountered and related solutions - shall only be mentioned here. First, a request for extension (6 extra months), i.e. from 14 January 2018 to 14 September 2018 was filed. The main reasons for this request were the following: a) there had been some delays in data gathering in two countries, Belgium and France, due to major organisational changes within COSC and AGRASC (associate partners); b) the research team strongly wished to include, as associate partner, a country that expressed

interest in the project: the Netherlands, via its AMO, i.e. Functioneel Parket (FP). The Netherlands is a country with a long standing tradition that could represent a benchmark in this respect; it is also a country facing some challenges (a re-design of its ICT system is currently under discussion), and that could therefore greatly benefit from the project; c) the great diversity of existing ICT systems reviewed under WP1 had resulted in a more intense and time consuming exercise - both in terms of system requirements and design of the software architecture of the PAYBACK prototype - for the ICT staff involved in the project, compared to what was expected; d) to better integrate the georeferenced component into the PAYBACK prototype, with advanced functionalities (initial research activities had highlighted the importance the issue); e) to go beyond the idea of compatibility, and make existing ICT systems and the Payback prototype connect via Interchange File Formats. The request for extension was accepted, so the research team was in the position to address all the points above.

Second, as reported to the European Commission on 06.06.2018, it was not possible to carry on the activities that required the researchers to visit the premises of the French associate partner, i.e. AGRASC. The Project envisaged, in each of the associate partners' countries, one in-country visit; this visit aimed at gaining a comprehensive understanding of the associate partner's database on seized assets (including technical details) and at seeing it "in action", as well as at better discussing their needs in this area. The envisaged in-country visit at AGRASC premises could not be successfully organised due to internal AGRASC issues. When trying to plan it, the research team was in fact told by AGRASC that this was not possible for a variety of reasons: their database was in a restructuring phase; the public call for tender with the computer company that designed it was coming to an end, and they were about to assess what had been done to understand what the follow-up could be; they were about to recruit a statistician to exploit the database better

and to assess its limits and possible performances. As a consequence, neither the in-country visit nor the subsequent test visit could take place. No specific solution was needed in this case, since this did not jeopardize the project: information gathered by the remaining associate partners still made it possible to fully develop the Payback DMS.

The results achieved fully met planned expectations: all activities were performed as planned.

The Project was able to involve its target groups/beneficiaries, both during its duration (with the involvement of the associate partners throughout the Project, as well as on the occasion of the in-country and test visits) and at its end, when the final conference took place in Brussels. Regarding the latter point, it should be stressed that in June 2018 the University of Trento and two co-beneficiaries (Centre for Legal Resources and Centre for the Study of Democracy), in agreement with the Commission services, re-allocated some unspent travel resources to the final conference in Brussels. This made it possible to boost dissemination of the Project's results, involving representatives from acceding countries as well.

The conference was in fact attended by representatives of entities involved in the management of seized assets in the EU Member States:

- Agenția Națională de Administrare Fiscală (Romania);
- ARO/Judiciary Police (Portugal);
- Asset Recovery Bureau (Malta);
- Central Office for Seizure and Confiscation (Belgium);
- Centre for Seized Assets, Ministry of Interior (Czech Republic);
- Commission on Illegal Assets Forfeiture (Bulgaria);
- Criminal Assets Bureau (Ireland);
- Direcția de Investigare a Infracțiunilor de Criminalitate Organizată și Terorism – DIICOT (Romania);
- National Police, Asset Tracing Office (Spain);
- Rome Tribunal, Sezione Misure di Prevenzione (Italy).

It was also attended by representatives of entities involved in the management of seized assets in the acceding countries (candidate and potential candidate

countries), which were mainly involved via the BAMIN network, as well as by one representative from Georgia. More in detail, the following institutions were present:

- Agency for Administration of Seized and Confiscated Assets (Albania);
- Agency for Management of Seized and Confiscated Property (Republic of Macedonia);
- Agency for the Management of Sequestrated or Confiscated Assets (Kosovo);
- AMO of Republic of Srpska (BiH);
- Ministry of Justice (Georgia);
- Property Directorate for Management of Seized and Confiscated Assets (Montenegro);
- University “Ss. Cyril and Methodius” (Republic of Macedonia).

In addition, there were representatives from EU institutions, namely:

- European Commission, DG Migration and Home Affairs;
- Europol, Europol Criminal Assets Bureau.

Regarding the Project's impact, it should be preliminarily noted that in order to boost such impact the research team decided: 1) to design the Payback DMS on the basis of open source third-party libraries; therefore no commercial licences are needed; 2) to make the prototype of the Payback Data Management System available to all countries free of charge, with a Creative Commons licence. Overall, **the Project's impact on target groups seems to be very promising.** The Payback DMS prototype was positively received by its target groups, which include the Asset Management Offices (and other relevant agencies) that received a presentation of the prototype either at the final conference or at the ARO Platform meeting held on 10.07.2018. Some of them (e.g. representatives from Albania, Malta, Portugal) expressed great interest in the Payback DMS, which could become part – in the short and medium term – of their data collection and analysis efforts in the near future.

With especial reference to the opinions of those target groups directly involved in the project's activities as associate partners, these were gathered at the end of the conference, within a specific panel, the purpose being to expand the evaluation performed by the Steering Committee. **These comments highlight the ability of the project and of the prototype to respond to their**

needs, to adapt to their environments and to have a positive impact on their everyday activities in the near future. More in detail, members of the following associate partners were present and expressed the following opinions:

- Rome Tribunal, Italy: according to Davide Guidi, the Payback DMS prototype proved to be brilliantly effective during the test visit at the Rome Tribunal. He said that it is like a garment perfectly adapted to any body, since, like a transparent film, it perfectly adapts itself to the system that it is boosting. The most important functionalities of the system, according to the Rome Tribunal, are: 1) module 1, since geolocalisation is essential for optimal management; 2) the possibility to obtain graphs showing the value of an asset over time, as well as a prediction of its depreciation over time; this is essential since it can orient the entire proceedings, and support either sale or custody; 3) the possibility to generate automatic alerts; 4) the ability to store photos, videos and other documentation during the entire procedure, thus showing the real time conditions of a given asset. In short, it is an absolutely effective system, that proved to be greatly adaptable and flexible;
- Central Office for Seizure and Confiscation (COSC), Belgium; according to Walter Quirinen, the participation of COSC in Payback Project came at a perfect time, for two reasons: 1) COSC, which is one of the oldest AMO in Europe (it was set up in 2003), has to date focused more on legal issues than on ICT ones. When it was set up, just one person was allocated to the ICT Department; when this person left after a couple of years the office found itself with a rather static database, so that last year it was decided to move to a new one; 2) there is a new COSC law, recently entered into force, which obliges COSC to adapt its ICT system in order to comply with new obligations (e.g. the obligations to return assets in a very short time, i.e. within 2 months). Quirinen added that there was a long discussion with the Payback researchers about COSC's needs, and that the three resulting modules focus on the issues most important for COSC. COSC also appreciates that the Payback system is highly adaptable. COSC will wait for the new system to be fully operational by the end of 2018 and then will go back to the results of Project Payback and implement one or more Modules;
- Criminal Assets Bureau (CAB), Ireland: according to Nigel Petrie, the most important feature of the system, in his experience, is integration, also in future systems, and the ability to potentiate a given system. CAB is less interested in the Geolocalisation Module, due to the low volume of assets that it manages, but this module could still be of interest in Ireland to a national management office in charge of all seized assets in the country (when this will be set up). The depreciation of assets is another interesting tool provided by the Payback DMS: also if CAB does not strictly need to maximise values, this tool is useful to see where waste it too much. Hence, with the exception of Module 1, all is of interest to CAB. CAB finds particularly useful the report generation tools, that could assist CAB when suggesting certain options in terms of management in court;
- Centre for Seized Assets, Ministry of Interior, Czech Republic: Ivo Škrobák noted that the Centre for Seized Assets is developing a database that will be ready by the end of this year. They find particularly interesting 2 modules of the Payback DMS, i.e.: 1) module 1 on geolocalisation, since the possibility to get information about location with a click can help the Centre obtain information from LEAs and organise logistics (now this is done manually, in the entire country); 2) module 3, since it shows quality and quantity over time in just one click, and CSA would very much like to incorporate it in its system. Škrobák said that module 2 is less interesting because of CSA's mission: it is not the entity deciding the sale; this is a decision by law enforcement;
- Commission on Illegal Assets Forfeiture, Bulgaria: Lachezar Barganski said that he was amazed by the potentialities of all the three modules, and added that the consortium turned a complicated issue into an easy-to-use tool. He said that the Payback DMS makes it possible for practitioners to learn from their cases and also to lift responsibility since it sets an objective standard for asset management decisions. It is also useful to interact with judges. Lastly, the possibility to produce statistics easily is much appreciated (e.g. could be useful to feed their annual report to the Parliament).

