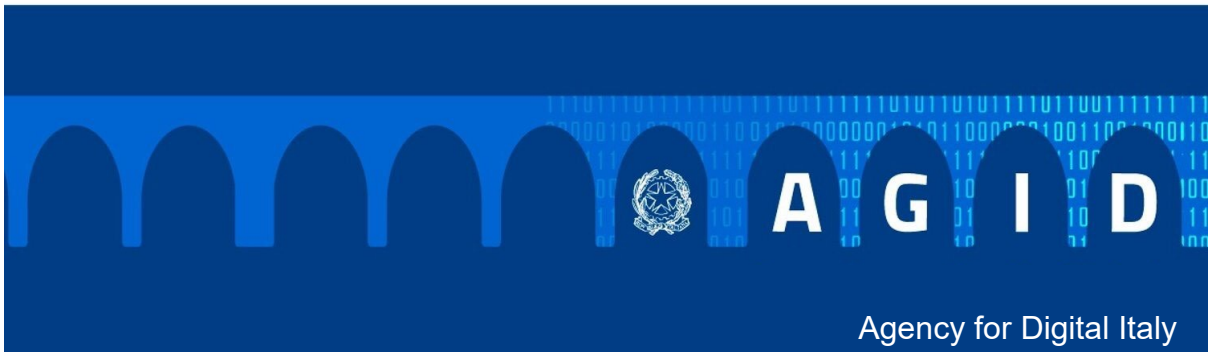


2019 - 2021
Three-Year Plan for IT in the Public Administration

Annexes

Table of Annexes

ANNEX 1. Glossary

EXPRESSION	DESCRIPTION
2RIS	This is the result indicator relating to the "Availability of open format public databases, calculated by means of the percentage ratio of the number of open format public databases available and the public databases of a selected basket". This indicator is considered in the methodological document on indicators and performance framework, which defines, amongst others, the methodology choices that guided the selection of the results and output indicators referring to the NOP for Governance and Institutional Capacity.
Access Point	Infrastructural element of the European PEPPOL (Pan European Public Procurement OnLine) network that implements a standard protocol for the exchange of messages in eProcurement, assuring a secure and reliable exchange of data.
Accessibility	The capacity of IT systems, in the forms and within the limits permitted by technological know-how, to deliver services and provide information which can be used, without discrimination, also by those who, due to disability, need assistive technologies or special configurations" (Art. 2, paragraph a, Italian Law 4/2004).
Owner Administration	Administration that owns a project or activity.

Register of Agricultural Businesses	Database of national interest comprising all public and private subjects, identified by tax code (CUAA - unique agricultural business code), operating in the agricultural, agricultural food, forestry and fishing business, which entertain administrative and/or financial relations, in any way, shape or form, with the central or regional public administration.
National Register of Patients (ANA)	Database of national interest prepared by the Ministry for the Economy and Finance by agreement with the Ministry of Health, in connection with specific needs to monitor the essential levels of assistance, taking over from the databases and lists of patients held by the individual local healthcare operators. The Electronic health record will guarantee alignment of data identifying patients with data contained in the National Register of Patients.
API Economy	Emerging economic externalities originated by organisations and individuals supplying APIs useful to the direct access of their systems and/or processes. The opening of APIs makes it possible to innovate more rapidly and supply homogeneous data and interoperable interfaces to internal and external developers, suppliers and clients, to improve data access and the exchange of information. These organisations can also develop applications by which to access the APIs, so as to give rise to new functions, adding value, both for themselves and the external environment. The result is an economy that can enable new types of applications with the potential to transform administrative and commercial processes. More specifically as regards the PA, the opening of information systems to the API makes a major change to the way in which different administrations interface and cooperate with each other and third parties.

API First	Development strategy for creating services and applications that envisage the development of an API before developing an application or web page or other mobile application. In other words, the definition of the channels used to supply the service comes logically and chronologically after development of the API.
App	Software application dedicated to mobile devices, such as smartphones or tablets. It differs from traditional applications both in terms of the support whereby it is used and the concept it encompasses, characterised by a simplification and elimination of the superfluous, in order to obtain a light, essential design that operates quickly, in line with the limited hardware resources and the different usability of mobile devices with respect to desktop computers.
Application Programming Interface (API)	Type of “service interface” used to programme applications, i.e. series of conventions adopted by software developers to define the manner by which a given application function is recalled. With respect to that indicated in this Plan, the new Interoperability Model (see chapter 4) will define the rules and conventions that the public administrations and other subjects adhering to the PA IT System shall adopt in order to develop services enabled for application integration.
Automated Archives on Immigration and Asylum	Instituted by the Decree of the President of the Republic no. 242 of 27-07-2004, owned by the Ministry of the Interior, the Automated Archives on Immigration and Asylum are also interconnected with the information systems of regions, autonomous provinces and local entities and interconnect on a telematic network various archives pertaining to different PACs, for example:

	the computerised archive of the world network of visas (Ministry for Foreign Affairs); the Tax Office (Ministry for the Economy and Finance and Revenue Agencies); the database of non-EC workers (INPS); the computerised archive of residency permits (Ministry of the Interior - Department of Public Security).
National Archive of Civic Numbers of Urban Roads (ANNCSU)	Database that meets the need to have, for the whole of national territory, computerised, encoded information about the roads and civic numbers, updated and certified by the councils, so as to supply all Public Administration Entities with a reference database. The archive will also be used by ISTAT as its reference toponomastic archive for the permanent census and the production of territorial statistics.
Attribute Authority	The subject accredited on the SPID system, who, in accordance with current regulations, can certify qualified attributes of natural persons or legal entities (entities/companies), such as possession of an educational qualification, membership of a professional order or registration with a public register.
Back End	In computing, this refers to the interfaces intended for a program. A Back End application is a program with which the user interacts indirectly, as a rule through a front end application.

Back Office	This juxtaposes the front office and is that part of an organisation that comprises all the own activities that go towards its operative management: from technical aspects linked to the production and exercise of typical functions through to the management of the organisation and administrative proceedings. In practical terms, Back Office is everything the user does not see but which makes it possible for him to receive the relevant services.
Backlog	In computing, a series of operations waiting to be performed by a computer.
National Public Contracts Database	Instituted by the CAD (Art. 62-bis) at the Supervisory Authority for public contracts of works, services and supplies, to foster a reduction in administrative expenses deriving from information obligations and to ensure the effectiveness, transparency and control in real time of the administrative action, to allocate public spending on works, services and supplies, also with a view to respecting legality and the correct action of the PA and to preventing corruption.
Land Registry Database	Owned by the Revenue Agency, this includes data for the certain identification of a property within a territory, as part of deeds transferring rights and the assignment of income ordinarily retractable from the property.
Base Registry	Term used in the European Interoperability Framework to indicate reliable, authentic, official sources of particularly relevant data produced by the Public Administrations (e.g. people, roads, buildings, organisations, etc.).

