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# AGILE APPROACHES IN LEADERSHIP, FOR THE EFFICIENT MANAGEMENT OF IT AND CYBER SECURITY PROJECTS

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#### **ABSTRACT**

Modern administrations have as priorities the development of services for citizens, the provision of quality, consistent and up-to-date information, in forms as accessible as possible to any citizen, regardless of the level of training, and equally, the creation of the necessary tools for the active participation of any citizen in administrative and political decisions that I look at him. The governing act should be seen as a business process whose main objective must become the diversification and improvement of the quality of services to citizens, in their capacity as "clients" of the government. In this regard, the phrase reinvention of governance (rethinking government, reengineering governance) is being used more and more frequently, which aims to identify strategies for rethinking the core values of the main government services, radically improving the services offered to citizens, reducing costs and rethinking processes and procedures administrative.

Governance must be transformed, by changing the role of the citizen from that of tax payer to that of "associate" in the governing act. The new demands on governance in a globalized and interconnected economy are to reexamine the nature and role of democratic institutions, the role of the private sector, the relationship between the citizen and the state, the future of the nation-state, because government: gives shape and content to the services provided to citizens, must take into account the technological evolution, must evaluate the risks that can affect democracy in the digital age, take into account the warning signals sent by the international community.

#### **Keywords:**

Intelligent technologies; e-business; digital transformation; awareness; information's management; cyber security

#### INTRODUCTION

The capacity of state institutions to assess and reduce the impact of risks and threats is limited by the persistence of some vulnerabilities in: the absorption of European funds, the use of public money, energy, critical infrastructure, agriculture, environmental protection, justice, health, education and scientific research. The absence of a real multiannual budget planning, which determines the assumption and compliance of investment programs, has negative effects.

The ability of the central and local administration to implement national and European public policies constitutes another vulnerability.

Corruption makes the state vulnerable, generates damage to the economy and affects the country's development potential, good governance, decisions in favor of citizens and communities, as well as trust in the justice system and state institutions. Externally, the persistence of corruption has a negative impact on the credibility and image of our country.

For a "reinvention of governance" in the information society, at least four concepts have been identified that must be followed: electronic democracy (e-democracy) - the Internet can strengthen democratic participation in government, the citizen of the information society (e-citizen) - the citizens of the new society / officials have training in modern technological fields, being the key actors of future governments, politics in the digital era (e-politics) - attempts to manifest politics in digital form are becoming more and more visible through the significant increase in online electoral campaigns, the electronic state (e-state) - the phenomenon of globalization fueled by the digital integration of markets, involves rethinking and redefining the concept of "nation-state"

Improving professional skills is a significant contributor to economic growth, as intranet and e-mail facilities play an increasingly important role in work and organizations, governments and business are interested in their employees being well-versed in these utilities For work.



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Regarding the cultural dimension of the information society, the interaction between culture (cultural institutions, creators, cultural products) and the technological age we are going through has taken place in several sectors, identified in: the academic world, the business world and government action. The virtual space today allows us, from our own cultural space, in the conditions of a very high traffic of information, to be exposed to and influenced by other cultures.

Cultural diversity being part of humanity's heritage, it is essential as a source of innovation and creativity, as biodiversity is for nature. To protect it, from the perspective of present and future generations, actors from the public and private sectors or from civil society will have to take the necessary measures to eliminate language barriers and promote human interaction through the Internet, by encouraging the creation, processing and access to educational, scientific and cultural content in digital form, so that every culture can express itself in the virtual space in its own language. Being about: increasing the production capacity of virtual materials in all languages, teaching languages in the virtual space, research in the development of search engines with multilingual capacity (eg: Google), automatic translation services, etc.

Encouraging "digital literacy" and ensuring a better handling of the new ICTs, which should be seen both as educational disciplines and as pedagogical tools, capable of increasing the effectiveness of educational services, reducing the digital divide.

#### **OBJECTIVES**

A series of EU initiatives aimed at the development of trans-European communications networks, among which the important ones are TEN-ISD (-European Network on ISD) and Green Papers for mobile satellite communications. By introducing the new type of EURO-ISD communications, basic services such as e-mail, the ability to organize video conferencing and other multimedia services are accessible in a unitary manner on a large scale in the EU. Also, this period of conceptual clarifications, is the period in which all the governments of the member states of the European Union put into balance the gains and losses that the construction of the information society implies, thus initiating extensive consultations in order to develop their own strategies for the information society, which will hold taking into account the technical, technological and financial conditions of each country, as well as the human and economic potential, in order to initiate the first concrete measures for the development of the information society.

