



Funded by the Horizon 2020 Framework
 Programme of the European Union
 MAGNETO - Grant Agreement 786629



Deliverable D.8.6

Title: Final Transferability Framework

Dissemination Level:	PU
Nature of the Deliverable:	R
Date:	23/11/2020
Distribution:	WP8
Editors:	WSPol
Reviewers:	ICCS
Contributors:	LEAs

Abstract: This document is a final study that contains comprehensive information on best practices, lessons learnt, standards and other success facilitators, paving the way for the wider uptake of MAGNETO platform.

*** Dissemination Level:** PU= Public, RE= Restricted to a group specified by the Consortium, PP= Restricted to other program participants (including the Commission services), CO= Confidential, only for members of the Consortium (including the Commission services)

**** Nature of the Deliverable:** P= Prototype, R= Report, S= Specification, T= Tool, O= Other

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Revision History

Date	Rev.	Description	Partner
23/11/2020	0	First Draft	WSPol

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Glossary

CCTV	Closed Circuit Television
DDP	Deliverable Development Plan
DROP	Distinctive Region Or Pattern
EAB	External Advisory Board
EC	European Commission
ETHAB	Ethics Advisory Board
GA	General Assembly
GDPR	General Data Protection Regulation
ISO	International Standards Organisation
KoM	Kickoff Meeting
LEA	Law Enforcement Agency
MoM	Minutes of Meeting
MPEG	Moving Pictures Experts Group
OSINT	Open Source Intelligence
PMC	Project Management Committee
PO	Project Officer
QPR	Quarterly Periodic Report
SAB	Security Advisory Board
STAB	Scientific and Technical Advisory Board
WP	Work Package
DoA	Description of Actions
SIF	Semantic Interoperability Framework

Executive Summary

The MAGNETO platform is expected to develop an innovative set of tools to help officers in dealing with massive volumes, heterogeneity and fragmentation of the data collected during investigations.

Such a potential disrupting technology would reasonably have a significant impact on the workflow of the organization who is going to adopt it, eventually causing changes in the composition of teams, skilled required for their members and procedures asked for the usage and management of the platform. For a LEA introducing the MAGNETO platform into the organization for the first time, it is crucial to correctly handle the deployment process, in order to obtain the expected results.

The methodology for a proper platform deployment proposed in this document is a set of general guidelines and recommendations addressed to all actors who were not involved in development of MAGNETO platform but are interested in platform deployment in their organization.

The proposed methodology is composed by plans, recommendations and procedures both technical and organizational.

The main objective of the Transferability Framework is to provide an efficient initiation of MAGNETO based on lessons learned in early implementations by LEAs in order to achieve proper and successful setup, configuration and operation. The transferability analysis identifies the key factors of success for the deployment of the MAGNETO Platform, paving the way for the wider uptake of MAGNETO technologies at EU level.

1. Introduction

MAGNETO Platform will assist LEA investigators efficiently deal with enormous and complex amounts of data, greatly facilitating and automating, as far as possible, the discovery of hidden or unsuspected connections within big datasets in various kinds of cases e. g. digital frauds, cyber-crimes, traffic safety or public disorder. MAGNETO will provide enhanced machine support to the investigators, regarding both data fusion (through semantic technologies) and data representation (through HMIs), effectively enabling joint exploitation of multiple heterogeneous evidence data sources. As a result, MAGNETO will empower LEAs with considerably improved investigation capabilities and – through its semantic technologies and augmented intelligence tools – MAGNETO will also enable LEA officers to make better sense of the web of forensics data, and will increase their situational and operational awareness of ongoing and immediate future threats.

MAGNETO platform will enhance the capabilities of LEAs through a series of properly-designed, cutting-edge, data-oriented technologies and solutions. These technologies will permit LEAs to consistently process massive heterogeneous data and find hidden relationships within the datasets in a more efficient manner, and it will deliver unique and innovative functionalities that are currently beyond the state of the art of traditional tools used by LEAs. Nevertheless, such disrupting technology will surely have an impact on the consolidated procedures of the LEAs' workflow, just as it will have on the involved operators and the related chain of command. Such impact will potentially generate significant changes both at the operational and management level that could negatively affect the adoption of the MAGNETO platform if ignored or underestimated. Thus, it is of primary importance to define and share a methodology for the deployment process that could drive the introduction of the MAGNETO technology into LEAs by detecting issues in time, handling the changes in a positive way and delivering effective investigative results.

This methodology for LEAs' deployment process, called the Transferability Framework, ensure the circulation of experiences and best practices about the usage and installation of the MAGNETO platform among LEAs, improving the deployments on an iterative basis and it was based on Deliverable D8.5 Initial Transferability Study.

The Transferability Framework is a final study that contains comprehensive information on best practices, lessons learnt, standards and other success facilitators, paving the way for the wider uptake of MAGNETO platform.