	This data constitutes the basis for the construction of public services and the Public Administration owners are therefore responsible for handling it according to clear requirements of quality, security and privacy. Within the Base Registers, a distinction is drawn between the databases of national interest, transversal databases and resources (dictionaries, glossaries, ontologies, etc.).
Best Practice	All activities (procedures, conduct, habits, etc.), which, according to the experiences that have been proven to be the best over time, both in terms of their efficiency (less effort involved) and their effectiveness (best results), can be taken as reference and formalised into rules and plans to be reproduced systematically so as to foster the achievement of the best possible results in a given area.
Big Data	Big Data is the term used when there is a set of data to be saved and/or processed that is so large and/or with such a large variety of formats and/or such rapid growth as to require the use of unconventional software (big data technology) in order to extrapolate, manage and process information within a reasonable period of time. Big Data technology is highly scalable: its “capacity” to process/save grows in a linear fashion with the quantity of resources dedicated to it (typically expressed as a number off hosts).
Big Spender	Big Spenders are the administrations with a large budget with respect to the total recorded for central administrations, as well as a high percentage weight of the Opex component over the total Capex/Opex and the IT component over the total ICT.

Capex	Capital expenditure.
Criminal Records Database	A database of national interest containing a list of all criminal and civil records of all citizens. All the Italian legal offices are connected to the Criminal Records Database System (SIC) owned by the Ministry of Justice, a centralised database that contains all criminal records data and information on pending charges, as well as all data relating to the records on administrative sanctions incurred through crime and the database of pending charges for administrative offences. Data is entered directly by the registration offices and local offices and through interconnection with the source systems of the criminal system (SICP, SIES, SIPPI). It is also interconnected with the databases of other European records.
ccTLD	Country Code Top Level Domain. The Country Code Top Level Domains are reserved to dependent territories or states and are made up of two letters (e.g. .it, .de, .fr, .uk, .eu, etc.).
CEF Telecom	The Connecting Europe Facility (CEF) is the mechanism by which to connect Europe, a key tool for the EU by which to facilitate cross-border interaction between the public administrations, companies and citizens, by means of the use of digital service infrastructures (DSIs) and broadband networks. Co-financed projects under the scope of the CEF Telecom programme help create the European system of interoperable and interconnected digital services that support and promote the single digital market.

CEN TC 440	CEN TC 440 Technical Committee on electronic public procurement, a technical committee operating within the governance of the European Committee for Standardisation (CEN) responsible for the development of standards in support of electronic public tenders, including pre-award and post-award processes.
Cloud or Cloud Computing	Model by which to enable, by means of the network, the disseminated, easy, on-demand access to a shared, configurable set of processing resources (e.g. networks, servers, memory, applications and services) that can be acquired and released rapidly and with minimal management effort or interaction with the supplier of services.
Cloud Enablement	Cloud Enablement is the evolutionary strategic model for the migration of the existing IT assets to the PA Cloud by means of two main components: the national Cloud Enablement program, i.e. the set of specific projects that will enable the PA to migrate applications to a cloud environment; the Cloud Enablement operating environment (or "framework"), comprising the resources, operating strategies, methodologies and instruments necessary to implement the PA Cloud Enablement Program.
Cloud First	According to the Cloud First principle, when defining a new project and/or developing new digital services, the PA must first adopt the cloud paradigm. In particular, for the SaaS services, before any other technological option, in line with the PA Cloud model and the guidelines to the acquisition and re-use of software for the public administrations.

Hybrid Cloud	The Hybrid Cloud is a combination of the public and private model, i.e. a model whereby the user uses both resources on a private cloud and a public cloud.
Cloud Marketplace	The Cloud Marketplace is the platform that displays the services and infrastructures qualified by AGID in accordance with the provisions of Circulars no. 2 and no. 3 of 09 April 2018. Within the Cloud Marketplace, the technical data sheet can be viewed for each service, which highlights the technical characteristics, the cost and service levels declared by the supplier during qualification.
Cloud Native	In general use, the Cloud Native is an approach towards the creation and execution of applications that natively use services and infrastructures supplied by cloud computing providers.
Private Cloud	Type of cloud installed by the user in his data centre for his own, exclusive use. The main advantage of a Private Cloud is that the services are supplied by laboratories that are in the user's domain and, therefore, they have full control over the machines on which the data is stored and the processes executed.
Cloud Service Provider	Cloud Service Providers are those qualified by AGID, which can supply Public Cloud services to the administrations. AGID qualifications ensure that CSP services and infrastructures are developed and operated according to minimum reliability and security criteria considered necessary for the PA's digital services.

Steering Committee	The Steering Committee for coordinating TO11 (strengthening of institutional and administrative capacity) and TO2 (implementation of the Digital Agenda) interventions has been instituted at the Department of Public Function with a view to assuring the overseeing of strategy and consistency with the Public Administration reform processes.
Community Cloud	Deployment model on infrastructure that supplies Cloud services to a defined community of clients.
Computer Emergency Response/Readiness Team (CERT)	Structure with the task of preventing and coordinating the response to IT incidents. As a rule, a CERT provides information and training on cyber security related matters.
Unified Conference	Joint site of the State-Regions Conference and the State-Cities Conference and local autonomies instituted by Italian Legislative Decree no. 281 of 28 August 1997.
Business Continuity	All activities aimed at minimising the destructive or in any case damaging effects of an event that has struck an organisation or part of such.

Digital Growth	The 2014-2020 Digital Growth Strategy is a national strategic plan that tracks the route useful to the pursuit of the objectives of the Digital Agenda, as part of the 2014-2020 Partnership Agreement. Digital Growth has been prepared by the Presidency of the Council, together with the Ministry of Economic Development, the Agency for Digital Italy and the Agency for Cohesion and approved by the European Commission.
Crowdfunding	Crowdfunding is a collaborative process by a group of people who pool their money to support the efforts of people and organisations.
Crowdsourcing	Crowdsourcing is a process that regards the collective development of a project - as a rule voluntarily or by invitation - by multiple people outside the company conceiving the idea.
Cyber Security Knowledge Base	Knowledge base on which information is collected on the infrastructures developed in the public administration domain and on security events that have occurred over time, within.
Data Application	An application that makes it possible to display and effectively handle a set of data.
Data Catalogue Vocabulary (DCAT)	RDF vocabulary that facilitates the interoperability of catalogues of data published on the web.

Data-Driven	Policies driven by data. The opportunities offered by Big Data technology and the dissemination of the IoT make data analysis a tool by which to construct ever more precise models of reality, thanks to which effective policy strategies can be adopted.
Data Lake	Architectural component for the persistence of data supplied as an input to a Big Data system. In a Data Lake, as a rule data is saved in its natural format (raw DATA) and as obtained from the various sources of information: consequently, in a Data Lake, structured data (e.g. XML, JSON) coexists with semi-structured data (e.g. CSV, logs), unstructured data (e.g. e-mails, documents, PDF files) and binary data (e.g. images, audio, video).
Data Scientist	An expert in data analysis.
Data Service	Category into which the Platforms fall (Chapter 6 of the Three-Year Plan), which ensure access to validated data sources, for example use of personal data assured by ANPR, needed by the PA in order to go about their institutional duties.
Data Retrieval	Process whereby data is searched for and extracted from a database, through a query. It makes it possible to extrapolate data in order to display it and/or use it in an application.