5.2 Project website (deliverable 5.1)

A dedicated website was set up to disseminate the project's aim and results. The Project website is www.project-payback.eu.

5.3 Research articles (deliverable 5.2)

The researchers are in the process of submitting articles to relevant scientific journals.

Annex 1

Questionnaire to map existing experiences (deliverable 1.1)

Instructions for the compilation of this questionnaire

In light of your expertise and knowledge of the topics being dealt with, we would like to ask for your kind cooperation in providing responses to the questions included in this document, which has been prepared in the context of the Payback Study, awarded to the University of Trento, Faculty of Law - eCrime research group by the European Commission, DG HOME under the 2014 ISFP Programme. The Study is being carried out in cooperation with the Center for the Study of Democracy, Institut national des hautes études de la sécurité et de la justice, Centrul de Resurse Juridice, and Consiglio nazionale dei dottori commercialisti e degli esperti contabili. It is supported by Agence de gestion et de recouvrement des avoirs saisis et confisqués, the Criminal Assets Bureau of Ireland, the Commission on Illegal Assets Forfeiture of Bulgaria, the Central Office for Seizure and Confiscation of Belgium, the Asset Management Section of the Czech Ministry of Interior and the Rome Tribunal.

The overall aim of the project is to **develop and test in selected MS an innovative Data Management System for seized assets (i.e. Payback DMS prototype)**. The Payback DMS is intended to be a scalable ICT tool (transferable with adaptations to different EU national contexts and supporting multi-lingual interface) for the collection, management and automatic analysis of data on seized assets.

A necessary step towards achievement of this aim - which is addressed by this questionnaire - is **to map existing databases and DMS for seized assets in the EU and identify their strong and weak points**. From a preliminary review we discovered that such a database exists in your country. We, therefore, aim to better understand its design and functioning.

Before proceeding to the questions, some preliminary remarks and definitions. Asset management is a key issue all along the entire proceedings leading to the removal of unlawful assets. In the context of the project we are, therefore, interested in databases gathering information on assets both under a freezing/seizure order as well as under a provisional confiscation order. These terms are defined as follows in the context of the study:

- by **database** we mean a collection of information that is organised in such a way that a computer program can quickly select pieces of data. It is, therefore, a collection of data arranged for ease and speed of search and retrieval. **A Data Management System (DMS)** makes it possible for end users to create, read, update and delete data in a database, and therefore serves as an interface between the database and end users or application programs;
- **“freezing” or “seizure”** means temporarily prohibiting the transfer, destruction, conversion, disposition or movement of property or temporarily assuming custody or control of property on the basis of an order issued by a court or other competent authority;
- **“provisional confiscation order”** means a penalty or a measure, ordered by a court following proceedings in relation to a criminal offence or criminal offences, resulting in the final deprivation of property, which can still be appealed.

When using the generic term “seized assets” we therefore refer, in the context of this questionnaire, to assets under a freezing order, a seizure order or a provisional confiscation order.

In order to promote a better understanding of your database and DMS we would be grateful if you could complement your replies to the questionnaire with any relevant materials, including, if possible, screenshots of the database itself, user's manuals, existing instructions to access/use it, etc.

We kindly ask you to answer the questions in writing, in this file, to send it back to us by email, and to then be available to discuss your replies on the occasion of a short telephone call. We will be in contact with you in the following weeks to arrange a suitable date and time for our phone call. In the meanwhile, should you need any further information on the Study and/or clarifications on the questions, please do not hesitate to contact Andrea Di Nicola, coordinator of project Payback (andrea.dinicola@unitn.it; +39 0461 282336).

Your cooperation in the Study will be acknowledged in the project's report. Thank you very much in advance for your kind cooperation.

Before answering the questions, please insert your contact details in the table below.

Country:	
Name:	
Position:	
Ministry\Agency\Institution:	
Mailing address:	
Telephone:	
Fax:	
Email:	

Background information

- Could you please tell us the name/acronym of your database?
- When was it set up? Since when is it fully operational?
- Why was it established? Out of which specific needs (please specify, if any)?
- Was it significantly amended during the years? If so, how and why?
- Which are its expected functionalities? Please list them all (e.g. maintaining a detailed inventory/list of seized assets; production of statistics on seized assets; tracking of a given asset throughout the procedure; connecting the different actors involved at different stages of the proceedings; supporting the management of the assets also with automatic alerts; supporting the exchange of information with other countries, thus boosting international cooperation).
- Which institution developed the database? In setting it up, was it supported by an external IT company or was all the work done internally?
- Which institution currently manages the database, and therefore has an overall responsibility for and supervision over it?
- Which institutions/actors are currently involved in the management of seized assets in your country, at any level (central and local) and what is their role? Please list them all.

Coverage

- Considering that a confiscation proceeding usually starts with a seizure/freezing order, ends with a final confiscation and goes on with the disposal of the assets, up to which stage of judicial proceedings does the database keep track of the assets? Does it record information related to seizure/freezing orders only? Or does it also collate information on subsequent stages (up to the provisional confiscation order, or to the final confiscation order or even up to the disposal stage)?
- Does the database gather information on all seized assets in your country or does it cover only a specific area/city/region?

Data input

- Which institutions/actors can input data into the database? Please list all the institutions/actors, at all levels, that are expected to input data (e.g. the managing institution, magistrates, judicial administrators).
- Do the above actors fully participate in data inputting or not? If not, explain who does not and the possible reasons for this.
- In particular, do all the actors involved in the management of seized assets (as detailed in your reply to question 8) input data? If not, why?
- What is the counting unit in the database: the asset itself? the proceeding? other?
- What kind of data are inputted? Please list all the variables of interest (e.g. location of the asset, estimated value, date of the seizure order, name of the magistrate in charge of the case).
- How are data inputted? Manually by authorised users or automatically imported from external systems (or maybe both, depending on the type of data)?
- Could you please provide us with the data input form/s? (as a separate document or just by copying and pasting the screenshots here)
- Is data input user friendly or do some critical issues arise (e.g. slowness of the system, frequent error messages, etc.) that make data input complicated?

19. Are all the fields mandatory in terms of data input?

19.1 If not, please describe which are to be mandatorily filled in and which are not.

19.2 If not, are non-mandatory fields usually filled in or not?

20. Is a unique identifier assigned or not when data are recorded? If so, to what does it relate (e.g. the asset, the defendant, the proceeding)?

Data access

21. Which institutions/actors can access the database? Please list all the institutions/actors that can enter the database and explain how they get authorisation/credentials to log in.

22. How do users get access? Via a web interface (using a browser) or a dedicated application (e.g. Microsoft Access, custom solutions) installed locally?

23. Does the database envisage different levels of access depending on the user's role (e.g. only visualise data or also add data/extract data)?

24. Overall, how many users have access to the system?

25. Is there a limit to the number of users that can access the system at the same time?

Data outputs

26. Does the database automatically produce outputs such as statistics (e.g. basic statistics such as frequency counts e.g. percentage of seized assets by typology of assets) and graphs? If so, which statistics? Which graphs?

27. In particular, does the database automatically produce reports intended to measure asset management efficiency (e.g. average depreciation by asset typology, average number of days assets have been under management before their disposal, by asset typology, etc.)?

28. Which other outputs does it produce? In particular, does it envisage automatic alerts to users (e.g. alerts about certain deadlines within the confiscation proceedings; alerts about criticalities in the management of a given asset/actions to be promptly undertaken to ensure optimal management)?

29. Are there some procedures to export data for further applications? If so, do these procedures remove all personal data from the result?