The new priorities, which come to expand the policy of the European Union, are:

- Improving the business environment to increase the competitiveness of European enterprises (improving the business environment);
- Investments for the future by supporting research and education (invest in the future);
- Placing the citizen and his requests at the center of the Union's policy (people at the center);
- Treating the information society as a global challenge (meeting the global challenge).

In order to broaden the knowledge base, the Commission proposes that technological research has a central role in FP5 (the 5th Framework Program of Research and Technological Development).

According to the conclusions of the information society, the educational system must be quickly adapted to the new conditions created by the information industries. Education in the information society must focus on learning and not on teaching (learning vs. teaching). At the request of the European Council, the Commission developed the action plan - "Learning in the Information Society" - aimed at connecting educational institutions to communication networks (especially the Internet), promoting multimedia techniques in education and stimulating teachers to use new technologies in rendition.

Another fundamental principle of the entire policy of the European Union, which is also found in the sectoral policy dedicated to the information society, is that of sustainable development. The European Commission remains attached to the idea that the information society must be created for all citizens of the Union. That is why the realization of the universal service in telecommunications is a priority, a favorable premise for the proximity of the periphery to the center, for the reduction of development differences between the regions of the Union, for the development of rural or disadvantaged areas.

The information society must reflect the basic values of the European social model (democracy, individual rights, equal opportunities, social welfare, solidarity) and lead to an increase in the level of European integration.

Globalization is an evolution that requires the transition to a flexible socio-economic organization, with the possibility of offering new outlets for products and services, including IT ones. European companies needing



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to be prepared to participate successfully in the challenges of a global ICT market, for this purpose, the European Commission proposing:

- Definition of global rules within international forums (G7, WTO, ITU, OECS, WIPO, World Bank);
- Collaborations with neighboring countries (especially with Central and Eastern European countries CEEC, Commonwealth of Independent States and Mediterranean countries) in the field of research and development (R&D);
- Integrating developing countries into the project of creating a global information society.

#### **METHODOLOGY**

In terms of technological research, we note the launch of the FP5 program, which defines the strategic priorities of the EU, dedicating a major research topic to information technology, in order to achieve an integrated program that reflects the convergence of three extremely important areas of the information society: telecommunications, media and information processing.

Public administration services can be made more efficient by using advanced IT technologies. The European Commission tries to set its own example in this sense, through the procedures and tools it uses in its day-to-day work, in its links with the administrations of the Member States and with its own decentralized agencies. Trying to facilitate citizens' access to public information through new applications (information kiosks, online systems), as well as to achieve better communication between all levels of public administration on the surface of the Union.

The phenomenon of convergence developed as a result of the use of the same technologies in the activities and especially the possibilities offered by the new communication networks, for the simultaneous transport of voice, data, sound and images (Internet).

The promotion of the information society was continued through ISPO, which became the IS Promotion Office, with the main objectives of providing information on the EU policy in the field of ICT (through traditional means as well as through electronic communication), inventorying and supporting projects and activities dedicated to the information society, promoting the interconnection of European actors in the field, in digital communication networks.

The development of the European information society involves a considerable financial effort, which cannot be fully assumed by the EU and the governments of the member states. The experience proving that the private sector is the one capable of assuming the risks of exploiting and developing new markets and has the necessary capital to make the investments. Consequently, it is natural that in the European information society, the private sector generates the majority of investment flows and is also the main beneficiary of the profits obtained.

In order for the private sector to be attracted to investments in information society technologies, it must benefit from a favorable investment environment, which consists of a coherent and stimulating legislative framework (transparent and non-discriminatory), which can be ensured by the governments of the member states in cooperation with the EU.

It is thus desired to guarantee transparency through the unrestricted access of all citizens to European legislation, to the information they need and through the opportunity they have to actively participate in public debates. Protecting and promoting the cultural and linguistic diversity of the EU is a fundamental principle of all European policies, including that of the information society.