1.1 Objectives of this deliverable

To ensure a successful adoption of MAGNETO platform at operational LEAs, it is essential to define proper plans, recommendations and procedures for its' effective deployment. These achievements will be obtained by describing general guidelines for the deployment and operational usage, collecting and

reporting feedback and lessons learnt at various levels and ensuring the circulation of such information constituting the internal knowledge base.

Thus, the Transferability Framework was defined based on demonstration and trials and its organization at LEAs premises, analyzing its' results and gathering end-users' opinions and recommendations. Demonstration and evaluation by LEAs were made under real-life operational conditions and realistic test cases, defined by LEAs. In particular, since effective validation can only be achieved in the context of real cases, which by nature involve sensitive data, MAGNETO organized its relevant activities in two steps: (1) a functional and modularity validation relying on an elicited set of accessible and anonymized data, also allowing LEA operators' training, (2) followed by thorough in-house hands-on evaluation over several months on real cases in LEAs' facilities, supported by a predefined benefits/difficulties assessment grid. Overall, the demonstration sites and settings chosen cover a wide range of requirements and operational conditions, allowing for multi-faceted system evaluation from the perspective of end-users.

The main objective of the Transferability Framework is to provide an efficient initiation of MAGNETO based on lessons learned in early implementations by LEAs in order to achieve proper and successful setup, configuration and operation. The transferability analysis identify the key factors of success for the deployment of the MAGNETO Platform, paving the way for the wider uptake of MAGNETO technologies at EU level.

1.2 Deliverable structure

This deliverable presents in chapter 2 the general aspects and common issues related to the introduction of a totally new technology into consolidated organizations, as the LEAs and other interested entities are. Here, several factors that can impact on the deployment of a technological platform are described, considering organizational issues as the most relevant. Things like selecting proper personnel involved in the MAGNETO platform set up, how to build the group and define the stakeholders are mentioned as key factor for a successful deployment, as so as adequate training and periodic monitoring. Also, there are few possible obstacles related to such process mentioned.

In chapter 3 the general aspects discussed into the previous chapter are defined in details for the specific adoption of the MAGNETO platform at organization premises. A plan for scheduling the deployment process is proposed, with succeeding phases and corresponding actions. Furthermore, security rules both with technical and organizational recommendations for an effective deployment are given. Also, procedures to perform specific tasks are defined, completing the guidelines for the deployment process. Beside such indications, in chapter 4 key elements of successful MAGNETO platform deployment are described, both with possible adaptability measures within organization.

2. The deployment of new technologies in law enforcement: general aspects and key points

As stated in recommendations formulated by the Group of Personalities in the Field of European Security Research *technology itself cannot guarantee security, but security without the support of technology is impossible*¹. In this context MAGNETO provides enhanced machine support to the investigators, regarding both data fusion (through semantic technologies) and data representation (through HMIs), effectively enabling joint exploitation of multiple heterogeneous evidence data sources and addresses significant needs of law enforcement agencies (LEAs) in their fight against terrorism and organized crime. In their daily work LEA officers are required to cope with ever-increasing volumes and heterogeneity of data, as well as the rising technological, financial, organizational and scheming capabilities of criminals. MAGNETO deliver sophisticated and open representational models for data together with advanced, interoperable, modular and scalable analytics and reasoning tools. This will help them reveal unsuspected connections within big datasets, make inferences and proving causality, and project the evolution of threats.

MAGNETO solutions can fully assist LEAs to solve criminal cases faster, by allowing diving into and making sense of available big datasets more easily and efficiently and as a result will improve their investigation capabilities. Being equipped with advanced data mining, reasoning and visualization technologies, LEAs will be able to discover, extract, combine and put different pieces of evidence and of the crime's "puzzle" together, in a highly effective manner, while maintaining court-proofness and chain of custody. This will improve efficiency contribute to the reduction of investigative costs, by allowing less person-hours to be spent per case, and to the alleviation of social concern and the impact on victims and their relatives. What is more, MAGNETO also enables LEA officers to make better sense of the web of forensics data, and increases their situational and operational awareness of ongoing and immediate future threats. In this regard the statement made by Custer and Vergouw that *both new and existing technologies provide opportunities for law enforcement, criminal investigation (...) and transform police practice (...) Technology has changed the form and function of policing*² is fully shared.

When it comes to deployment of new technologies at any organization, there are some key points that may determine this process. Detailed description of selected and most relevant elements that were pointed out by LEAs during evaluation of MAGNETO platform is provided in chapters 2.1 – 2.6, both with possible obstacles (2.7) that may lead to failure of the introduction of new technologies. Understanding crucial internal factors (as strengths and weaknesses within particular organization) related to this process

¹ R. Ballais, Technology and the defense industry: real threats, bad habits or new (market) opportunities, Journal of Innovation Economics & Management, 2013/2 (no. 12), online access: <https://www.cairn.info/revue-journal-of-innovation-economics-2013-2-page-59.htm#>, 12.10.2020.