30. Are these outputs sufficient or insufficient, in your opinion, to support an effective and efficient asset management? If not, which other outputs would be advisable?

Data integration

31. Does the database dialogue (i.e. receive or send data) with other, external, databases/systems (e.g. cadaster, registry office)? If so, under which conditions?

Security, privacy and data protection

32. What standards does the database meet in terms of security, privacy and data protection?

Weaknesses

33. In your opinion and based on your experience, what are the key problems affecting this database, including:

- technical problems (e.g. database is not user-friendly; data input takes too much time/is excessively burdensome; the database works very slowly);
- design problems (e.g. database collects little information; the outputs provided to the users are very limited; provides limited support to daily judicial practice);
- implementation problems (e.g. lack of human and/or material resources; lack of training/user's guidelines on how to use the database; data collection is largely incomplete since most entities do not input data; does not offer all the expected functionalities);
- other problems (please specify).

Please provide us with one or more concrete examples to illustrate in detail these problems and their impact.

34. Are possible solutions/strategies to fix existing problems currently under discussion? If so, please explain (e.g. upgrade of the software, training of the personnel).

Strengths

35. In your opinion and based on your experience, what are the strengths of this database? What really works and for whom? Why does it work well?

Describe one or more good practice examples.

Annex 2

Questionnaire to understand the stakeholders' needs in the EU

Instructions for the compilation of this questionnaire

In light of your expertise and knowledge of the topics being dealt with, we would like to ask for your kind cooperation in providing responses to the questions included in this document, which has been prepared in the context of the Payback Study, awarded to the University of Trento, Faculty of Law - eCrime research group by the European Commission, DG HOME under the 2014 ISFP Programme. The Study is being carried out in cooperation with Center for the Study of Democracy, Institut national des hautes études de la sécurité et de la justice, Centrul de Resurse Juridice, and Consiglio nazionale dei dottori commercialisti e degli esperti contabili. It is supported by Agence de gestion et de recouvrement des avoirs saisis et confisqués, the Criminal Assets Bureau of Ireland, the Commission on Illegal Assets Forfeiture of Bulgaria, the Central Office for Seizure and Confiscation of Belgium, the Asset Management Section of the Czech Ministry of Interior and the Rome Tribunal.

The overall aim of the project is to **develop and test in selected MS an innovative Data Management System for seized assets (i.e. Payback DMS prototype)**. The Payback DMS is intended to be a scalable ICT tool for the collection, management and automatic analysis of data on seized assets.

A necessary step towards achievement of this aim – which is addressed by this questionnaire – is **to understand, within the EU, the needs of relevant stakeholders in terms of asset management and how an ICT expert system could make everyday activities more effective**.

Before proceeding to the questions, some preliminary remarks and definitions useful to respond to this questionnaire. Asset management is a key issue all along

the entire process leading to the removal of unlawful assets. In the context of the project we are interested in the management of assets both under a freezing/seizure order as well as under a provisional confiscation order. These terms are defined as follows in the context of the study:

- by **database** we mean a collection of information that is organised in such a way that a computer program can quickly select pieces of data. It is, therefore, a collection of data arranged for ease and speed of search and retrieval. A **Data Management System (DMS)** makes it possible for end users to create, read, update and delete data in a database, and therefore serves as an interface between the database and end users or application programs;
- by **Payback DMS prototype** (also herein referred to as **Payback system**) we mean the Data Management System for seized assets under development in this project, which will be a scalable ICT tool (transferable with adaptations to different EU national contexts and supporting multi-lingual interface) for the collection, management and automatic analysis of data on seized assets;
- **“freezing” or “seizure”** means temporarily prohibiting the transfer, destruction, conversion, disposition or movement of property or temporarily assuming custody or control of property on the basis of an order issued by a court or other competent authority;
- **“provisional confiscation order”** means a penalty or a measure, ordered by a court following proceedings in relation to a criminal offence or criminal offences, resulting in the final deprivation of property, which can still be appealed.

When using the generic term “seized assets” we therefore refer, in the context of this questionnaire, to assets under a freezing order, a seizure order or a provisional confiscation order.

In order to promote a better understanding of your needs we would be grateful if you could complement your replies to the questionnaire with any relevant materials, including, if possible, real cases useful to illustrate current problems/practices.

We kindly ask you to answer the questions in writing, in this file, and to send it back to us by email. Should you need any further information on the Study and/or clarifications on the questions, please do not hesitate to contact Andrea Di Nicola, coordinator of project Payback (andrea.dinicola@unitn.it; +39 0461 282336).

Your cooperation in the Study will be acknowledged in the project's report. Thank you very much in advance for your kind cooperation.

Before answering the questions, please insert your contact details in the table below.

Country:	
Name:	
Position:	
Ministry\Agency\Institution:	
Mailing address:	
Telephone:	
Fax:	
Email:	

Problems affecting the management of seized assets

1. In your daily work, are there any critical factors hampering the timely and successful management of seized assets?
- ☐ Yes (please tick the relevant box/es; please note that more than one answer is allowed):
- ☐ issues related to the legal framework (e.g. poor/ineffective legal framework regarding asset management; lack of a centralised/dedicated institution);
 - ☐ issues related to the assets themselves (e.g. bad conditions of the assets, assets under mortgage, assets under joint property, assets located abroad);

- ☐ issues related to judicial administrators (e.g. too costly, insufficiently trained);
- ☐ issues related to prosecutors and judges (tendency to promote passive administration; tendency to focus attention on the criminal rather than on the assets);
- ☐ issues related to resources (e.g. lack/paucity of human and material resources);
- ☐ issues related to data gathering and analysis (e.g. lack of a database; existence of a database collecting limited information/information of limited utility in daily practice; limited analysis of available data);
- ☐ any other issue (please specify).

Please provide comments here on your choices, explaining more in detail the concrete problems faced in your country when managing seized assets.

- ☐ No critical factors (please briefly explain why, in your opinion, asset management is successful in your country).

Current database/s on seized assets (if any)

2. Is there any database gathering information on seized assets in your country (should these be more than one please mention and describe them all in questions 3 and 4)?
- ☐ Yes
- ☐ No (go to question n. 5)
- ☐ Do not know (go to question n. 5)
3. If yes, please tell us briefly which institution manages it and what kind of data it collects.
 4. If yes, does this database concretely support practitioners in daily asset management? If so, how?

The following are some questions about the key principles that should inspire the Payback system, so as to help overcome current problems and shortcomings in existing databases.

Needs in terms of purpose

5. In your opinion, what should ideally be the purpose of the Payback system? What would you want the system for? (*more than one answer allowed*)

- ☐ maintenance of a detailed inventory/list of seized assets and of their parameters;
- ☐ tracking of a given seized asset throughout the procedure;
- ☐ connecting the different actors involved at different stages of the proceedings;
- ☐ supporting the daily management of the assets also with automatic alerts;
- ☐ supporting the exchange of information with other countries, thus boosting international cooperation;
- ☐ other (please specify).

Needs in terms of coverage

6. Considering that a confiscation proceeding usually starts with a seizure/freezing order, goes on with its lifting or with a final confiscation order, and ends either with the restitution of the assets to the owner or with the disposal of the confiscated assets, in your opinion up to which stage of judicial proceedings should the Payback system keep track of the assets?

Needs in terms of data input

- 7. In order to ensure a comprehensive data collection, which actors in your country (specific entities/institutions/professionals, etc.) should be involved in data input within the Payback system? Please list them all, at all levels (central and local) (e.g. police, courts, judicial administrators).
- 8. What kind of data should be inputted? Please list the key variables of interest that, in your opinion, should be taken into account when designing the Payback system (e.g. location of the asset, estimated value, date of the seizure order, name of the magistrate in charge of the case), so as to improve your day-to-day work.
- 9. Should the Payback system envisage some fields to be mandatorily filled in when inputting and recording data?

- ☐ Yes (please specify)
- ☐ No
- ☐ I do not know/do not have not an opinion on this

10. How long should an asset be kept within the Payback system after judicial proceedings have been completed? Also, should deletion be done automatically or manually? Please provide more detail to your needs, if any, in this respect.

Needs in terms of data access

11. In order to ensure the highest possible impact on the system on asset management practice, which actors in your country (entities/institutions/professionals, etc.) should be granted access to the Payback system? Please list them all, at all levels (central and local).