Major importance is given to the production and distribution of European digital content, as well as to innovation and creativity, thus developing a European framework for cooperation in the field of digital content. Protecting the rights of consumers of IT services is also extremely important. We refer here both to the creation of computer systems that are easy to use ("user-friendly"), and to combating the actions of disseminating information with offensive and illegal content, especially through the Internet.

Data confidentiality (privacy) refers to the right to control the use of private data by others and to establish rules regarding intrusion into another person's private space. New ICTs facilitate the collection, storage, analysis and distribution of information relating to all aspects of an individual's private life, with the risk of significantly diminishing their control over their private data.

Consequently, in the information society, networks, hardware and software must be designed in such a way as to allow the user to keep control over his personal data and over his private sphere, in this sense the EU adopted a directive on to the processing of personal data (Directive 95/46/EC124), which establishes the principles for the collection, storage and use of private data by government institutions, companies and other

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organizations. These principles were also transposed into EU policy in the telecommunications sector through a specific Directive in 1997 (Directive 97/66/EC125):

- security of networks and services;
- confidentiality of communications;
- access to information stored through terminal equipment;
- processing network traffic data;
- public subscriber directories;
- unsolicited commercial communications.

#### RESULTS AND DISCUSSION

This is how the "eEurope - An Information Society for All" initiative is launched, with the following key objectives:

- The inclusion of all citizens, educational institutions, business people and administrations in the digital age;
- Creating an educated digital Europe, supported by an entrepreneurial culture prepared for the financing and development of new ideas;

Guaranteeing a process leading to the strengthening of social cohesion, increasing consumer confidence in new products and services and avoiding the social exclusion of certain categories of citizens. During the summit in Lisbon, the European Commission proposed the adoption of a package of legislative measures aimed at creating a new regulatory framework for electronic communications services and networks - New Regulatory Framework, which includes:

- The common legislative framework;
- Access and interconnection;
- Authorization;
- Universal service;
- Data protection.

In June 2000, the action plan entitled "eEurope2002 – An Information Society for All" is adopted, the initiative that will complement the previous decisions, with suggestions established by the Lisbon European Council, by the European Parliament and by the representatives of the Member States, gathered in a Ministerial Conference with the theme "Informational and Knowledge Society".

The actions provided for in the new plan are structured on three major objectives, as follows:

- 1. Cheaper, faster and safer Internet;
- 2. Investments in people and their capabilities;
- 3. Stimulating the use of the Internet.

This operational plan, focusing on what needs to be done, by whom it needs to be done and within what time limit ("What, Whom, When?").

The main proposed methods for achieving the major objectives of the action plan are:

- Accelerating the development of the legislative framework
- Development of trans-European infrastructures and services
- Coordination and monitoring benchmarking (monitoring the evolution of the information society in the member states)

As a result of the success of the eEurope2002 action plan, the European Commission adopts a continuation of it for the period 2003-2005, the eEurope2005 action plan, with the aim of transforming the EU economy into the most competitive and dynamic knowledge economy, based on quality jobs and social cohesion.

The EU must have online public services (e-government, e-learning, e-health) and a dynamic business environment, based on access to broadband services through a secure information infrastructure.

The development of the information society is undoubtedly a global process, as new ICTs have the potential to significantly reduce, or even eliminate, territorial borders.

The Internet, the largest global network, is the most conclusive example of this, as people from various corners of the world can be in contact and communicate with each other in real time.

The European Commission initiated important dialogues on the topic of the information society both with industrialized states (G7, G8) and with less economically developed countries.



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Increased attention during these dialogues was given to cooperation with the Central and Eastern European states (CEECs) in order to promote the European information society model to them in the context of the EU enlargement process.

Thus, with the support and under the pressure of the EU, important progress was made in these states in order to adopt the legislation necessary for the information society, institutional systems were created following the model of those in the member states and the telecommunications sector was liberalized.

The creation of the European information society cannot be achieved only by adopting decisions and action plans of the decision-makers at the level of the EU or the member states, an essential role is played by the final beneficiaries of ICT, i.e. economic actors - companies, consumers, citizens. It is necessary to understand the benefits as well as the risks involved in the development of new technologies, as well as how ICT can influence their daily lives. Whereas the decision-makers have the duty to explain the new model of society and to take into account the suggestions and needs of the beneficiaries in the elaboration of policies for the information society.