² B. Custer, B. Vergouw, Promising policing technologies: Experiences, obstacles and police needs regarding law enforcement technologies, Computer Law & Security Review, 2015/31, online access: https://www.researchgate.net/publication/278333723_Promising_policing_technologies_Experiences_obstacles_and_police_needs_regarding_law_enforcement_technologies, 12.10.2020.

make it possible to exploit the most relevant opportunities and managed threats that may occur during deployment of new technologies.

2.1 Actors involved

One of the main objectives of the MAGNETO is to support the operational activities of law enforcement agencies related to the processing of a large amount of heterogeneous data collected and processed by these public institutions. However, the tool is dedicated not only for broadly understood law enforcement agencies, but also other institutions and entities, that collect a lot of sensitive information in order to carry out their statutory tasks (e.g. covered by a system of legally protected data, such as: banking, professional and telecommunications secrecy). Based on this assumption, the potential catalog of interested institutions to which MAGNETO platform can be dedicated is presented below:

- Ministry of Finance: Financial Investigation Units, National Revenue Administration, Tax and Custom Service;
- Ministry of Interior: Police, Border Guards, Internal Security Agency, Government Protection Bureau, Anti-Corruption Bureau;
- Ministry of Justice: Prosecutors Office;
- Ministry of National Defense: Military Police, Military Counterintelligence Service;
- Ministry of Environment: Environmental Protection Unit;
- other entities: Financial Supervision Authority, Office for Competition and Customer Protection, Energy Regulatory Office, Material Reserves Agency, Public Procurement Office.

Depending on the internal needs of each member state it is possible to add other service that is dealing with a large amount of heterogeneous data. However, it is important to notice that MAGNETO tool is not dedicated to these organizations in general, but strictly to defined structures, divisions or units within these organizations, that process of sensitive data and the use of big data technology at their daily work.

2.2 Management and Leadership Involvement

The MAGNETO platform facilitates investigations by collecting and processing a large quantity of meaningful information related to places, people, correlating sequence of events, roles of participants, and possibly providing court-proof evidence.

In this regard, it is necessary to establish a team within each entity - experts in the domain of interest - that are able to understand the correct functioning of the new introduced technology and appreciate its capabilities, in order to test it and provide relevant feedback to other LEAs and developers.

Providing adequate training on the use of the software is another fundamental aspect, both for those who will perform the tests and for those who will supervise the team. It is necessary to outline and explain the

motivations behind the project, its scope, what is the expected outcome and the criteria they must meet. The benefits of a clearly defined project scope include:

- articulate what the project entails so that all stakeholders can understand aspects involved;
- provide a roadmap that managers/commanders can use to assign tasks, schedule work and eventually budget;
- help team members in focusing on common objectives;
- prevent complex projects from drifting beyond the established boundaries.

The lack of defined objectives could generate uncertainty about the validity of the project, just as much as being unclear on which people are involved could undermine the commitment of the workforce. The goal is to give precise and accurate information during this process, so that the project's scope effectively reflects all requirements and thus significantly increases the chances for project leaders to deliver results that meet stakeholder expectations.

Stakeholders represent another factor that can contribute to the success or failure related to the introduction of a new technology. Inside an operational LEA there could be a large number of stakeholders, far beyond the operators involved in the daily usage of the platform.

To detect the categories of stakeholders it is necessary to analyze the context and the reference community of the organization. Among the internal stakeholders there are certainly the general manager/commander of the LEA, the team leader of work group and the collaborators who are directly involved in the use of the new technology. Identifying the stakeholders correctly allows to:

- identify obstacles and difficulties in a timely manner;
- involve them in the processes of evolution and change.

The chain of command must be always aware of the status of the project, not only about the strict use of technology or related results but also about its continuous development and progress. The communication between internal stakeholders within the same organization is crucial but also external entities could augment the potential usage of the technology by spreading and multiplying possible relevant results. In this case, for example, it could be useful to extend the information to the main external stakeholder, the respective judicial authorities.

2.3 Strategic and Operational Concepts

Encouraging police officers to develop and initiate new technologies will definitely make police work more efficient and effective. Thus, being able to fully understand the concepts, the dynamics, the general rules that define the application domain in which the system is used, on strategic and operational context in which the platform performs, is crucial. By having such a wide knowledge and experiences it will be possible for people involved in the project to agree upon the requirements and characteristics the system must exhibit in order to operate in the specific environment in the most effective way. In order to avoid any problems, it is desired to deploy the proper unit.