Data Warehouse	Computer archive containing the data of an organisation, designed to allow for the easy production of analyses and reports useful for decision-making.
Dataset	A set of data, generally regarding a single organisation, which is supplied and managed jointly.
Dati.gov.it	Managed by AGID, it is the national catalogue of data of the Public Administrations. In connection with the provisions of Article 9 of Italian Legislative Decree no. 36/2006, as amended by Italian Legislative Decree no. 102/2015 on the "Re-use of public sector information", dati.gov.it is also the tool used to search for data in open format released by the Public Administrations. Data is input into the catalogue in two ways: entry of metadata describing the data through a web application and automatic harvesting from the Public Administrations' data portals.
DCAT Application Profile (DCAT-AP)	European specification for the description of the public sector dataset based on the Data Catalogue Vocabulary (DCAT), to allow for a better cross-border search and of data of the public sector.
Demand Pull	Also known as "Market Pull", this is focussed on the concept that demand determines the direction and dimension of innovation. This approach clashes with the technology push model, based on the idea that it is research and development that drives innovations that will therefore subsequently be introduced on the market.

Design System	Set of guidelines, rules, resources and elements of a user interface, which are used to create digital products, maintaining consistency between different areas of communication, services and websites.
Digital by Default	The services supplied by the PA are produced directly in digital mode. The need therefore follows for an organisational change to the administration through the digitisation of the Back Office processes too.
Digital Disruption	The term Digital Disruption means the time when a new technology gives rise to a change in a given activity and completely modifies the previous business model.
Digital Divide	The divide between those equipped with communication, information and digital processing tools in step with the times and those who do not, for various reasons. The Digital Divide may be infrastructural, economic or cultural.
Digital Economy and Society Index (DESI)	The composite index developed by the European Commission to assess the progress of EU Member States towards a digital economy and society. It aggregates a series of indicators structured around five dimensions: connectivity; human capital; internet use; integration of digital technology; and digital public services.
Digital Experience	The digital experience, i.e. interaction between a user and an organisation (public or private administration) possible only thanks to digital technology.

Digital First	A strategy whereby an organisation distributes a service or product directly in digital mode and on-line, rather than traditionally. In the PA, this means that the services are supplied predominantly digitally. This approach makes it possible to achieve two ends: to foster the dissemination of computer skills amongst citizens; and to boost the modernisation of the Public Administration through the re-engineering of its internal processes.
Digital Single Market	The Digital Single Market is one of the EU's priority policies for the increase of the European economy. The European Commission's strategy is to promote the development of a harmonised, integrated market with no barriers hindering the use of digital and on-line services and technologies.
Disaster Recovery	The set of technical and organisational measures adopted to ensure the organisation the function of the data processing centre and procedures and IT applications of the organisation, at sites that are alternatives to the primary/production sites, if events should occur causing, or potentially causing, their prolonged unavailability.
Digital Domicile	The Digital Domicile, as defined by Article 1 of the CAD, is an electronic address elected at a certified electronic mail service or a qualified certified electronic delivery service, which constitutes the digital point of reference for citizens and businesses, as defined by Regulation (EU) no. 910 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market.

Application Domain	Context in which a software application operates, above all with reference to the nature and meaning of the information to be handled.
Dual-Stack	Solution used to manage the transition from IPv4 to IPv6. The Dual-Stack technique envisages the use of a double IP stack in the protocol stack. This double stack makes it possible to interpret both versions of the protocol and, therefore, sort the contents of the package to a greater degree, without them knowing from which IP protocol it derives.
Computerised Copy	The computer document obtained by saving, to the same device or different devices, the same sequence of binary values as the original document.
e-Certis	The on-line register of certificates, a service offered by the European Commission to standardise the requirements for taking part in tenders, indicating, for each requisite and each Member State, what associated evidence can be submitted.
E-Government/eGOV	Digitised management system of the Public Administration aiming to optimise and improve the entities' internal processes and offer quicker, more innovative services to users.
Early Adopter	These are the administrations that try out the use of an infrastructure or application to conduct extensive tests before they are opened up to the whole of the PA.

EGDI (E-Government Development Index)	Indicator that measures the effectiveness of E-Government in the supply of basic social and economic services to people in five sectors: education, health, work and employment, finance and social welfare. The assessment assesses the performance of the E-Government of a country in relation to others and not in absolute terms. The methodological framework used to collect and assess the data of the analysis is based on three dimensions: the adequacy of the Telecommunications infrastructures, the capacity of the human resources to promote the ICT and the availability of on-line contents and services.
Electronic Identification Authentication & Signature (eIDAS)	The eIDAS Regulation - Regulation EU No. 910/2014 on digital identity - aims to provide a regulatory basis at the EU level for trust services and the means of electronic identification of member states.
European Interoperability Framework (EIF)	Framework defined by the European Commission to promote the supply of public services within the Union. It contains a set of recommendations and definitions to: promote and support the supply of public services, fostering cross-border and cross-sector interoperability; guide public administrations in the supply of services to businesses and citizens; make the various national interoperability frameworks (NIFs) complementary and tied on a European level. It describes how organisations have agreed, or should agree, to interact with each other. It therefore supplies the policies and recommendations that form the basis for the selection of the standards to be adopted in interaction between organisations.

Registered Family	The Registered Family is a set of people bound to each other by ties of marriage, family relationship, affinity, adoption, protection or emotional ties. The members must live together and have their usual place of abode in the same municipality (Article 4 of the Decree of the President of the Republic no. 223 of 30/05/1989).
PA Invoice	The 2008 Financial Act established that all invoices with regards to State administrations must be issued electronically, through the Exchange System (SDI). The PA Invoice is the type electronic invoice format accepted by the administrations that, according to the law, must use the Exchange System. The information contained in the PA Invoice establishes the information that must be given on the invoice insofar as tax relevant, in accordance with current legislation.
FICEP	FICEP is the first “Italian cross-border server”: its implementation will make it possible for Italian digital identities to circulate amongst all European Union Member States.
National Cyber Security Framework (FNCS)	The contents of the Italian Cyber Security Report 2015 of the CIS Sapienza and published in February 2016, developed with the assistance of AGID. The document aims to offer organisations a homogeneous approach by which to deal with cyber security, so as to reduce the risk connected with the cyber threat. The approach taken by the framework is intimately linked to a risk analysis and not to technological standards.