Building a knowledge-based society in the EU can only be achieved through the development of a high-performing educational system and the continuous retraining of the workforce. For this reason, education and vocational training are crucial areas for achieving strategic objectives. The EU's competitiveness increasingly depends on its ability to exploit the potential of ICT in learning.

#### ACKNOWLEDGEMENT

The main benefits that new technologies can bring to the educational system are related to facilitating access to information, increasing the flexibility of the learning process, orienting learners to relevant knowledge and better collaboration.

Each member state is responsible for its own educational system, but the European Commission has a central role in the process of building cooperation networks that allow the exchange of experience at the level of the entire Union. Its tools in this regard are the eLearning initiative and the program of the same name dedicated to the effective integration of ICT in European education and training systems. The eLearning program has four main directions of action as follows:

- 1. Promotion of digital knowledge (digital literacy);
- 2. Creation of European virtual campuses;
- 3. Twinning of European schools (eTwinning) and supporting training for teachers;
- 4. Promotion of digital education (eLearning).

The goal being the establishment of a European Area of Continuous Improvement (European Area of Lifelong learning). Other European programs that support the use of ICT in education and training are eTen and eContent, all these initiatives stimulate the creation of partnerships between profile institutions within the EU and are the basis of building the European information society.

The EU institutions, especially the European Commission, through its programs, assume the role of coordinator and catalyst of investments in the European information society. Coordination is mainly achieved by stimulating cooperation at the European level in order to avoid overlapping projects financed with the same result.

The research programs of the European Union - united under the name "Framework Programs for Research and Technological Development - RTD" (Framework Programs for Research an technological Development - RTD) complement the national and regional research programs, contributing to the concentration of European resources in the field and to creating a critical mass of advanced technologies, extremely important for increasing European competitiveness. The first EU Framework Program was launched in 1984 (ESPRIT). Under the umbrella of a Framework Program, the European Union includes a series of Specific Programs that define in detail European research in a certain field. Community funding programs are instruments for implementing European Union policies in the various priority areas.

The Framework Program 4 (FP4) of the European Union - 1994-1998, was the first to give major importance to technologies in the broader context of scientific research, embodied in a coherent and unitary EU policy in the field of information society.

The Fifth Framework Program of the EU (FP5), in the period 1998-2002, had a multi-thematic structure:

- Quality of life and management of living resources (Quality of Life)

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- Information society technologies (IST)
- Increasing competitiveness (GROWTH)
- Energy, Environment and Sustainable Development (EESD)

The thematic program dedicated to Information Society Technologies, had as its strategic objective the expansion of the benefits derived from the information society throughout Europe, ensuring at the same time the needs of individuals and companies. The IST program within FP5 had 4 major action themes (key actions) open for funding, closely related to EU research priorities, as follows:

- 1. Systems and services for citizens
- 2. New working methods and electronic commerce
- 3. Content and multimedia tools
- 4. Essential technologies and infrastructures.

#### **CONCLUSION**

In the framework of FP6 (2002-2006), the EU's support for research focuses on activities to be carried out at European level by funding research projects, bringing together different European actors involved in research - universities, research institutes, companies, governmental organizations, the final goal being the creation of the European Research Area (ERA). The objectives of IST – FP6 are to ensure that Europe continues to make progress in the technological areas that are central to the development of the knowledge-based economy.

The focus in FP6 is on the development of the next generation of technologies, integrated in everyday activities, facilitating access to a multitude of services and applications through user-friendly interfaces. The vision of the intelligent environment placing the individual user at its center.

The realization of this European vision requires a massive research effort, an integrated effort involving both the technological components and the methods of integrating these components into IT systems, but especially the development of innovative applications.

Also, the coordinated development of technologies and their applications in the basic spheres of the economy and society is required.

In order to achieve the objectives proposed in the Lisbon strategy, it is necessary to make progress in the following technological areas:

- Overcoming the current limits of miniaturization of technologies and minimizing costs and resource consumption of microelectrical components and microsystems, as well as exploring possibilities in the field of creating alternative materials, including new flexible organic materials for monitors and for sensors that can be placed anywhere, including in the human body, and which can take any form;
- The development of mobile, wireless, optical and broadband communication infrastructures, as well as software technologies to manage new applications and services, encouraging the development of common standards and open source software, to ensure the compatibility of future innovations;
- Developing intuitive interfaces that can interpret human speech, touch and gaze, as well as gestures or different languages, ensuring access to and creation of digital content more efficiently and creatively.