The unit assigned for the new technology should be able to fully use it, inside the proper regulatory framework and under an adequate institutional mandate. Unjustified organizational constraints and limits that could nevertheless affect the success of the project have to be avoided by a proactive management. Also, increasing the awareness of stakeholders and police leadership for establishing sufficient funds for research and development in the law enforcement area is also essential.

2.4 Education and Training

Nowadays, education and training programs for LEAs should also result in focusing their attention on the positive sides of the new technologies in the police work and functioning. Increasing the awareness and knowledge among LEAs officers for the new technologies will surely result in minimizing the technological gap in the police workflow and at the same time innovating the policing service and maintaining the public security and safety more effective.

Training is a fundamental phase in the development of each new technology as it gives the users a specific period of time totally dedicated to learn how to use of a new product. The training must be a systematic activity performed to modify the skills, attitudes and the behavior of an employee to perform a particular job. Assessments of training needs (organizational, technical and individual) will identify any gaps in past training initiatives and employees' skill sets. These gaps should be analyzed, prioritized and transformed into the organization's training objectives. This phase must be strictly followed by the operational use of the new platform in order to not invalidate the effectiveness of the performed training. The groups of trained operators should use the system for a certain period and be monitored for that: it is important to verify the frequency of the usage and the complete use of all the features of the new technology in order to avoid under-usage or misuse.

Furthermore, the systematic use of the system allows not only to take advantage of the training but also accurately test the functionality of the new technology within particular organization. During this phase the behavior of the product is observed through the operational use by a certain number of end users, thus a proper mechanism of reporting feedback and possible best practices should be designed. This phase allows a gradual process of entering the new technology and verifying which difficulties may be encountered by specific users and eventually intervene before a larger diffusion.

Also, it is important to transfer the knowledge and experience in a cascade training. One of its elements of is the cooperation and technical support in the installation process, which would be provided by trained persons representing the project partners (optimally from LEAs). The second element is to provide access for any new organizations (beneficiaries of the program) to the training base created within the MAGNETO and to provide access to the existing knowledge base, as well as to enable the exchange of information and asking questions to other partners, including technical partners.

2.5 Technology management

The technology management process in an organization is related to understanding the value of certain technology for the organization and ensure it over time. Especially for long-term project, the technology involved has to be managed in order to keep its value in term of costs and effectiveness. This means that a new system, once introduced, must be periodically maintained in its components and verified in its functionalities, eventually providing updates/upgrades.

Similarly, the operators involved in the usage of the technology have to be periodically audited, in order to assess their workload and skill sets and eventually select new personnel to join the group and/or perform new training session. These actions will contribute in keeping the technology valuable over time, avoiding rapid obsolescence.

2.6 Periodic reporting

During all the phases of the adoption of a new technology it is necessary to keep track of the activities and then to present an adequate information on various aspects of its use to the management and leaders. Reports play a fundamental role, both for the organization and for stakeholders: on the one hand they allow management to constantly monitor the implementation of the project, also to perform assessment and address issues on time; on the other hand, they let stakeholders benefit from the project by, for instance, sharing the details of experiences to the other LEAs or to the developers of the new technology.

To be effective in this phase it is essential that periodic reports are produced, which have to be clear and documenting the essential aspects of the experience with the new system. Such clarity can also help in case of complex problem solving.

2.7 Obstacles

Apart from advantages for LEAs from new technology deployment, there are also possible obstacles related to it. It should be considered that such threats only partially belong to technical domains, and they are often much more related to the management of the process and human factors such as e.g. personal doubts. Both project management and commanders need to consider some key points that may determine the obstruction and failure of the introduction of new technologies in this matter. The most common ones are mentioned below:

- Importance of users who will use the new tools in terms requirements and user experience. There is therefore the need to incorporate the feedback quickly and constantly.
- Resistance to change: it appears in many ways, from inertia to petty sabotage.

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- Loss of control. Change interferes with autonomy and can make people feel that they have lost control over their working space or established power.
- More work. Change is indeed more work. Those closest to the change in terms of designing and testing it are often overloaded, in part because of the inevitable unanticipated glitches in the middle of change.
- Ripple effects. Like tossing a pebble into a pond, change creates ripples, reaching even distant spots. The effect of the introduction of the new technology could impact other departments or units, and they will start to push back, rebelling against changes they had nothing to do with, that impact on their own activities. Leaders/Commanders should enlarge the circle of stakeholders, considering all affected parties, even if distant, and work with them to minimize negative effects.
- Concerns about competence. If the changes make people feel overwhelmed it may be met with resistance. Users may feel skeptical that the new technology will work and that their previous skills may become obsolete.
- Lack of personnel resources.
- Lack of analytical and evaluation capacities.

Also, the lack of clear and coherent strategy that measures and keeps track of progress made with respect to the objectives and unclear policy – framework of new technology implementation should be also taken into account as key points that might result in failure of such development.