12. How many different levels of access do you think the Payback system should envisage, depending on the user's role (e.g. only visualise data or also add data/extract data)? Please elaborate.

13. Would you expect a friendly interface, with graphics and buttons, or rather a classic database resembling Microsoft Excel? Do you have any preference or need in this respect? If so, please explain.

Needs in terms of data outputs

14. Which outputs - in terms of graphs, statistics, maps and tables - should the Payback system automatically generate? Explain more in detail which statistics/graphs/maps/tables you regard as particularly interesting and useful for your work.

15. Do you think that the automatic alerts to users could also support your work? If so, which types of alerts could be more interesting and useful for your work? (*more than one answer allowed*)

- ☐ alerts about certain deadlines within the confiscation proceedings (e.g. deposit documents, make notifications);
- ☐ alerts about criticalities in the management of a given asset/actions to be promptly undertaken to ensure optimal management;
- ☐ other types of alerts (please specify).

16. Is there a need to make data in the Payback system exportable to different formats (e.g. xls) or to a website/portal? If so, please explain your needs in this respect more in detail.
17. What type of search criteria and data filters (e.g. by type of assets, by court/prosecutor, by value, by location, by owner, by a specific sentence or word) should be available in the Payback system? What other search methods do you expect? Please explain your needs in this respect more in detail.

Needs in terms of data integration

18. Should the Payback system dialogue (i.e. receive or send data) with other, external, databases/systems (e.g. cadastre, registry office)? If so, please explain your needs in this respect more in detail.

Needs in terms of security, privacy and data protection

19. What special conditions in terms of security, privacy and data protection should the Payback system meet in your opinion?

Other needs

20. Should you have additional needs regarding the design and/or functioning of the future Payback system, please explain them here. Also, **should you be interested in testing the system when a prototype is ready, please let us know!**

Annex 3

Geolocalisation Module: technical guide

Introduction

This document has been drafted in the context of project Payback. Towards a EU Data Management System for Seized Assets, coordinated by the eCrime research group of the Faculty of Law of the University of Trento (IT). It is carried out in cooperation with Center for the Study of Democracy (BG), Institut national des hautes études de la sécurité et de la justice (FR), Centrul de Resurse Juridice (RO), Fondazione Nazionale dei Commercialisti (IT) (co-beneficiaries), and with the support of the following associate partners: Agence de gestion et de recouvrement des avoirs saisis et confisqués (FR), the Criminal Assets Bureau of Ireland (IE), the Commission on Illegal Assets Forfeiture of Bulgaria (BG), the Central Office for Seizure and Confiscation of Belgium (BE), the Asset Management Section of the Czech Ministry of Interior (CZ), Openbaar Ministerie, Functioneel Parket (NL) and the Rome Tribunal (IT).

It deals with the Geolocalisation Module, that addresses the need to know the exact location of seized assets, distinguishing between a) map location (Geo2D sub-module) and b) in-door location (Geo3D sub-module). The Module is first described in terms of features (section 1), output (section 2), input data (section 3) and installation (section 4 and Appendix A for more details). **Useful information are then provided for the test-visit (section 5), in terms of examples for the Geolocalisation Module that will be used to run a demonstration of the Payback prototype during the visit and data required for this purpose.**

1. Description

This Module allows the localization of the asset from a geographical point of view, i.e. either on a map **Geo2D** (e.g. a real estate) or in an indoor storage **Geo3D** (movable assets in the deposit).

It allows interactions with the entities (assets) displayed on the map giving further information about the asset itself and calling back the containing application.

The following are the functionalities of the Module:

Geo2D

- Showing the exact position on a geographical map, providing layers such as the satellite and street views.
- Performing filtering on the displayed assets according to selected attributes of the assets (e.g. filter by current economic value, filter by type of asset etc.).
- A selection on the map returns the identification of the selected asset, this can be used by the hosting application for other purposes.
- It is customizable since it is possible to choose which attributes of the assets will be displayed on map.

Geo3D

- It is intended for indoor storage tracking.
- Seeing a 3D virtual representation of a depot or of a generic building along with its internal design, that is, it is possible to display shelves, boxes, closets, etc.
- As in Geo2D interactions with displayed entities is possible, to get further information about an asset, building, premise etc. Again, an interaction returns the asset/building identification to the hosting application.

2. Output

In this section we give some example images of what the module maps look like. Again, we distinguish between the two sub-modules.

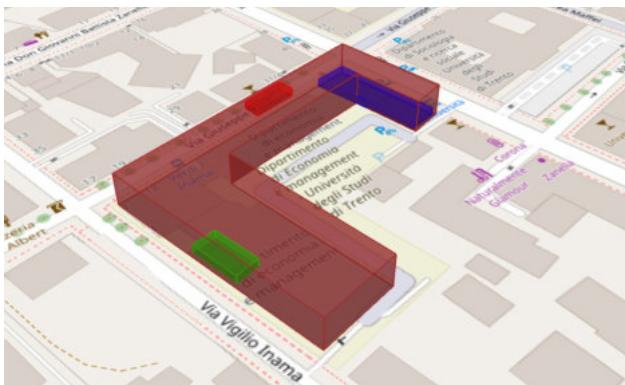
Geo2D

The picture below shows a map centered in Turin with 4 example points which represent dummy assets colored according to different filters.



Geo3D

The picture below shows a kind of realistic representation of the Department of Economy of the University of Trento. One can see the building in faded red, and three different rooms inside the department colored according to different filters.



2.1 Future developments

- Add the possibility to perform statistical analysis over the points on the 2D map (e.g. count by group, by avg/min/max, etc.).
- Add the possibility to add icons and relate them to the points displayed on the map.
- Add the possibility to add and customize the map backgrounds and add new custom layers to the map along with new data.

3. Input Data

Here we distinguish between the two sub-modules described above, since the structure of the expected data may seem the same but an important difference is present.

3.1 Input data for the sub-module Geo2D

The expected input data is supposed to be a Javascript object consisting in an array of JSON object where each of them is describing a theme and the assets that follow that theme. An example of 2 different themes could be for example the distinction between real estate and cars.

3.2 Input data for the sub-module Geo3D

As above the input data is supposed to be a JavaScript object consisting in an array of JSON object where each of them describes a theme and the assets that belongs to the theme (see section 5 for further information).

After the selection of a point displayed on the map both sub-modules return the control to the hosting application along with data associated to the selected point (see Appendix A for an example and more information).

4. Installation

This Module comes as a stand-alone JavaScript package. The installation consists in the creation of an empty HTML `div` element and of a very simple script that is in charge of drawing the Module's content into the mentioned `div`.

- In case the hosting application code would not be accessible, we prepared a working application to run as a demo of Payback features.
- In case the required assets data would not be present, we prepared a dataset again for demonstration purposes.

In the test visit, we will run the Payback prototype on our laptop. If it is possible connect the prototype to your existing system, we will provide you the following package in order to install the Payback-API into your system:

- JRE 7.x or JRE 8.x
- Apache Tomcat 7.0.x or Apache Tomcat 8.0.x
- Payback-api_v7.0.war or Payback-api_v8.0.war

See Appendix A for further information about installation.

5. For the test-visit: examples for the Geolocalisation Module and data to be collected

During the test visit, we will run a demonstration of the Payback prototype. First, we will run it on our own laptop as a demo. Then we can try an installation on your local computers. The demonstration consists of some examples of the Payback features possibly using your data. Otherwise, should data not be available, we prepared a dummy dataset for this purpose. Please read what follows to get a deeper understanding of the examples we will run the prototype on during the test visit.

5.1 Examples

1. Examples of outdoor localization: 1 parked car and 1 real estate.
2. Outdoor localization, 1 or more examples of seized buildings in a given area, filtering by type.
3. Examples of indoor localization: 1 car parked in a depot/garage and 1 small object (e.g. ring, weapon or other) placed on a shelf or in a box.

5.2 Required data

With regard to the examples described in 5.1, here are the data needed to feed the API, that we kindly ask you to gather:

1. A theme describing two type of assets as shown in the code below (one for the car and one for the real estate), asset identification number, type of asset (car or real estate), asset description, eventual asset code and geographical coordinates (latitude and longitude).