Progress is also needed to integrate technologies into innovative applications that address major economic and social challenges:

- Increasing trust in technology, infrastructure and applications.
- Improving the degree of trust in the knowledge-based society the key requirement for its development
  - Increasing the degree of social cohesion
- Facilitating sustainable growth and improving the degree of competitiveness in firms regardless of size, as well as the efficiency and transparency of the governance process (ebusiness, eWork)
- Contribution to solving complex problems in the fields of science, society, industry and business, facilitating the management of knowledge at the European level and bringing it within the reach of any enduser.

IST in the FP6 vision:

- The interface is made up of what surrounds us
- Use all senses intuitively
- Context-based information management
- Convergence and infinite bandwidth



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- Wireless and mobile multimedia
- Miniaturized technologies
- New materials
- Widespread adoption of new technologies
- New technologies adopted on a large scale.

This vision of the intelligent environment places the user – the individual – at the center of concerns for the development of a knowledge-based society for everyone to enjoy. Framework Program 6 is the financial instrument to make the ERA (European Research Area) a reality.

The strategic objective of the IST priority in FP6 can be summarized as: anywhere, anytime, easy access to IST services for everyone. The elaboration of this objective led to the definition of research activities that are eligible to be funded by FP6 under the IST priority.

#### Funding programs:

- Addresses clearly defined fields (education, social worker, public administration development, research, regional development, etc.),
  - It finances certain institutions or groups of institutions (universities, local authorities, SMEs, etc.),
- It addresses certain target groups (students, entrepreneurs, local communities, rural communities, disadvantaged groups, etc.), depending on the strategic objectives and specific priorities of the program.

Policies related to the Information Society cannot be treated separately from other policies closely related to its development – education, public services (health, administration), economy, research, etc. The enforcement actions of the Information Society policies thus become "horizontal", in the sense that they cross several community policies.

Therefore, the financing programs for the development of the information society - as a tool for applying community policies - can be found within several programs specific to distinct policies (education, social issues, economy, etc.):

- eLearning development of educational products and services based on ICT
- eInclusion the structural funds (PHARE, FEDER and FSE) represent the main financing instruments of the European Union (only intended for the member states), for the implementation of some basic community policies (agricultural, regional, social, fisheries).
- eGovernment financing programs that support the development of the information society in the field of central and local public administration, mainly focused on the efficiency and increase of transparency of public services through the use of ICT.
- eHealth an important objective is represented by the health sector, the member states and the community ensuring citizens' online access to medical services (information on healthy living, disease prevention, electronic medical statistics, teleconsultations, etc.).
- eBusiness in the view of the European Commission, the concept of eBusiness goes far beyond the framework of electronic commerce, because it involves the integration of ICT in the business activities of European companies, managerial innovation and the spirit of initiative being as important in this context as technological advances.

The new innovation trends in the use of intelligent technologies are reflected in the Cybersecurity Policies, applied at the level of the administration console of the anti-virus type solution, belonging to the Ministry of Investments and European Projects- The software product used is an integrated platform for the security management of the equipment (stations and physical / virtual servers) used and managed within MIPE - Bitdefender GravityZONE Single Central Administration Console.

The integrated device security management platform is based on a simple and integrated architecture with centralized management for both workstations and data centers. It thus allows the efficient and quick installation of the protection solution and requires less administrative effort after implementation, in order to obtain the highest possible degree of accuracy regarding the assurance of cyber security at the MIPE level.

Using machine learning capabilities and automatic incident investigation, certain activities that should have been performed by a security incident response team will be performed automatically in conditions where MIPE does not currently benefit from an internal SOC (Security Operation Center) structure. Integrated and automated response flows will enable designated personnel to respond effectively by limiting lateral spread and stopping potential attacks. Threat visualization features enable focus on specific aspects of investigations,



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helping to understand complex detections, and identify the root cause of attacks, thus maximizing immediate response capability.

The result is threat prevention, deep visibility, accurate incident detection and intelligent response to minimize exposure to infection and stop unauthorized access. As an integrated workstation protection package, the integrated equipment security management platform ensures a uniform level of security for the entire IT environment, so that attackers cannot find a weakly protected workstation to use as an entry point. departure for dangerous actions against the organization.