To prevent consequences of such potential negative factors, both project management and commanders should invest in structural reassurance, providing abundant information, education, training, mentors, and support systems. It is important to strengthen the innovative and collaborative culture of those approaching a new technology and change the working environment to stimulate collaboration for groups and operators involved in the introduction of the new technology, so that they work collaboratively on solutions and ideas of common interest.

3. MAGNETO Platform Deployment outside the consortium

With the MAGNETO platform a new data model will be delivered to investigators that will enable joint exploitation of multiple diverse multimedia data sources, together with modular and scalable analytics engines in order to help LEAs in correlating data and finding hidden relationships, screening and classifying pieces of evidence. Furthermore, the platform is integrated with augmented intelligence technologies with the intent for LEAs to present potential answers or possible paths for exploration.

All those features result in a unique investigation platform possibly the first of its kind to be used by LEAs, and it is expected to deliver relevant results not only in terms of increased efficiency, but also enhanced capabilities.

During the development phase of MAGNETO platform, it was assumed that for security reasons the data collected and processed on the platform will not be based on Internet access. Therefore, any data input should be provided each time by an interested and authorized user and there will not be any central MAGNETO platform at national level that is operated by one entity or LEA that allow other institutions to remote access. It is one of MAGNETO functionality limitations at this point, however taking it into account the implementation of MAGNETO platform LEA's outside the consortium should be conducted in two deployment stages:

- initial stage: any interested entity or public institution is introduced to the MAGNETO platform at the headquarters of one of the LEAs – consortium member – where tests and evaluation of the platform were already carried out.
Another option is to send to any interested entity instructional and training materials in order to familiarize with the MAGNETO achievements and to provide support and information exchange online.
- final stage: interested entity conform its interest in MAGNETO platform and declare their willingness to install it at their premises. It should be taken as granted that interested entities will be equipped with full access and will be given an opportunity to make comments, improvements and recommendations, just as project consortium members.

The methodology for a proper platform deployment proposed in this document is a set of general guidelines and recommendations addressed to all actors who were not involved in development of MAGNETO platform. However, it can be permanently developed by receiving feedback from other MAGNETO users. This allow to enrich the guidelines with practical issues that were not addressed before its first adoption.

3.1 Implementation Security Rules

3.1.1 Security requirements

Security requirements is a set of recommendations, goals and regulations developed to ensure effective and secure execution of tasks using MAGNETO platform. The following security elements should be identified and implemented at LEAs' premises during platform deployment:

- access control system to any room where design equipment is installed;
- basic and back-up power supply should be provided. Power supply solutions should allow to achieve the parameters of guaranteed voltage regardless of any problems with the basic power supply, so called uninterruptible power supply;
- health and safety rules both with fire protection system;
- air conditioning/cooling systems ensuring proper equipment performance (recommended);
- security measures that ensure the main attributes of information security are maintained, e.g.: confidentiality, integrity, availability, accountability, authenticity, reliability;
- platform access control system that ensure only identified and authorized users are allowed to use the platform within the framework of legal rights;
- anti-virus software installed on MAGNETO equipment that prevent any uncontrolled data leakage through programs such as Trojan Horse, which can be located on portable storage media used to transfer data to and from the system by users;
- registration of any flash drives used for MAGNETO platform purpose.

3.1.2 Usage security requirements

- in case of MAGNETO devices repair outside the premises, hard disks and other storage media included in the completion of these devices should remain in the place of their original use;
- the use of MAGNETO hardware and software is allowed in accordance with rules that guarantee data security. It must be ensured that the data recorded or any other information can be removed in an unreadable way;
- registration of any MAGNETO platform user;
- access for representatives of external institutions can be allow only in cooperation and or assistance with authorized person from particular LEAs or other entity;
- users of MAGNETO platform who perform analyses do not have access to other analyses performed by other users (unless such possibility is declared by those users);
- MAGNETO users are obliged to secure and stored available data to any unauthorized persons;
- MAGNETO computers and other hardware accessed by users are protected by passwords known only by authorized officers and LEA employees;
- each computer is equipped with specific user profile and secured with password;

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- specific user profile set on each computer can't be shared with any unauthorized users;
- no changes in the system configuration or other software that may affect their safety and interfere in any way with components are allowed by users;
- it is strictly forbidden to leave the running computer with open access, without supervision, while running MAGNETO software;
- access password security should be applied in accordance with the general password policy implemented at particular LEA or other entity;
- to enable MAGNETO platform is used and administered properly, including operational records (maintenance and emergency procedures such as e.g. procedures for system administrators and procedures for system users), a proper documentation should be provided.

These requirements should be clearly stated on the back of the form used to provide equipment to users. In justified cases, it is allowed to familiarize users with the above rules of using the company's computer equipment in a different way.