The data should be in the following JSON format shown below:

```
var themes = [
  {
    "title": "Cars",
    "type": "exact",
    "values": [
      {
        "value": 1,
        "from": null,
        "to": null,
        "label": "Ferrari",
        "color": "#0000",
        "size": 10
      },
      [ ... ]
    ],
    "items": [
      {
        "theme_value": 1,
        "theme": 1,
        "lat": 45.0808785,
        "lon": 7.5667916,
        "assetid": 5240,
        "asset_code": "FerrariCODE",
        "description": "Ferrari Description"
      },
      [ ... ]
    ]
  }
]
```

2. Same as described in example 1.
3. A theme describing the elements as shown in the code below (one for the car, one for the small object and one for the building), asset identifying code, asset type, a model of the building built with geojson.io (the value of the field json), offset (i.e. the starting point of the building/asset from the ground) and height (i.e. ending point of the building/asset from the ground).

```

var themes3d =
{
  "themes": [
    {
      "title": "Building",
      "type": "exact",
      "values": [
        {
          "value": "Depot",
          "from": null,
          "to": null,
          "label": "Police Depot",
          "color": "A52A2A"
        },
        [ ... ]
      ]
    },
    {
      "title": "Movable",
      "type": "exact",
      "values": [
        {
          "value": "Small Object",
          "from": null,
          "to": null,
          "label": "Small Object",
          "color": "00ff00"
        },
        [ ... ]
      ]
    }
  ],
  "items": [
    {
      "id": "Depot",
      "description": "Police Depot",
      "json":
      {
        "type": "FeatureCollection", "features": [{"type": "Feature", "properties": {}, "geometry": {"type": "Polygon", "coordinates": [[[11.117565929889679, 46.06643846488254], [11.117724180221558, 46.06570523373761], [11.118091642856598, 46.06574803683863], [11.117981672286987, 46.06631936200881], [11.118764877319336, 46.066401245262114], [11.118815839290617, 46.066170483055295], [11.118979454040526, 46.066196536901145], [11.118890941143036, 46.066574316284154], [11.117565929889679, 46.06643846488254]]]}]},
        "offset": "0.0",
        "height": "12.0",
        "thema_values": {
          "Building" : "Depot",
          "Movable" : "",
        }
      },
    },
    {
      "id": "",
      "descrizione": "Ring",
      "json":
      {
        "type": "FeatureCollection", "features": [{"type": "Feature", "properties": {}, "geometry": {"type": "Polygon", "coordinates": [[[11.118244528770447, 46.06649801622304], [11.118252575397491, 46.06644404782345], [11.118464469909668, 46.06646637958139], [11.118451058864594, 46.06652034795916], [11.118244528770447, 46.06649801622304]]]}]},
        "offset": "9.0",
        "height": "12.0",
        "thema_values": {
          "Building" : "",
          "Movable" : "Small Object"
        }
      },
    },
    [ ... ]
  ]
}

```

Appendix A: Installation of the Geo2D and Geo3D sub-modules

Figure 1 - The code snippet gives a working example of how to install an instance of 2D sub-module

```
<div id="p3dt-map" class="p3dt-map"></div>
<script>
    var p3dmaps = new geo2d.Maps({
        maps: 'it',
        layers: ['OSM', 'RV']
    });
    p3dmaps.init().then(function () {
        p3dmaps.loadTematismi({
            events : {
                "onclick":func-
tion (feature) {
                alert("selection on "+feature);
            }
        },
        data : data
    });
</script>
```

Figure 2 - The code snippet gives a working example of how to install an instance of 3D sub-module

```
<div id="p3d-model" class="p3d"></div>
<script>
    var p3d = new geo3d.Plani3D({ });
    p3d.init().then(function () {
        p3d.loadTematismi(function (fea-
ture) {
            alert("selection on
            "+feature);
        }, testdata);
    });
</script>
```

As one may easily notice, the script is very easy, and could be used with third-parties JavaScript module loader (e.g. RequireJS). The data variable contains data concerning the assets, as described in section 5. Furthermore, an "onclick" function is created and is the function returning asset's data after an in-map selection. A simple JavaScript alert is placed inside such function but any logic can be performed by the hosting application.

Annex 4

Report & Alert Module: technical guide

Introduction

This document has been drafted in the context of project Payback. Towards a EU Data Management System for Seized Assets, coordinated by the eCrime research group of the Faculty of Law of the University of Trento (IT). It is carried out in cooperation with Center for the Study of Democracy (BG), Institut national des hautes études de la sécurité et de la justice (FR), Centrul de Resurse Juridice (RO), Fondazione Nazionale dei Commercialisti (IT) (co-beneficiaries), and with the support of the following associate partners: Agence de gestion et de recouvrement des avoirs saisis et confisqués (FR), the Criminal Assets Bureau of Ireland (IE), the Commission on Illegal Assets Forfeiture of Bulgaria (BG), the Central Office for Seizure and Confiscation of Belgium (BE), the Asset Management Section of the Czech Ministry of Interior (CZ), Openbaar Ministerie, Functioneel Parket (NL) and the Rome Tribunal (IT).

It deals with the Report & Alert Module, that addresses the need to know changes in the economic value of seized assets, via 1) automatically generated outputs (e.g. graphs) representing depreciation/appreciation/stability over time and b) sending alerts to selected recipients, so as to support efficient asset management. The Module is first described in terms of features (section 1), output (section 2), input data (section 3) and installation (section 4 and Appendix A for more details). **Useful information is then provided for the test-visit (section 5), in terms of examples for the Report & Alert Module that will be used to run a demonstration of the Payback prototype during the visit and data required for this purpose.**

1. Description

The Report & Alert Module will perform statistical and estimation analysis using simple regression (linear) on a whole set of data or on a subset of data grouped by type/category/zone related to assets. This will allow to create a trendline for each set or

subset of data. The resulting value from the regression is necessary to predict the estimation of the economic value of an asset or a set of assets over time, in order to help users monitor changes in such a value over time.

It will then provide a notification system that will inform the user - be it the manager a given seized asset or a decision-maker for a given set of seized assets - of fast depreciation, **so as to support optimal asset management by asset managers and optimal seizure planning and regulations by competent decision-makers.**

The following are the functionalities of the Module:

- Drawing graphs which show changes in the economic value of an asset or a set of assets over time.
- Knowing the economic threshold value of an asset or a set of assets by type, zone, category, etc.
- Sending a notification to users when the estimation of the economical value does not fall within a specified range defined by the users.
- Plotting generic graphs (e.g. a graph which shows changes in the financial value of a set of asset by type over time). In the general case, the x-value is a date. But, it can also be a number or a string (e.g. a graph which shows how many assets are associated to a given judicial administrator).

2. Output Data

In the case of date and double input data, we will use a line chart to plot data points on a line.

We will apply trendline to data points and use a line chart (red color) to show trend data.

The idea of a trendline is to reveal a linear relationship between two variables, x and y, in the $y=mx+b$ form. Deriving the line equation that links two variables; x and y,

allows us to predict how one variable will change given any change in the other.