Front End	In computing, this refers to the interfaces intended for a user. A Front End application is a program with which the user interacts directly.
Front Office	This is juxtaposed against the Back Office and represents all the structures of an organisation that handle interaction with the end user. In the case of the PA, the Front Office is represented by the various channels through which a service is supplied (from traditional offices to digital services), information desks and public relations offices.
Functional Urban Area (FUA)	The Functional Urban Area (FUA) consists of an urban and non-urban fabric, involved by the same demographic, economic, employment, cultural, mobility, distribution and production and social flows. It may have monocentric characteristics, with a predominant urban centre, or be polycentric, with more than one urban centre, connected by said flows. The FUA do not, as a rule, coincide with territorial administrative divisions; rather, they go beyond such confines, constituting territorial and social-economic entities in their own right.
Fuzz Test	Automatic test technique carried out using software whereby invalid, unexpected or random data is entered into a computer program. The program is monitored to make sure that there are no anomalies.
Gap Analysis	The Gap Analysis is the set of activities that makes it possible to compare the current (as-is) position with that desired (to-be) in respect of industry best practices, voluntary standards, laws and targets.

	The Gap Analysis therefore highlights differences with respect to expectations and, consequently, the improvements to be made in order to achieve the desired result.
Geo DCAT-AP	Extension of the European DCAT-AP profile, to describe sets of geospatial data and the related services. It offers an RDF syntax of the meta data included in the core set of the standard ISO 19115:2003 and that defined by European Regulation 1285/2008 as part of the INSPIRE Directive. The profile seeks to provide tools useful in the exchange of descriptions of data and territorial services between data portals that are not strictly geographic, using a common exchange format.
Public Service Managers	The companies and entities organised in corporate form, which manage public services.
Human Centred Design	Approach to the development of interactive systems that aims to make systems usable and useful, focussing on the users, their needs and requirements and applying knowledge on the human factor/ergonomics, usability and related techniques (ISO 9241-210:2010)
Identity Provider	Accredited digital identity providers in accordance with Art. 4 of Prime Ministerial Decree of 24 October 2014. Legal entities accredited with the SPID which, as Public Service Managers, after properly identifying the user, assign, make available and manage the attributes used by the user for is computer identification.

	They also provide the services necessary to manage the attribution of the digital identity to users, the distribution and interoperability of access credentials, the confidentiality of the information managed and the computerised authentication of users.
Indicators of Compromise	Indicators of Compromise provide technical information that, if observed on a network or in a system, suggest, with a high degree of likelihood, that there has been an intrusion or compromise.
Information and Communications Technology (ICT)	Set of methods and technologies linked to the transmission, receipt and processing of information. In general, it is also used to describe the area of technological and industrial activity relative to the communication and processing of information.
Infrastructure as a Service (IaaS)	Cloud service model. The faculty offered to the consumer is that of acquiring processing, memory, network and other resources essential to the calculation, including operating systems and applications. The consumer neither managers nor controls the underlying cloud infrastructure but does control the operating systems, memory, applications and, potentially, to a limited extent, some network components (such as firewalls).
QXN2 Infrastructure	Qualified exchange network, which represents the nodal element for the interconnection of the networks of SPC Qualified Suppliers, the International Network (RIPA), the Regional Community Networks and the SPC Shared National Infrastructures.

Critical Infrastructures	A set of infrastructures on whose continuous, coordinated function the development, security and quality of life depend in industrialised countries. The destruction, interruption or even only partial or temporary unavailability of the CIs significantly weakens the efficiency and normal operation of a country, as well as the security and social and economic-financial system, including the equipment of the central and local public administration. By way of example, physical infrastructures include the electricity and energy system, the various communication networks, the people and goods transport infrastructures and networks (air, ship, rail and road), the health service, the economic-financial circuits, the support networks of the government, regions and local entities and those for emergency management.
Innovation Procurement Broker	Go-between operating to facilitate the bringing together of the public demand for innovative solutions and market supply.
Service Interface	Service Interface means the presentation of the application functions necessary to provide a digital service.
Interoperability by Design	Characteristics of a product or system, whose interfaces are designed in such a way as to function in an interoperable manner - with other products or systems being implemented or accessed - with no restrictions.

Lock-In	This takes place when an agent or set of agents are trapped within a choice or economic balance, which is difficult to escape, even if potentially more efficient alternatives are available. For businesses and organisations, we talk about a technological lock-in where investment has been made in technology that has proven to be inferior to other options available, but it is expensive to exit from the investment made. The cause of the difficulty may lie in the presence of fixed investment costs that would be lost or the external nature of the networks created between a group of businesses or organisations using the same technology, making the move to another standard highly complex.
Machine Learning	As the term suggests, a form of automatic learning. Scientific discipline relating to the area of Artificial Intelligence, involving algorithms and methods that are useful to training programs to automatically supply a response to specific problems.
Evolutive Maintenance	The Evolutive Maintenance (of a website, app or software) consists of interventions aimed at improving the product through architectural evolutions, the introduction of new functions, changes to existing ones, integration with other functions/services, including in relation to non-functional aspects such as usability, performance, accessibility and also in terms of application interoperability with third party systems.
Timestamp	A Timestamp is a sequence of characters that represents a date and/or a time to ascertain the effective occurrence of a specific event.

PA Electronic Market (MePA)	Digital market in which enabled administrations can purchase, for less than the Community threshold, the goods and services supplied by suppliers enabled to submit their catalogues on the system. Consip uses specific tenders to define the types of goods and services and the general conditions of supply, managing supplier qualification and the publication and update of catalogues.
Metadatation	Assigning descriptive data to It data through standard, non-proprietary language that can be understood by all computer systems.
Metadata	This is an item of information that describes a data set. In ICT, metadata provides a structured description of the properties of data. Metadata can also be used to allow for a functional use of documents as part of a given computer system. Indexing with a homogeneous metadata pattern makes interoperability possible including between different resource types.
Agile Methodology	A set of software development methods that is based on a less structured approach than traditional methods, with the aim of developing functional software in a short space of time. The functions are added for subsequent cycles (iterations), through the release of demos and interaction with the client. At the end of each iteration, the software is functional and has new functions with respect to the previous iteration. The iterations continue until the product is definitively complete.

Minimum Viable Product (MVP)	In developing a product or service, this indicates the minimum stage of development whereby the product can be tested or introduced to the market.
Mobile First	Approach that sets the supply of a digital service from a mobile channel (app and/or website) before thereafter extending the supply through a website suitable for desktop browsing.
SP-COOP Model	Public cooperation system. This is the infrastructure enabling application communications between public entities.
Multi-Layer Architecture	Software architecture typically used in developing client-server applications, in which the presentation, application processing and data management logics are decoupled to make the solution more flexible and increase re-usability of the software developed.
Multi-Tenant	The term “Multi-Tenant” is used to refer to a software architecture where an individual instance of said software is executed by a server and used by various organisations. Each of these, with their own environmental specificities, which conceptually constitute a specific “tenant”, sees the software for its own exclusive use.
National Vulnerability Database (NVD)	United States government repository containing data on the vulnerabilities and based on the Security Content Automation Protocol (SCAP) standards that enable the automated management of vulnerabilities, security measures and conformity.