3.2 Plans

The introduction of a new technology in a consolidated organization could result in a complicated process, where the success of the project largely depends on the proper management of related changes. In this perspective, it is fundamental to define a reference plan in which all phases of the project are defined, together with their goals and duration. Such deployment of MAGNETO platform within an organisation can take place in two forms:

- centralized – where a given technological solution is accepted and will be used by whole organization. Such path requires actions to be taken by representatives of the organization at the central level (e.g. National Police Headquarters within the Police) and the adoption of rules for using the tool at daily work;
- dispersed – where the technological solution is used by individual members of the organization on their own initiative, minding the general rules of this institution (including data security rules).

The deployment plan for the MAGNETO project is structured with three phases: platform set up, operational usage and assessment of the results.

3.2.1 MAGNETO platform set up

The objective of this phase is to prepare the LEAs both from a technical and an organizational point of view for the further systematic use of the platform on real cases in their daily work. Starting time of MAGNETO platform deployment and duration of this phase must be planned according to the internal

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structure of particular LEA, also should include personnel and technical capabilities of the institution. This is an important stage that can have an impact on the subsequent use of the program. The planning of this phase should include at least the following elements:

- location of hardware and software of MAGNETO platform, taking into account elements such as:
 - restriction of access for third parties;
 - providing training opportunities and program usage for members from outside the institution;
 - data security;
 - number of terminals to MAGNETO platform;
 - proper, usable and ergonomic arrangement of MAGNETO equipment;
 - adjusting communication and other necessary equipment to the capacity of the selected room and the estimated maximum number of program users;
 - possibility to train a certain number of trainees at the same time.
- options of hardware and software installation:
 - internally: setting specialized unit responsible for installation process in defined time;
 - externally: an independent company will be responsible for installation process;
- ensure that operators, analysts and team leader complete training in accordance with the guidance provided by programmers in D7.3;
- perform a full deployment of MAGNETO platform in terms of hardware, software, connectivity and security measures for operational use;
- run advanced tests, to be provided by developers, to verify that the entire MAGNETO platform as well as the single tools work properly before advancing with the other phases;

A very important, but often underestimated element of proper deployment of MAGNETO platform is to convince other members of this institution, not only management and team leaders. There are several organizational steps that should be planned while presenting the possibilities of such a new tool in the organization. These include following aspects:

- presenting to organization members the benefits of MAGNETO platform which will make them positive and encourage to test and use the platform without fear or prejudice;
- conducting a comprehensive training which will show how to use the tool in a proper way, both in theory and practice;
- providing support while using the tool which will reduce the fear of using the tool and build confidence in users there is an actual assistance in case of usage problems;
- preparing an engaging and interesting information campaign and ensuring effective post-implementation communication;
- spreading knowledge about the tool throughout the organization by selected user groups.

3.2.2 Operational usage

Once the MAGNETO platform set up has been successfully completed, the adopting LEAs shall schedule a proper period of time for the operational usage of the deployed MAGNETO platform. In this phase, the platform has to run on real cases, employing operators previously trained and involving all dedicated personnel at various levels. The object of this phase is to use the platform as part of daily and regular work within an institution and as a support tool for real cases and proceedings. The stage of operational use should include the following activities:

- adapting selected cases to MAGNETO platform capabilities;
- run the platform on multiple investigations in parallel;
- comparing the MAGNETO platform to other tools used on the market, in terms of their utility features (speed, efficiency, correctness, transparency, etc.) and correctness of results.

3.2.3 Assessment of results

At the end of the operational usage period, the adopting LEA shall assess the obtained results. The objective is to consolidate the features that demonstrated to be useful for the investigations and highlight encountered issues, in order to eventually iterate the development of the platform and/or improve the new deployment processes.

In this phase, the following actions have to be carried out:

- collect the maximum amount of feedback from all operators and supervisors involved at various levels, related to the features implemented by the MAGNETO platform and to the procedures of the deployment defined in this document;
- separate the assessment of technical results from the investigative ones, since they could be not directly related;
- consider the possibility to iterate the phases of deployment that have shown relevant issues.

3.3 Recommendations

Beside the plans for the deployment of the MAGNETO platform, which are general guidelines for the entire process, recommendations regarding particular aspects of specific tasks or issues are given. Such recommendations could impact on actions performed at any phase of the plans, and they are divided into two categories: technical recommendations, which are related to the setup of the platform; organizational recommendations, mostly related to the management of the deployment process.

3.3.1 Technical

The following recommendations have the objective to ensure that the MAGNETO platform deployment has successfully completed from the technical point of view.