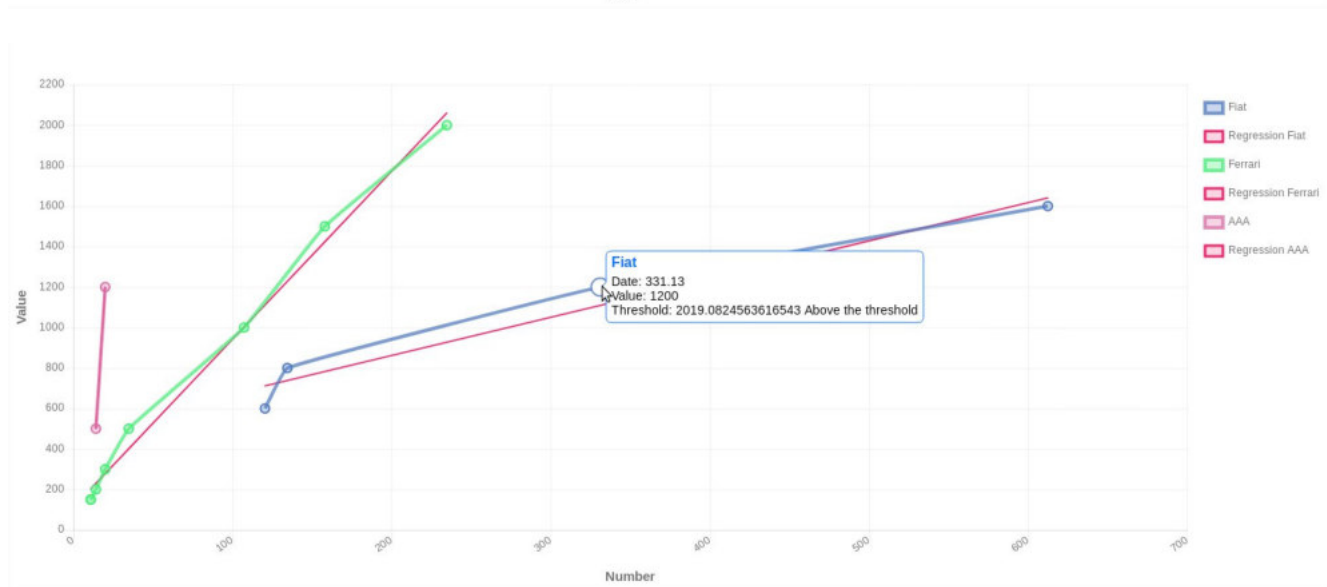
So, we will use linear regression to fit a predictive model to an observed data set of values of x and y , in order to determine the threshold value which distinguishes ranges of values where the behaviour predicted by regression model varies in some important way.

This Module will provide a notification system which will inform the user in case of depreciation of an asset or a certain typology/group of assets. This information will

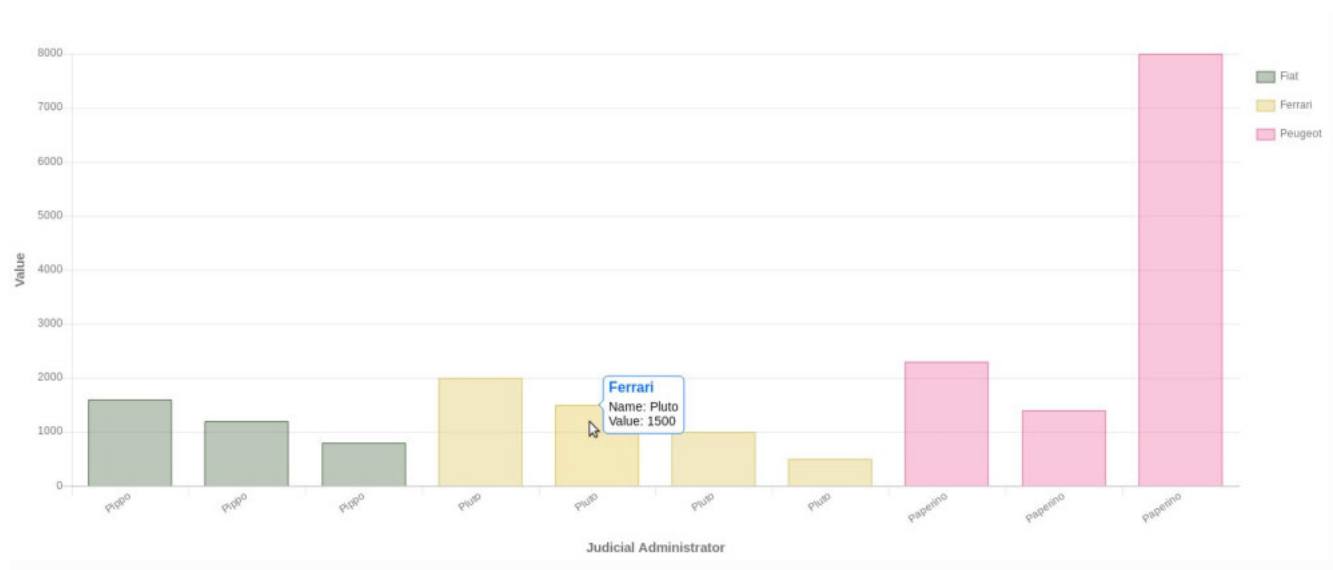
be shown in a pop up window within the chart or in a simple javascript alert on the web page of the hosting application.

The following figures show data values as line chart for date and double input data.

In the case at hand, label input data, we won't apply the linear regression model to data points and determine the threshold value of an asset or a set of assets.



The following figure shows data values as bar chart for label input data.



2.1 Future developments

- Provide an asynchronous management of alerts without the need to run this Module, in order to notify the user the exceeding of threshold at any time (e.g. via an e-mail to the user).
- Add other statistical analysis on data.
- Allow the export of automatically generated graphs to any format, such as, PDF, CSV, PNG or JPEG.
- Add the following date standard patterns:

Example	Date Standard Patterns
2004-07-15 06:45:00 -0400	SortableDateTimePattern [yyyy-MM-dd HH:mm:ss Z]
Thursday, July 01, 2004	LongDatePattern [dddd, MMMM dd, yyyy]
2004, July 15, 6:45:00 AM	FullDateTimePattern [dddd, MMMM dd, yyyy h:mm:ss tt]
Thu, 1 July 2004 22:30:00 GMT	FullDateTimePattern [ddd, dd MMM yyyy HH:mm:ss GMT]

3. Input Data

There are three expected types of input data. All types are supposed to be a Javascript object consisting in an array of JSON object. They will contain information as title of the graph, alert object (which includes the data needed to determine the estimated value of an asset), labels of x and y in the chart and the group by field (which indicates the valuation measure of a set of assets).

The structure of the input data may seem the same but there is an important difference between them. Indeed, the date input data is composed of a dateFormat field that specifies the format for dates of estimation of seized asset/s, whereas the double input data presents a double field that performs the conversion from a string to float point number.

The only constraint concerns the format of date, since it is required to be in the format specified in the table below. The following table provides details on the expected date standard patterns.

Example	Date Standard Patterns
14/07/22	ShortDatePattern [yy/MM/dd]
2014/22/07	ShortDatePattern [yyyy/dd/MM]
22/07/2014	ShortDatePattern [dd/MM/yyyy]
2014/07/22	ShortDatePattern [YYYY-MM-DD]
June 22, 2014	YearMonthPattern [MMMM d, yyyy]
2004-07-01T22:30:00	SortableDateTimePattern [yyyy-MM-ddTHH:mm:ss]

Furthermore, the input data also contains the values array which includes the data point. Each data point is specified using an object containing x and y fields. The y-axis will be used to plot the values and the x-axis to plot dates of estimation of seized assets, numbers associated to a certain asset typology or names of judicial administrators/etc. (see appendices A and B for guidance).

In the visit for the testing, we will show you a working and fully functional demo of the Payback prototype which be run using fake but realistic data made by us.

4. Installation

The Report & Alert Module comes as a stand-alone Javascript library. The installation consists in the creation of an empty HTML **div** element and a very simple script that is in charge of drawing the Module's content into the mentioned div, in your web pages.

The Report & Alert library deals with the creation of a HTML **canvas** element which is used to draw charts, on the fly, via Javascript.

To read the input file we will use JSON (as a way of formatting input data necessary to run the prototype). We will use a local server (e.g. Tomcat server) that serves the static JSON file. The object represented by this file will be fetched and processed by our javascript code in order to create a graph.

In the test visit we will run the Payback prototype on our laptop. If it will be possible to connect the prototype to your existing system, we will provide you the following package in order to install the Payback-API into your system:

- JRE 7.x or JRE 8.x.
- Apache Tomcat 7.0.x or Apache Tomcat 8.0.x.
- Payback-api_v7.0.war or Payback-api_v8.0.war.

See Appendix C for further information.

5. For the test-visit: examples for the Report & Alert Module and data to be collected

During the test visit we will run a demonstration of the Payback prototype. First of all we will run it on our own laptop as a demo. Then we can try an installation on your local computers. The demonstration consists of some examples of the Payback features possibly using your data. Otherwise, should data not be available, we prepared a dummy dataset for this purpose. Please read what follows to get a deeper understanding of the examples we will run the prototype on during the test visit.