Technology Neutrality	Principle introduced into European legislation by the 2002 “telecommunications package” (2002/21/EC, 2002/20/EC, 2002/19/EC, 2002/22/EC, 2002/58/EC). This principle envisages: the non-discrimination between specific technologies, the non-imposition of the use of a particular technology with respect to others and the possibility of adopting reasonable measures in order to promote certain services regardless of the technology used.
Onboarding	The term “Onboarding” is used to refer to the process regarding the progressive inclusion of subjects - e.g. public administrations - in a project or process.
Once Only	Principle whereby the Public Administrations must avoid asking citizens and businesses for information that has already been supplied. The Public Administrations then share this data between their offices, so as not to make further demands on citizens and businesses. On a European level, the “Once only principle” is a key element of the “Administrative Burden Reduction (ABR) priority, crucial to achieving an Efficient and Effective Government, as set as a priority in the EU eGovernment Action Plan 2016 - 2020 (COM (2016) 179).
Ontology	A formal model used to represent reality and knowledge. In computing, it is the explicit formal description of the concepts of a domain in the form of a set of objects and relations, a data structure that can describe the entities and their relations in a given area of knowledge.

Open Government Partnership	International initiative that seeks to obtain concrete commitments from governments in terms of promoting transparency, supporting civic participation, fighting corruption and disseminating, both within and outside the Public Administrations, new technologies in support of innovation.
Open Innovation	A paradigm on which basis, in order to create more value and be more competitive, it does not suffice to merely base assumptions on ideas and internal resources; rather technological skills and instruments are also required, which come from the outside, introducing process and product innovation.
OpenPEPPOL	Non-profit association founded on 01 September 2012, after completion of the Pan-European Public Procurement Online (PEPPOL) project. It governs the infrastructure and business rules of the European PEPPOL network on an international level, for the transmission and interoperability of the documents linked to the various phases of a procurement process.
Opex	Operating Expenditure.
Payment and Collection Orders (OPI)	The computerised order is electronic evidence used by the Public Administrations to send their Treasury Banks payment and collection orders. It is fully valid in both administrative and accounting terms and can therefore replace a paper order to all intents and purposes.

TO - Thematic Objective	The Thematic Objectives are the areas common to the whole of the European Union that the cohesion policy has established in support of growth for the period 2014-2020.
TO2 - Thematic Objective 2	Thematic Objective aimed at enhancing access to, and use and quality of information and communication technologies (ICT).
TO11 - Thematic Objective 11	Thematic Objective aimed at enhancing institutional capacity of public authorities and stakeholders and an efficient public administration.
Pan European Public Procurement OnLine (PEPPOL)	Pan-European Public Procurement Online (PEPPOL) project established by the European Commission with the aim of simplifying e-procurement through the borders of Member States, by means of the use of standard technologies that can be adopted by all European governments.
Payment Card Industry Compliance	Compliance with the PCI (Payment Card Industry) DSS (Data Security Standard) is the adhesion to the set of policies and procedures developed to guarantee information security about credit and debit cardholders, regardless of their collection, processing, transmission and archiving methods or positions. PCI DSS compliance is required of all card brands.

Payment Services Directive 2 (PSD2)	Directive (EU) 2015/2366 of the European Parliament and Council of 25 November 2015 on payment services in the internal market, promoting the development of an efficient, secure, competitive payment market, strengthening user protection, supporting innovation and increasing the security level of electronic payment services.
Penetration Test	The Penetration Test is the operative process by which to assess the security of a system or network that simulates attack by a malicious user.
Trade Receivable Platform (PCC)	The Trade Receivable Platform serves to certify and track transactions on receivables due from the PA for contracts, supplies, provisions and professional services.
National Museum System (NMS) Integration Platform	Computer platform that enables the network connection of all Italian museums, making it possible to manage the accreditation process with the National Museum System and offer museums centralised services and tools that can improve the offer for citizens and tourists.
Infosec Platform	The data and information aggregation platform managed by CERT-PA that aims to supply a tool by which to correctly assess cybernetic threats towards the IT infrastructures.
Platform as a Service (PaaS)	Cloud service model. The faculty supplied to the consumer is that of distributing applications on the cloud infrastructure created alone or purchased from third parties, using programming languages, libraries, services and instruments supported by the supplier.

	The consumer does not manage or control the underlying cloud infrastructure, including network, server, operating systems and memory, but it does control applications and potentially the configurations of the environment hosting them.
National Strategic Pole	Set of IT infrastructures (centralised or distributed) with high availability, of public property, chosen for the National Strategic Pole by the President of the Council of Ministers and qualified by AGID to supply other administrations, continuously and systematically, with on-demand infrastructural services, disaster recovery and business continuity services, IT security management services and assistance to users of the services supplied.
Storage Pole	Data centre specialised in the storage of digital documents of the PA through an electronic storage system that guarantees the authenticity, integrity, reliability, legibility and availability of the computerised documents, as envisaged by the CAD (Art. 44).
Pre-Commercial Procurement (PCP)	Pre-commercial tenders aimed at promoting innovation in order to guarantee high quality, sustainable public services in Europe. The EC COM (2007) 799 defines its characteristics as follows: the field of application is limited to R&D services; sharing of the risks and benefits applies (the public buyer does not reserve the results of the R&D activities to its exclusive use); they are competitive tenders aiming to avoid State aids. Article 19 of Decree Law 179/2012 identifies the AGID as the purchasing body of pre-commercial tenders on behalf of the regions and other competent administrations.

Process Service	Category into which the Platforms fall (Chapter 6 of the Three-Year Plan), which digitally develops a complete process, for example procurement assured through the Public e-procurement tools, of which the PA become the users.
Dual-Stack IPv4/IPv6 Protocol	Network protocol (Based on the Dual-Stack approach that envisages the use of double IP stack in the protocol stack), which, under the scope of the transition IPv4/IPv6, fosters the gradual transfer from the IP level protocol, from version 4 to version 6.
eGLU LG Protocol	The eGLU Protocol for the running of usability tests is a tool designed for those working in the management of institutional and themed websites of all public administrations; it can also be usefully adopted by anyone who, in the PA, provides on-line services and websites.
Public Cloud	Deployment model on infrastructure that supplies Cloud services to a generic client portfolio (not pre-defined).
Re-Hosting	Migration model of the application fleet. Technical, this is the porting of one or more legacy applications, through to the whole system, towards open and standard environments (Microsoft, Unix, Linux), without any re-conversions or rewriting of the source codes and, above all, without mission critical applications undergoing functional changes.

Companies House	Database of national interest owned by the Chambers of Commerce, with which all entrepreneurs must register. It contains data on the establishment, financial transactions and other acts of companies operating on national territory.
Representational State Transfer (REST)	Architectural style to describe the architecture of the modern worldwide web and to guide the design and implementation of web applications.
Resource Description Framework (RDF)	Language that allows for the representation of data and metadata through the definition of assertions, called triplets, according to the pattern “subject”, “predicate” and “object”. It is the mark-up language on which the semantic web is based.
Statistical Secret	Regulated by Art. 9 of Decree Law no. 322 of 06 September 1989, the Statistical Secret comes as part of the more extensive protection of personal data envisaged by the Personal Data Protection Code (Italian Legislative Decree no. 196/2003) and, in particular, Annex A3, called the “Code of Ethics for the processing of personal data for statistical purposes in a Sistan environment”. This is the tool by means of which rigorous protection is afforded to the right to confidentiality of citizens whose data is recorded. This data, therefore, is only used for statistical purposes and can only be disseminate din aggregate form and in such a way as to ensure that the person to whom the information refers, cannot be identified.