For the administration of the 3400 licenses of the workstations, centrally from the console, it is necessary to consume a low effort for the maintenance activity of the automatic processes, being easy to implement and integrate into the existing security architecture.

The agent is resource-efficient, with low administrative costs in terms of disk space, memory, bandwidth, and CPU resources.

The flexibility, scalability and upgradeability of the complete endpoint protection platform and managed detection and response services are required in the process of ensuring the cybersecurity standard built at the MIPE level.

By using cutting-edge threat detection technology, including fileless attacks, ransomware and other zero-day threats.

In threat analysis, the event logging feature continuously filters events produced on the endpoint, compiling a prioritized list of incidents for further investigation and response.

In the event recording process, continuous monitoring allows data to be passed to the threat analysis module to visualize the results generated by the events involved in an attack.

The single management console automatically executes suspicious payloads in a controlled virtual environment. The threat analysis module then uses this analysis to make appropriate decisions about suspicious files, according to the automation achieved through the security policy implemented at the level of the single management console.

Cyber Security incident investigation and response processes will be automated through the IoC search capability, querying the event database to discover possible threats through ATT&CK techniques and indicators of compromise as well as updated information on discovered threats or other possible malware.

The research was carried out at the level of the Ministry of Investments and European Projects, with the main aim of creating scientific and technological excellence by analyzing the results obtained through the use of intelligent technologies at the central administration level, as well as obtaining advantages in the field of cyber security and resilience of systems, services and critical infrastructure of national importance, as well as increasing the degree of cyber security culture in the central public administration and among contractual users or civil servants, with the possibility of establishing within the organization at least 3 positions with specific tasks in the cyber field, in direct collaboration with the Ministry's Security Structure and in a cooperation agreement with the National Cyber Intelligence Center of the Romanian Intelligence Service.

The period included in the analysis activity is between the years 2013-2023, including two programming periods of non-refundable financing from European funds, facilitated by the European Commission, as well as the National Recovery and Resilience Plan.

The three projects carried out by the Cyber-int National Center, to ensure cyber security at the national level, constituting a security umbrella, over the critical infrastructure of national interest, which will be reinvented through the digital transformation generated with the help of emerging technologies, which have produced an evolution considerable in government digital transformation.

Emerging technologies and the integration of machine learning functionalities through artificial intelligence, at the level of the Ministry of Investments and European Projects, as a development measure through innovation, will produce positive effects including on the development of the national economy by increasing the absorption of European funds in a secure cyber environment.

The integration of machine learning and artificial intelligence functionalities, at the level of the Ministry of Investments and European Projects, can be seen in Tables 1 and 2 below, while the use of intelligent technologies such as Sandbox Analyzer and EDR - Endpoint Threat Detection and Response (ETDR) can be seen in Figures 1 and 3 below, and Computers – Endpoint policy compliance in Figure 2.

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Table 1. Integrating Machine Learning and Artificial Intelligence functionalities, at the level of the Ministry of European Investments and Projects

Implementation period	Protected workstations	Increasing the degree of cyber protection	Automate responses to detected and remedied cyber attacks	Fixed vulnerabilities	Possible security risks
2014-2017	250 to 450	200 Endpoints	About 50%	75%	25%
2020-2023	450 to 1700	1250 Endpoints	About 75%	90%	10%
2023-2027	1700 to 3400	3400 Endpoints	About 95%	95%	5%

Source: Author' own research

Table 2. Results of Integrating Machine Learning and Artificial Intelligence functionalities, at the level of the Ministry of European Investments and Projects

Automation period	Protected endpoints	Increasing the cyber protection	Automated detected and remedied cyber attacks	Security vulnerabilities	Security risks
2014-2017	450	200 Workstations	50%	75%	25%
2020-2023	1700	1250 Workstations	75%	90%	10%
2023-2027	3400	3400 Workstations	95%	95%	5%