5.1 Examples

1. Display the changes in the economic value of a single asset (e.g. a confiscated car) over time.
2. Display the changes in the economic value of a set of assets (e.g. FIAT) over time.
3. Comparison of two automobile manufacturers, in order to show changes in the economic value of a set of assets by type (e.g. Ferrari, Fiat, etc.) over time.
4. Display changes in the economic value of a set of same type of asset (e.g. a set of confiscated cars) by category (e.g. license plate of a set of cars) over time.
5. Display changes in the economic value of a set of assets (e.g. a set of confiscated cars) by name of judicial administrator/asset manager/Tribunal (e.g. name of the judicial administrator/asset manager/Tribunal associated to a given asset) over time.
6. Display the number of assets associated to a given judicial administrator/asset manager/Tribunal.

5.2 Required data

With regard to the examples described in 5.1, here are the data needed to feed the API, that we kindly ask you to gather:

1. Dates and values of estimation/s of a single confiscated car.
2. Dates and values of estimation/s, license plate, and automobile manufacturer of a set of confiscated cars.
3. Dates and values of estimation/s and automobile manufacturer of a set of confiscated cars.
4. Same as in number 2.
5. Date and values of estimation/s of a set of confiscated cars and the list of names of the judicial administrators/asset managers/Tribunals associated to them.
6. Asset identification number and judicial administrator/asset manager/tribunal's name.

For further information about the JSON input file see Appendix B.

Appendix A: Data Types Table

Table 1 - List of the expected data format needed to feed the Report & Alert Module

Name	Type	Description
minY	Integer/Float	Minimum threshold value by a single or a set of asset
maxY	Integer/Float	Maximum threshold value by a single or a set of asset
Dx	Integer/Float	The delta (dx) variable indicates the value, which is expressed in terms of days or floating point number, within which to evaluate if the threshold value decreases/increases than the expected threshold range [min, max]
X (label)	String	The label of the x axis in a cartesian chart
Y (label)	String	The label of the y axis in a cartesian chart
dateFormat	String	If the <i>dateFormat</i> field is present into the input data, we need to convert the x-value string to date object
Double	Boolean	If the <i>double</i> field is present into the input data, we need to parse the x-value string in order to get a floating point number
groupBy	String	The groupBy field indicates the valuation measure of a set of assets
X (values)	String	X can be represented as dates/numbers/labels (e.g. "2019/05/24", "1234.78", "Number of the case 1234-345") by an asset or a set of assets
Y (values)	Integer	Y means values of estimations of an asset or a set of assets

Appendix B: Input Data Template

Figure 1 - Input Data Model whose x-values represent the dates of estimation of a set of confiscated cars

```
var data = [
  {
    "title": "Estimation value of a set of assets",
    "alert": {
      "minY": 1000,
      "maxY": 20000,
      "dx": 365
    },
    "label": {
      "x": "Date",
      "y": "Value"
    },
    "groupBy": "type",
    "dateFormat": "yy/MM/dd",
    "values": [
      {"x": "17/01/01", "y": 1600, "type": "Fiat"}, {"x": "19/01/01", "y": 1200, "type": "Fiat"},
      {"x": "18/01/01", "y": 800, "type": "Fiat"}, {"x": "18/06/01", "y": 600, "type": "Fiat"},
      {"x": "18/12/01", "y": 250, "type": "Fiat"}, {"x": "16/05/10", "y": 1500, "type": "Ferrari"},
      {"x": "16/01/23", "y": 2000, "type": "Ferrari"}, {"x": "17/05/10", "y": 1000, "type": "Ferrari"},
      {"x": "18/01/23", "y": 500, "type": "Ferrari"}, {"x": "18/01/12", "y": 300, "type": "Peugeot"},
      {"x": "18/01/23", "y": 200, "type": "Peugeot"}, {"x": "19/11/30", "y": 100, "type": "Peugeot"}
    ]
  }
]
```

Appendix C: Technical Details

The Report&Alert library needs *requirejs* in order to import every needed script in a proper order.

- Import bundle Chart version 2.7.2.
- Import jQuery version 2.22.1.
- Import Datejs.

The data variable contains data concerning the estimation of value of an asset or set of assets. Furthermore an "onThresholdAlert" function is created and is the function returning information about asset's threshold value in case of fast depreciation over time.

Annex 5

Photos, Videos & More Module: technical guide

Introduction

This document has been drafted in the context of project Payback. Towards a EU Data Management System for Seized Assets, coordinated by the eCrime research group of the Faculty of Law of the University of Trento (IT). It is carried out in cooperation with Center for the Study of Democracy (BG), Institut national des hautes études de la sécurité et de la justice (FR), Centrul de Resurse Juridice (RO), Fondazione Nazionale dei Commercialisti (IT) (co-beneficiaries), and with the support of the following associate partners: Agence de gestion et de recouvrement des avoirs saisis et confisqués (FR), the Criminal Assets Bureau of Ireland (IE), the Commission on Illegal Assets Forfeiture of Bulgaria (BG), the Central Office for Seizure and Confiscation of Belgium (BE), the Asset Management Section of the Czech Ministry of Interior (CZ), Openbaar Ministerie, Functioneel Parket (NL) and the Rome Tribunal (IT).

It deals with the Photos, Videos & More Module, that addresses the need to know seized assets' conditions by storing pictures, videos and any other relevant documentation regarding seized assets, ideally uploaded at different times (as the asset moves along the chain), so as to know the exact conditions of a given asset at any time. The Module is first described in terms of features (section 1), output (section 2), input data (section 3) and installation (section 4). **Useful information is then provided for the test-visit (section 5), in terms of examples for the Photos, Videos & More Module that will be used to run a demonstration of the Payback prototype during the visit and data required for this purpose.**

1. Description

This Module provides support for upload and display of images/files related to an asset. This Module stores files data in an ad-hoc storage. It gives a temporal perspective of the history of a seized good with the uploaded pictures and files. This is achieved by displaying a timeline where each element is an uploaded document (see section 2).

The following are the functionalities of the Module:

- Document (such as /image/audio/video) upload.
- Representation on a timeline of the files concerning a certain asset.
- Download of the uploaded files.

2. Output

There are mainly two outputs that the system can provide. The main output is obviously a timeline displaying all the uploaded files regarding an asset. Every timeline's leaf displays a picture miniature (or a document icon, if the file is not a picture), title, document type and date. The timeline automatically sorts the files according to their date.

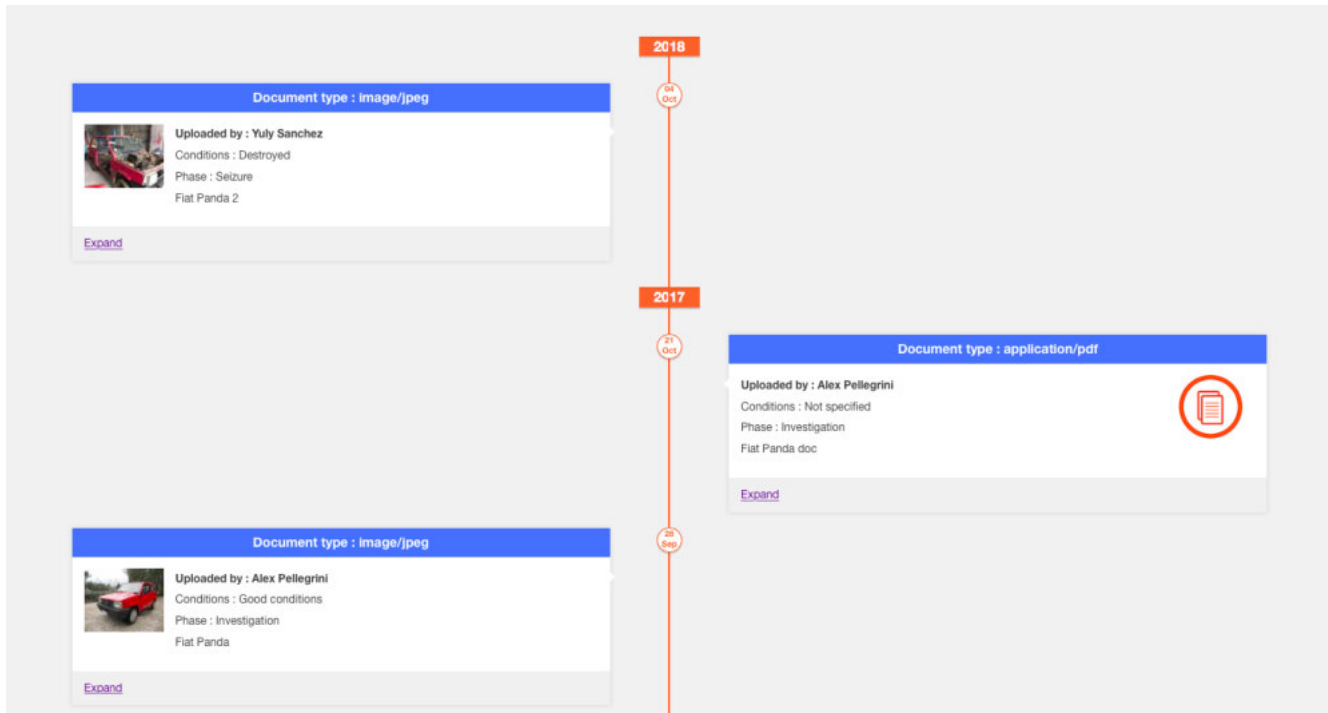
The timeline takes an array of JSON objects as input which are served by the servlet.