SEPA Direct Debit (SDD)	Telematic payment instrument to arrange for collections within the SEPA countries. The SEPA Direct Debit makes it possible, at the same conditions, to reach all bank accounts in the SEPA area, which admit direct debits. The SEPA Direct Debit can only be activated by the Creditor, by virtue of a mandate received from the Debtor.
Service Level Indicator (SLI)	Quantitative measurement defined by a specific aspects of the quality of the service level (e.g. number of requests per second, latency, throughput, availability, etc.).
Service Metadata Publisher (SMP)	Publication of the service metadata. SMP describes a protocol for the publication of metadata of the service within a 4-corner network.
Service Oriented Architecture (SOA)	Architectural model for the design of distributed software systems based on the concept of service, where service is defined as a software module that displays an interface (or contract) used to describe the functions offered.
Back Office Services	In regard to the Plan, these are the digital services used by the Public Administration to go about its institutional duties and which do not envisage any contact with the end user (citizens and businesses).
Storage Management Services	Management, maintenance and specialised support services for hardware and software infrastructures, i.e. the set of services and activities aimed at guaranteeing the complete operation of the technological infrastructures, the availability and performance of the applications installed on them and the integrity of the related data.

Qualified Trust Services	The term “Trust Service” is used to refer to a set of electronic services, generally supplied in exchange for payment. In the eIDAS Regulation, the following are defined as Trust Services: services involving the creation, verification and validation of electronic signatures, electronic seals, electronic time validations, certified electronic delivery services; certificates relative to said services; services involving the creation, verification and validation of website authentication certificates; signature storage services; electronic certificates or seals relative to such services. Qualified Trust Services are supervised by specific national government organisations, in Italy this is the AGID.
Front Office Services	In regard to the Plan, these are the digital services the Public Administration supplies to its users.
Information Security Management System (ISMS)	Instrument that allows for the systematic, continuous control of the processes regarding the security of all the company’s information, not only in IT terms (electronic or paper storage devices used to store documents and data) but above all in managerial and organisational terms, defining the roles, responsibilities and formal procedures for the company’s operation.
Electronic Invoice Exchange System (SDI)	The Exchange System, managed by the Revenue Agency, acts as a hub between the players concerned: it receives the invoice files in XML PA Invoice format, from the economic operator and, after having checked that it is formally valid and correct, forwards it onto the electronic invoicing offices of the administrations identified by the addressee code indicated on the invoice.

In-House Companies	Public companies established as corporations, typically joint-stock companies, whose capital is held entirely or partly, directly or indirectly by a public entity, which entrusts them with instrumental or production activities.
Investee Companies	Companies whose shareholders include one or more public administrations.
Software as a Service (SaaS)	Cloud service model. The faculty supplied to the consumer is that of using the supplier's applications that function on a cloud infrastructure. The applications can be accessed from various devices through a thin client interface, such as, for example, an e-mail application on a browser or programs with a specific interface. The consumer does not manage or control the underlying cloud infrastructure, including the network, server, operating systems, memory and even the capacity of the individual applications, with the possible exception of limited configurations intended for him (parametrisation).
Software Development Kit (SDK)	Development package for applications that consists of a set of software development tools allowing for the creation of applications for software packages and software frameworks.
Public Connectivity System (SPC)	The set of technological infrastructures and technical rules that aims to "federate" the ICT infrastructures of public administrations, in order to create integrated services through shared rules and services.

	This integration saves on both the cost and time of developing the final services hinged on the user, avoiding continuous requests for data by the administrations, as well as the duplication of information and controls.
Spending Review	The State spending review performed for the function of its offices and supply of services to citizens, with a view to reducing waste and improving budgets.
Standard SOAP (Simple Object Access Protocol)	The Simple Object Access Protocol (SOAP) is an XML-based protocol that allows two applications to communicate with each other over the web. Published by the W3C in December 2001. (SOAP Version 1.2 Part 0, SOAP Version 1.2 Part 1, SOAP Version 1.2 Part 2)
Stress Test	In reference to the client-server type architecture, this is a type of test that envisages the incremental increase in the number and/or frequency of requests for service sent to the server, with the aim of reaching breaking point. Stress tests determine the server's maximum "capacity" and allow for the effects of an overload to be verified.
Switch Off	Abolition, in relations between PA and citizen, of all physical and paper interaction. The dematerialisation of relations with the PA is the key tool by which to simplify administrative action, reduce costs, increase administrative efficiency and effectiveness and improve the quality of services supplied.

AI Task Force	The AGID AI Task Force studies how the dissemination of Artificial Intelligence (AI) solutions and technologies can affect the evolution of public services by which to improve the relationship between the Public Administration and citizens.
Task Service	Category into which the Platforms fall (Chapter 6 of the Plan), which implement individual functions transversal to the realisation of digital administrative proceedings, such as the authentication of users through SPID, which the PA integrate into their systems.
Technical Writing	Activity involving the writing of guides that help users carry out their technical tasks relating to the satisfaction of a need.
Troubleshooting	A logical, systematic process by which to search for the cause of a problem affecting a product or process.
Universal Design	Design of products, environments, applications and services for use by the most possible people, with no need for adjustment. This approach requires research and analysis of potential users and the context in which they operate, including people using assistive technologies.
Usability	The degree to which a product can be used by specific users to reach certain objectives effectively, efficiently and to a satisfactory degree, in a specific context of use.

User Interface	The user interface is a human machine interface, i.e. what comes between a machine and a user, allowing for reciprocal interaction and dealing with the appearance, presentation and interactivity of a product.
UX	In IT, the term “User Experience” means the” a person's emotions and attitudes about using a particular product, system or service” (ISO 9241-210).
Virtualisation	Method by which to execute applications in which they are installed on a representation (hence the term “virtual”) of a real computer, obtained via software and called a “virtual machine”. In turn, “virtual machines” transfer (are executed) above a software layer (usually called the “hypervisor”), which simulates the availability of the hardware infrastructure for all virtual machines.
Workflow	“Workflow” means the automation of a process, entirely or partially, during which the documents, information or tasks go from one party to another in order to carry out a specific action, according to that specified by a set of carefully-defined procedural rules. The workflow is therefore the description of a business process and it consists of a series of elementary activities (tasks), which may be cyclical or alternatives, to be performed in order to obtain a specific result.

ANNEX 2. Recording of ICT spending of the PA in 2018 - Summary report

A2.1 Note on methodology

The Recording of the Public Administration's ICT spending, which has accompanied the preparation of the 2019-2021 Three-Year Plan, is based on the following assumptions:

- reference context:
  - 2017-2019 Three-Year ICT Plan for IT in the Public Administration;
  - Digital Growth Strategy Document;
  - Digital Administration Code (CAD), Art. 14 bis;
  - 2016 Stability Law, Article 1, paragraphs 510-516;
- cost classification criterion: the macro items and items are identified in a homogeneous manner for all Public Administrations, starting from the SIOPE management codes glossary for Regions and local entities, in its 2017 version;
- cost allocation criterion: "enhanced" financial competence for the 2016 balance, therefore mandates with Exercise Financial Origin 2016; economic competence for the years 2017-2019, in particular for 2017 the request was made to indicate the commitments, while for the two years 2018-2019, forecast data.