Source: Author' own research

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Source: www.bitdefender.com

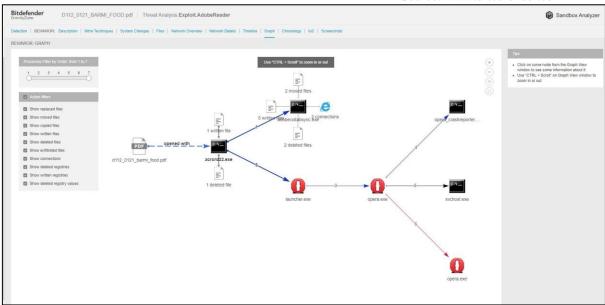
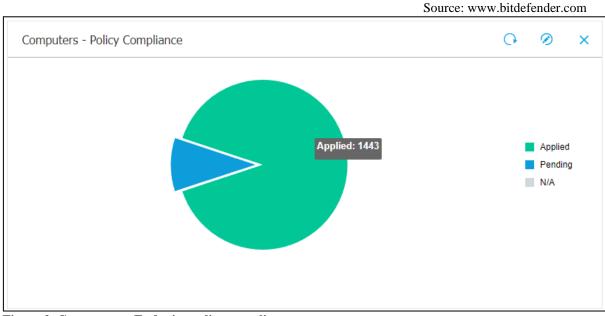


Figure 1. Sandbox Analyzer –

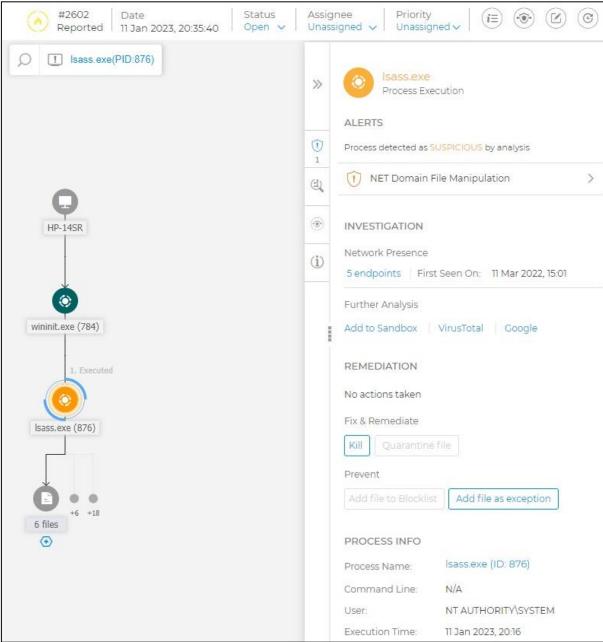
Ministry of European Investments and Projects



**Figure 2. Computers – Endpoint policy compliance –** Ministry of European Investments and Projects

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Source: www.bitdefender.com

**Figure 3. Endpoint Threat Detection and Response (ETDR)** – Ministry of European Investments and Projects

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#### REFERENCES

- [1] European Commission (2022) *Jobs and the economy during the COVID-19 pandemic* https://ec.europa.eu/info/live-work-travel-eu/coronavirus-response/jobs-and-economy-during-coronavirus -pandemic.ro.
- [2] European Information Society (2005) Publisher: Foundation for European Studies.
- [3] European Commission Brussels, 3.3. (2021) One year since the outbreak of COVID-19: fiscal policy response

https://ec.europa.eu/info/files/one-year-outbreak-covid-19-fiscal-policy-response\_en.

[4] Presidential Administration - Bucharest (2020) Romania - National Strategy for National Defense for the period 2020-2024.

https://www.presidency.ro/files/userfiles/Documente/Strategia\_Nationala\_de\_Aparare\_a\_Tarii\_2020\_2024.pdf

[5] European Council - Council of the European Union - March (2010) - European Union Internal Security Strategy;

https://www.consilium.europa.eu/ro/documents-publications/publications/internal-security-strategy-european-union-towards-european-security-model/.

[6] Decision of the Official Gazette no. 677 (2020 - August 14) - on the approval of the National Program for the digitization of micro, small and medium enterprises, financed under the Operational Program Competitiveness 2014-2020.

http://legislatie.just.ro/Public/DetaliiDocument/229226 - OFFICIAL GAZETTE no. 756 of 19 August 2020.

[7] EU Directive 1148 / (2016) - Measures for a high level of security of networks and information systems in the Union.

https://cert.ro/pagini/ansrsi.