- the installation of hardware and software on the organization premises should be carried out by specialized personnel, even outside the MAGNETO investigative group (ICT specialist with the support of MAGNETO developers);
- the platform is considered as a system under test, and for this reason should have separated security policies for local and remote access and connectivity. Preferably it should not be directly connected to production systems with sensitive data or critical infrastructure; if the access to such sensitive information is required, use secure gateways;
- access to the platform's tool and data has to be granted to the members of the MAGNETO investigative group only such as:
 - members of MAGNETO team;
 - platform administrators;
 - personnel supervising the proper functioning of the system;
 - personnel involved in the software operation training;
 - authorized representative of other institutions where the software is presented in order to its' future deployment;
 - users authorized by the relevant superior to use the software in the course of the conducted case.

3.3.2 Organizational

The following recommendations have the objective to ensure that the adoption of the MAGNETO platform is properly handled inside the organization, facilitating the management of changes in the everyday workflow.

- Appoint a general manager for MAGNETO adoption in the organization, which will be single point of contact to MAGNETO investigative group for any external entity, both inside and outside the LEA;
- the general manager will globally handle the deployment process, monitoring the results, facilitating all tasks and ensuring communications with external entities;
- a team of senior analysts, with solid technical and investigative background, should be dedicated to the operational usage of the platform; each analyst should perform investigations on its own, in order to try to guarantee a wider use of the tools and differentiation of user experiences, possibly covering all the domains of the implemented features;

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- provide an ICT specialist to the MAGNETO investigative group able to ensure a quick and continuous support, as the deployed technology could be beyond the technical background of involved personnel;
- appoint an operational manager for MAGNETO able to coordinate the analysts, manage their investigations and appreciate the results; he/she will know the complete status of the deployment and the operational usage of the platform at any phase and it will report to general manager;
- during the usage of the MANETO platform it is strongly suggested to keep the organization informed about ongoing actions, obtained results and potential ones; doing so will improve the technology's chances of implementation at all levels and reduce the likelihood of possible negative reactions.

3.4 Procedures

Some specific tasks of the deployment represent a key factor for the correct adoption of the platform into LEAs' organization. These tasks have been defined by brief procedures which list the main actions needed to complete them.

3.4.1 Technical deployment

In order to correctly deploy the platform and minimize the risk of technical failures during the operational usage, the following procedures have to be considered:

- ensure to purchase the hardware with minimum requirements specified by the Consortium, compatible with the security policies of the organization and the existing infrastructure;
- perform the installation of hardware and software on LEAs' premises by following the instructions given by Developers/SMEs;
- once the setup has completed, each tool/feature implemented into the platform has to be tested with sample datasets provided by related developers/SMEs; running the tools/features on such datasets should produce known results which can validate the correctness of deployment.

3.4.2 Training

In order to maximize the technological potential of the platform for the investigations, the training phase of the involved operators is a critical moment. To ensure an adequate usage of the platform by the assigned operators the following procedures have to be considered:

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- senior analysts and the operational manager members of the MAGNETO investigative group have to successfully complete the specific training session according to D7.3 Training Session and Evaluation before to operate autonomously on the platform. The general manager could skip the specialist training but should be highly aware of the platform's technological potential and its impact on the investigations;
- prior to deploy the Magneto platform for operational use, LEAs should select existing internal datasets, coming for instance from a closed case, to run independent tests in order to ensure the applicability of the platform to further real cases.

3.4.3 Monitoring and reporting

The deployment of the platform will constitute a relevant effort for the adopting LEA, which will probably face issues and difficulties besides the indications defined in this document.

- ensure to periodically collect feedback from all involved operators at each stage of the deployment in order to get sufficient materials to build a knowledge base and reports;
- at the end of each phase of the deployment plans, fulfill brief reports containing lessons learnt or relevant issues, especially related to recommendations and procedures defined in this document; in these reports LEA shall specify whether plans have been respected or diverged from forecasts.

3.4.4 Internal Knowledge base

The entire documentation produced in the Transferability Framework will constitute a continuously growing knowledge base for the successful MAGNETO platform deployment to be shared among LEAs. In fact, all the standardized reports collected during the monitoring phases and the everyday usage will contain valuable information that will be used to help the following deployments. For this purpose, the following actions have to be considered:

- collected feedback, reports and experiences about tools and features implemented into the MAGNETO platform have to be stored in a consistent manner, to build up the technical knowledge base;
- collected feedback, reports and experiences about managing the MAGNETO investigative group and the representation of possible results have to be stored in a consistent manner, to build up the organizational knowledge base;
- the knowledge bases will be shared with LEAs that will adopt the MAGNETO platform;
- the knowledge bases will be used as reference to define a set of best practices in the following phases of the Transferability Framework.

4. Framework of Technology Transfer

Introducing a new technology in an organization with a consolidated workflow and strict procedures could result in a complex process that could potentially affect the success of the project. It is important to collect information based on the experiences of first adopting LEAs in order to continuously improve the deployment process for following adopting LEAs and possibly define best practices for the operational usage to be shared among specialized operators over time. Such information constitutes the MAGNETO platform's technical and organizational knowledge bases, and will be the know-how to be transferred among users for an effective diffusion of the MAGNETO platform.