To facilitate its completion, the questionnaire was configured on an on-line platform and, in support of the Entities involved, a user's manual was prepared giving details on the functions, as well as a Help Desk Service.

In October-December 2017, a trial phase took place of the recording, involving a pilot group of Entities representing the different types comprising the panel; it consists of two central administrations, four regional administrations and four metropolitan cities, with the aim of sharing the method of collection and verify the completeness of the questionnaire prepared to collect the data.

The trial envisaged several meetings with each Entity of the pilot group, thanks to which it was possible to validate the structure of the questionnaire proposed, and supplement and improve its specific contents.

The data collection phase ended in March 2018 and was followed by verification and consolidation, for which monographic reports were prepared for validation and potential supplementation by the Entities involved.

The structure of the questionnaire, laid out in 5 sections:

1. **General information**: data relating to the Entity database and the internal organisation of the ICT Department as at 31/12/2016 and, where available, also for the three years 2017-2019, relative to the Entity dimension.
2. **Nature and instruments used for purchases**: data on annual ICT spending, divided up according to
    a. **nature**, according to categories and macro categories defined starting from the SIOPE management codes glossary for regions and local entities, in the 2017 version;
    b. **procurement channel**, between spending by means of Consip/Purchasing Body instruments and off-Consip/Purchasing Body spending.

Within this query, the ICT spending of the Public Administration is structured into macro categories by nature of cost:

- **Capex spending (investments made in technological innovation)**
    - Hardware purchases:
        - § client PC Desktop, notebook;
        - § tablets and telephones;
        - § printers and photocopies;
        - § network devices;
        - § servers and components;
        - § plant and machinery;
        - § other hardware.
    - Purchases of software development services:
        - § generic applications;
        - § software packages available on the market;
        - § contact centre applications;
        - § CRM applications.
- **Opex spending (expenses for the maintenance and operative management of technology)**
    - Licence purchases:
        - § standard and commercial software licences;
        - § software licences developed ad hoc.
    - Hardware/software maintenance and assistance/monitoring of applications:
        - § maintenance of office machines, equipment and global IT service;
        - § software operation and maintenance.
    - Purchase of other services:
        - § machinery hire;
        - § cloud services (utilities and charges, access to databases and on-line publications);

§ cloud services (charges for projects in public-private partnership and service charges);
§ landline telephone services;
§ mobile telephone services;
§ data and telephony connectivity services;
§ managerial consultancy, governance and PMO services;
§ interoperability and cooperation;
§ ICT training;
§ other network and VoIP services;
§ other security services;
§ other document management services;
§ other ICT services.

3. Purpose and scope: spending data, divided up according to the macro categories indicated in the section on "*Nature and instruments for procurement*", with respect to the components of the "Strategic Model for the Evolution of the PA IT System" of the Three-Year Plan.

4. Projects: data on the ICT project expenditure in relation to the most expensive projects, above the Community threshold or, if below the threshold, consistent with the contents of the 2017-2019 Three-Year Plan. In the "Projects" section, the Entity has been asked to enter the projects (up to 40) expiring in the second half of 2018 or in the start-up phase. For projects in progress relative to the adjustment to the enabling platforms, inclusion was requested regardless of whether or not it will end after 2018.

5. Tenders: data on the most important ICT tenders (up to 15) above the Community threshold, to be called or being defined.

In order to determine the total spending of each Entity, only the data entered in section 2 "Nature and instruments for procurement" was processed. The data and information given in the other sections was instead used for qualitative-quantitative processing, relative to the plans of each Entity with respect to the contents of the Strategic Model and, in general, functional to the preparation of this Three-Year Plan.

The data and information thus collected was standardised and made homogeneous before being summarised in the tables and figures given below. It is stressed that in the processing of the approximately 800 projects reported by the PA, the minimum level of homogeneity of the data supplied was achieved for 706, included in the analysis.

A2.2 Figures and tables

Table 1. General information

Data relating to the Entity database and the internal organisation of the ICT Department

The table below sets out the ratio of ICT staff who are not employees of the PA as compared with the total number of staff operating in the ICT sector of the administration.

Non-employed ICT workers/ICT employees + non-employed ICT workers				
ENTITY TYPE	**2016**	**2017**	**2018**	**2019**
PAC	9%	8%	10%	12%
Regions	43%	45%	51%	51%
PAL	12%	3%	3%	3%

Figure 1. Breakdown of ICT spending by type Capex/Opex

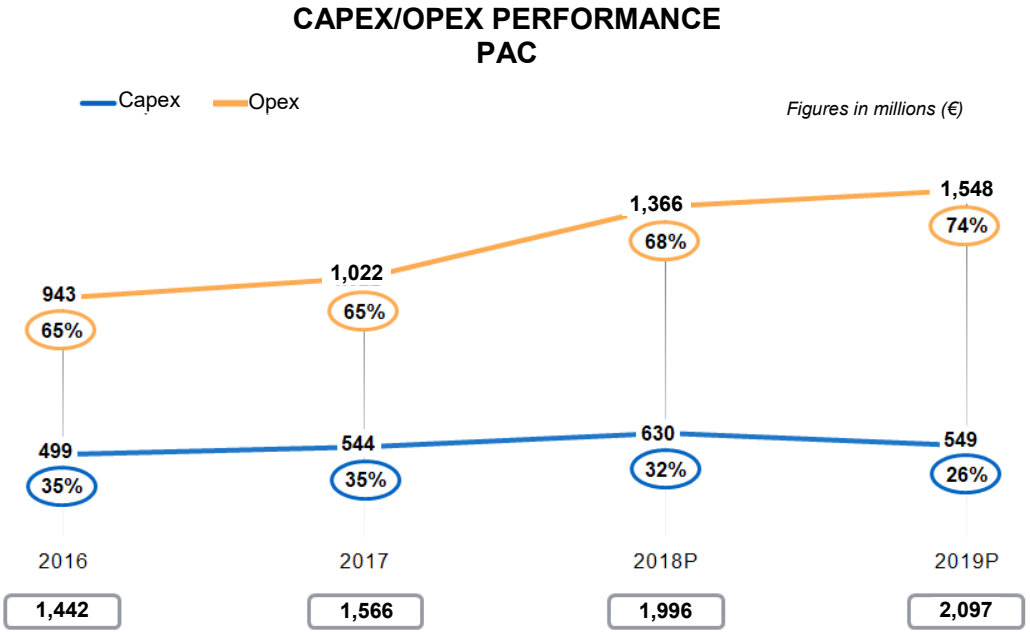


Figure A2.1.- Breakdown of ICT spending by type Capex/Opex in the central administrations