Furthermore each leaf contains a link that allows the user to download the document.

The latter is the second output generated by the system mentioned above. In case of video and audio files the file is automatically downloaded to the user HD, otherwise the file is opened in the browser.

2.1 Future developments

- Remove or update a file and upload more than one file at a time.
- Drag and drop files.
- Create the timeline by searching by other criteria (not just the Asset ID).
- Change some of the data types.



3. Input Data

The upload of an image/document is made feasible by an HTML form which requires the insertion of the following data:

1. Asset identification number;
2. Title: a brief description of the document;
3. Date when the document was created or the picture was taken;
4. User who uploaded the file;
5. Phase of the proceeding in which the file was uploaded;
6. Description of the asset conditions;
7. Actual file.

The following picture shows an example of the form.

The 'File Upload Form' contains the following elements:

- Asset ID**: Text input field.
- Title**: Text input field.
- Date**: Text input field.
- Created By**: Text input field.
- Process phase**: Text input field.
- Conditions description**: Text input field.
- Choose File**: Button to select a file.
- no file selected**: Text indicating the current file selection status.
- Upload**: Button to submit the form.

It is possible to perform the upload form to refer to a specified asset. To do this it is sufficient to pass a JSON object to the form initialization function. The following image shows an example of the form instantiated passing a JSON object.

For further information about the JSON input file see Appendix B.

4. Installation

The installation of this Module requires the installation of a Tomcat local web server. If the installation of such local server is not feasible, a public server will be used for demonstration purposes. Bear in mind that this is a small web application, so it could be installed on different kind of web-servers or application-servers (e.g. Jetty, JBoss, etc..).

In the test visit we will run the Payback prototype on our laptop. If it will possible connect the prototype to your existing system, we will provide you the following package in order to install the Payback API into your system:

- JRE 7.x or JRE 8.x.
- Apache Tomcat 7.0.x or Apache Tomcat 8.0.x.
- Payback-api_v7.0.war or Payback-api_v8.0.war.

See Appendix A for further details about installation on local computers.

5. For the test-visit: examples for the Photos, Videos & More Module and data to be collected

During the test visit we will run a demonstration of the Payback prototype. First of all we will run it on our own laptop as a demo. Then we can try an installation on your local computers. The demonstration consists of some examples of the Payback features possibly using your data. Otherwise, should data not be available, we prepared a dummy dataset for this purpose. Please read what follows to get a deeper understanding of the examples we will run the prototype on during the test visit.

5.1 Examples

1. Example of upload of different types of files related to an asset (pictures, videos, pdfs, docs).
2. Timeline examples related to some asset types (real estates, cars, money etc).
3. More examples (on demand) to show flexibility and potential of the Module: customization of the Module through the JSON configuration file.

5.2 Required data

With regard to the examples described in 5.1, here are the data needed to feed the API, that we kindly ask you to gather:

1. Asset identifying number, some files related to such asset and description, date of file creation, asset condition description for each file and name of the user who uploaded the file.
2. None, we will use the asset identifying numbers used in example 1.
3. Customization of the upload form through JSON file formatted as shown below or in Appendix B.

```
var formConfig = {
    assetId : 123,
    phases : ['Investigation',
    'Freezing', 'Seizure'],
    creators : ['Yuly Sanchez',
    'Alex Pellegrini', 'Barbara Vettori', 'Marco
    Angheben'],
    server_url: 'http://localhost:8080/payback-api/timeline/upload'
}
```

Appendix A: Installation HTML and Server

Figure 1 - The code snippet gives a working example of how to install the upload module in an HTML page

```
<div id="upload"></div>
<script>
    var item = new timeline.Upload({ });
    item.create();
</script>
```

Server

The module comes as a WAR which is a Web application ARchive. This will be installed on the Tomcat server mentioned in the installation section above. The Sqlite3 database file (see Appendix C for technical details about storage) can be moved out of the tomcat scope as long as the path variable in the `/payback-api/src/main/resources/project.properties` file is updated with the new DB location.

Figure 2 - The code snippet gives a working example of how to install the timeline module in an HTML page

```
<div id="search"></div>
<div id="myTimeline"></div>
<script>
    var item = new timeline.Time-
line({ });
    item.create();
</script>
```

The above code prints a small form in the `search` div. The output of the search form, i.e. the actual timeline is printed into the `myTimeline` div element. This search requires a single input which is the asset identification number (Asset ID in the above table). This form performs an AJAX GET request to the server.

Appendix B: Data Types Table

The only constraint concerns the date since it is required to be in the following format:

YYYY-mm-dd

Data types

The expected data type to be inserted into the above form are as follows.

Table A1 - List of the expected data format needed to feed the Photos, Videos & More Module

Field Name	Data Type
Asset ID	String
Title	String
Date	Date
Created by	String
Process Phase	String
Conditions Description	Text
File	Image: any type except for .tiff Documents: any format Audio: any format Video: any format

Instantiating the upload form

As mentioned in the Input Data section it is possible to instantiate the upload form through a Javascript JSON object which should look like the following:

```
var formConfig = {
    assetId : 123,
    phases : ['Investigation',
    'Freezing', 'Seizure'],
    creators : ['Yuly Sanchez',
    'Alex Pellegrini', 'Barbara Vettori', 'Marco
    Angheben'],
    server_url: 'http://local-
    host:8080/payback-api/timeline/upload'
}
```

Passing such object to the upload create function will set up the form in order to have the `assetId` field of the form already filled in, and to make the `Process phase` and `Created by` field become a dropdowns. In case the above JSON is missing every form field will be a free text field.

Appendix C: Technical Details

Data Storage

This Module connects to an Sqlite 3 database. The latter is very simply designed, indeed it is made up by only one table called *files*. The picture below better describes its structure.

The actual file is not stored into the filesystem but it is stored in the above table as a blob data type (*bytes* field).

Server Side Application

The back end is developed using a Java servlet called *FileUploadServlet* in order to handle incoming HTTP requests, it runs on a dedicated Tomcat or a dedicated public server.








The `doPost(..)` method is only invoked during file upload.

The `doGet(..)` method distinguishes between two calls. It responds both to a search for a single file and to a search by an asset related file. In the first case the function returns the byte array of the file. In the second case it returns an array of *Upload* in JSON format each of them containing every information but the byte array of the related file.

Client Side Application

The client side consists of an upload form and a search form. The upload form sends a POST request to the server while the search form sends an AJAX GET request.

The front end is developed using Javascript which generates the upload HTML form and creates the timeline. The latter is created using Albejr Timeline (<https://albejr.github.io/jquery-albe-timeline/>).

	Name	Data type	Primary Key	Foreign Key	Unique	Check	Not NULL	Collate	Default value
1	Id	INTEGER							NULL
2	title	STRING (256)							NULL
3	date	DATE							NULL
4	bytes	BLOB							NULL
5	assetID	STRING (256)							NULL
6	mime	TEXT (256)							NULL
7	phase	STRING (256)							NULL
8	conditions	TEXT (256)							NULL

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