- [8] Regulation (EU) (2016) / 679 on the protection of individuals with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46 / EC (General Data Protection Regulation).
- [9] The European Union Agency for Cybersecurity (ENISA), (2021) September 13 Methodology for a Sectoral Cybersecurity Assessment

https://www.enisa.europa.eu/publications/methodology-for-a-sectoral-cybersecurity-assessment.

[10] The European Union Agency for Cybersecurity (ENISA), (2020) April 15 - Advancing Software Security in the EU

https://www.enisa.europa.eu/publications/advancing-software-security-through-the-eu-certification-framework

[11] National Cybersecurity Directorate (DNSC) - (2021) September 30 - European Cybersecurity Month - ECSM

https://cert.ro/citeste/comunicat-luna-europeana-a-securitatii-cibernetice-2021

- [12] Oracle Romania (2022) *Emerging technologies: IoT, EoT, AI, Blockchain* https://www.oracle.com/ro/emerging-technologies/.
- [13] Cloud Computing, Events October 6, (2021 at 11:19 am) *Cloud Conference brings new technologies to the forefront* (*clubitc*). https://www.clubitc.ro/2021/10/06/conferinta-de-cloud-aduce-in-prim-plan-noile-tehnologii/.
- [14] Patru strategii europene Smart City (2024) https://neos.ro/patru-strategii-europene-smart-city/
- [15] Roja, The Impact of Information Technology on Digital Transformation (Impactul tehnologiei informației în transformarea digitală), Research and Education, 3, 18 (2019) https://researchandeducation.ro/2019/04/25/impactul-tehnologiei-informatiei-in-transformarea-digitala.html
- [16] PM în Agile (2024) https://www.todaysoftmag.ro/article/773/pm-in-agile
- [17] Principiile Manifestului Agil (2024)- https://agilemanifesto.org/iso/ro/principles.html
- [18] DIGITAL4ENERGY (2023) https://crenerg.org/Digital4Energy/wp-content/uploads/2023/07/LIVRABIL-2-A1-SA.1-IRINA-NITA-Digitalizarea-in-schimbarea-economiei-si-a-pietei-muncii.pdf
- [19] Digital transition in the EU (2024) https://www.consilium.europa.eu/ro/policies/a-digital-future-for-europe/#digital% 20 transition
- [20] MySMIS 2021 Resources (2024) https://resurse.mysmis2021.gov.ro/ords/repo\_bo/r/mysmis-2021/home
- [21] Ministry of European Investments and Projects (2024) https://mfe.gov.ro
- [22] Media campaign "European money for Romanian ideas" (2024) https://mfe.gov.ro/comunicare/campanie-media-bani-europeni-pentru-idei-romanesti/
- [23] Emotional Intelligence (1996) Publisher: Random House, David Goleman
- [24] Modern military espionage (2017) Publisher: RAO, Gheorghe Savu

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- [25] Monograph of the Romanian Information Service (2015) Publisher: RAO
- [26] Leadership. Six studies of world strategy (2022) Publisher: Litera, Henry Kissinger
- [27] Organizational culture (2024) Publisher: HUMAN SYNERGISTICS, Iuliana Stan
- [28] Management of public organizations ( 2022 ) Publisher: C.H. BECK, Tincuta Gudana Vrabie, Nicoleta Cristache
- [29] General management Ed.5 ( 2019 ) Publisher: PRO UNIVERSITARIA, Laura-Georgeta Baragan, Marius Dan Dalota
- [30] Business simplified (2024) Publisher: ACT SI POLITON, Donald Miller
- [31] Leadership The power of emotional intelligence. Selection of texts (2016) Publisher: Curtea Veche Publishing, David Goleman.
- [32] Agile Leadership in Practice (2022) Publisher: Springer Berlin, Dominik Maximini
- [33] Leadership Agility (2006) Publisher: John Wiley & Sons Inc, William B. Joiner, Stephen A. Josephs
- [34] Harvard Business Review Project Management Handbook ( 2021 ) Publisher: Harvard Business Review Press
- [35] Fundamentals of Project Management (2018) Publisher: HarperCollins, Joseph Heagney
- [36] The Harvard Business Review Manager's Handbook The 17 Skills Leaders Need to Stand Out (2017) Publisher: Harvard Business Review Press,
- [37] How to Manage People Fast, Effective Management Skills that Really Get Results ( 2022 ) Publisher: Kogan Page Ltd, MICHAEL ARMSTRONG