The implementation of new technology in the organization is the final chord of the transfer process. Depending on the degree of technical and organizational complexity of the implementation process, the beginning of this process may be preceded by technological trials, which allow to precisely determine the parameters of the process, its efficiency and assess the quality of the product. It should be remember that it is not enough to produce a product, it is also necessary to encourage the customer to accept the technology and ensure that it is used successfully later on.

4.1 Key elements for successful MAGNETO platform deployment

Important elements for successful implementation process in any institution include the following elements:

- efficient organization of work;
- schedule of planned activities;
- separating the implementation activities from daily organization work;
- identifying personnel responsible for the implementation process and its' competences;
- ensuring a friendly climate for innovation among employees within organization;
- regular and customized training depending on the group of trainees;
- constant cooperation with the authors of the project concept;
- permanently improving the implementation process.

Furthermore, the proper implementation of MAGNETO platform is not possible without continuous control of the process. This includes elements as follow:

- control of the workflow on the basis of a fixed schedule;
- control of the workflow in reference to documentation;
- assessment of expenses in relation to accepted cost estimates;
- compliance of qualitative parameters of the product with the adopted assumptions;
- study of the potential impact of the technological process on the organization and the external environment.

Such supervision should be the subject of constant attention of the management and personnel involved in platform deployment and if any irregularities are found, they must be monitored and eliminated on an ongoing basis. The audit should be conducted with the support of the project partners.

4.2 Knowledge base sharing

A first and simple way to transfer the developed knowledge about the deployment and usage of the MAGNETO platform is to share the documentation, reports and feedback produced by early adopting LEAs according of this deliverable. For this purpose, the following actions shall be considered:

- select a single point of contact for each LEA, preferably the general manager of the MAGNETO investigative group, responsible of establishing relations for the technology transfer;
- organizational issues should be discussed and handled by the general managers;
- technical and operational issues should be handled by the operational manager, which will report information and discuss with the analysts and ICT specialist;

4.3 Tutoring by meetings

Circulating documents and information will not be the only way for the technology transfer among LEAs. If needed, the LEA involved in the deployment of MAGNETO platform could request a live meeting with ones that previously adopted the platform in order to receive a direct and more focused support. Thus, LEAs should take into account that:

- experienced LEAs will be possibly asked to perform some tutoring for the trainees;
- live meetings should be requested only after the internal training has ended and the knowledge bases transfer has been performed;
- general managers will schedule the activities;
- operational managers will lead the live technology transfer during both ad-hoc phone/video calls and eventually remote desktop like assistance;
- in special case, live tutoring on premises could organized with experienced LEA;

An alternative solution, especially when it is not possible to conduct a live meetings, is to perform an information exchange and training online. This mode has its significant limitations, in particular, it doesn't allow the user to self-study while using it, but it may be a very first stage of its deployment before the blocking circumstances are overcome.

4.4 The level of adaptability of MAGNETO platform within the organization

The level of adaptability of new technologies implemented in the organization allows to determine the extent to which the new tool is actually used in operational work and the degree of its effective use. This is a huge challenge for the organization, because measuring the success of the implementation of new technology is not easy. The level of adaptability of MAGNETO platform can be measured by technical and functional indicators. Technical indicators are universal and their measurement will indicate the actual results of using MAGNETO, regardless its functional purpose. Functional indicators, on the other hand, will show how much the new tool can achieve the functional benefit that the organization wanted to achieve with its implementation.

The following examples of technical measures of tool adaptability in an organization can be considered:

- weekly number of user logs to MAGNETO platform based on system logs;
- weekly level of consumption of server resources on which the new tool operates;
- weekly average duration of login session for users using the tool.

The following examples of functional measures of MAGNETO platform adaptability in an organization:

- the number of cases/investigations conducted with the new tool;
- the number of cases/investigations in which MAGNETO platform has been used have been finally resolved/completed successfully;
- what number of conclusions based on MAGNETO platform has been verified by using other technological solutions and in what way (positive or negative);
- what is the level (increases or decreases) of use of MAGNETO platform in the organization, both in terms of extending its use to new users and of the scale and frequency of its use by original users?

Concluding, the proper preparation within an organization interested in deployment of new technological tool such as MAGNETO platform, is just as important as developing and delivering the product to the end-user by the project leaders.

5. Conclusions

The 8.6 deliverable, explained how the MAGNETO platform is going to develop an innovative set of tools to help officers in dealing with massive volumes, heterogeneity and fragmentation of the data collected during investigations. The methodology for a proper platform deployment proposed in this document is a set of general guidelines and recommendations addressed to all actors who were not involved in development of MAGNETO platform but are interested in platform deployment in their organization.

The proposed methodology is composed by plans, recommendations and procedures both technical and organizational.