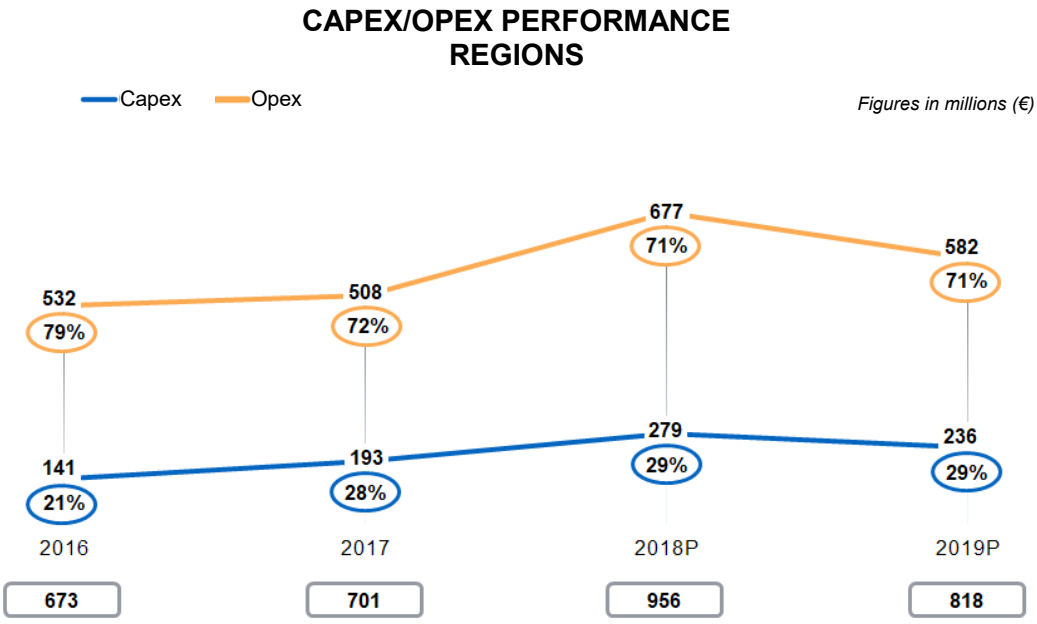


Figure A2.1.2 - Breakdown of ICT spending by type Capex/Opex in regions

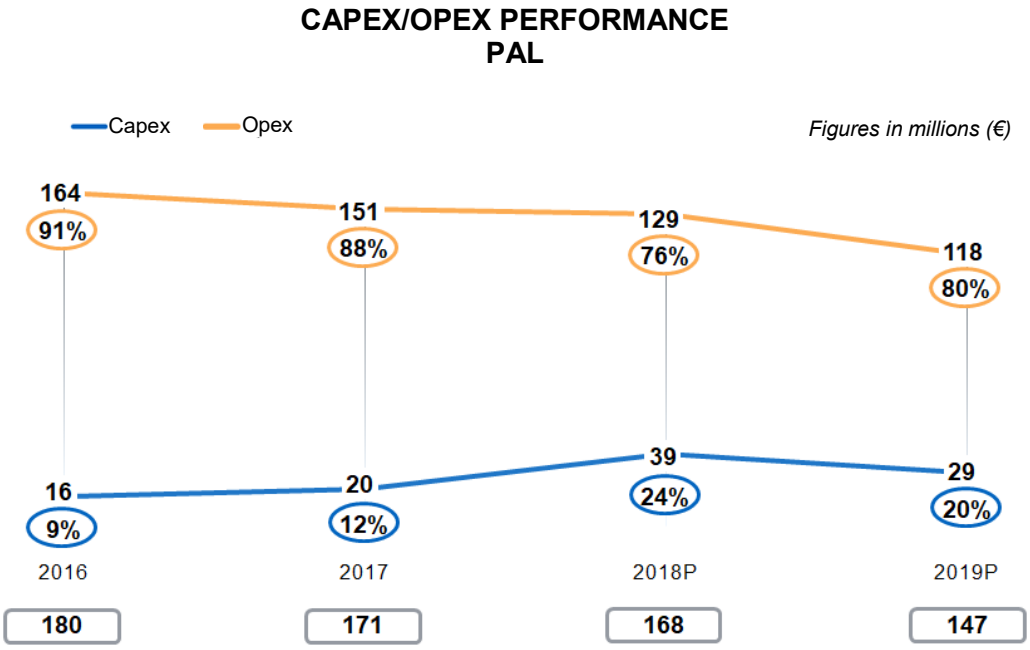


Figure A2.1.3 - Breakdown of ICT spending by type Capex/Opex in local administrations

Figure 2. Breakdown of ICT spending by procurement channel

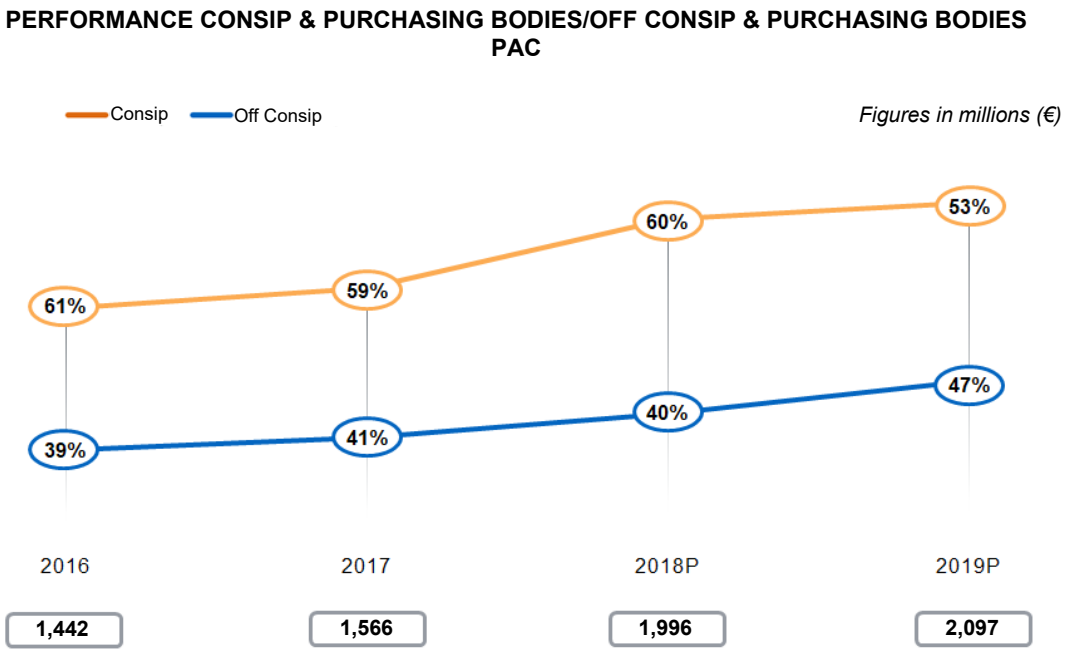


Figure A2.2.1- Breakdown of ICT spending by procurement channel in the central administrations

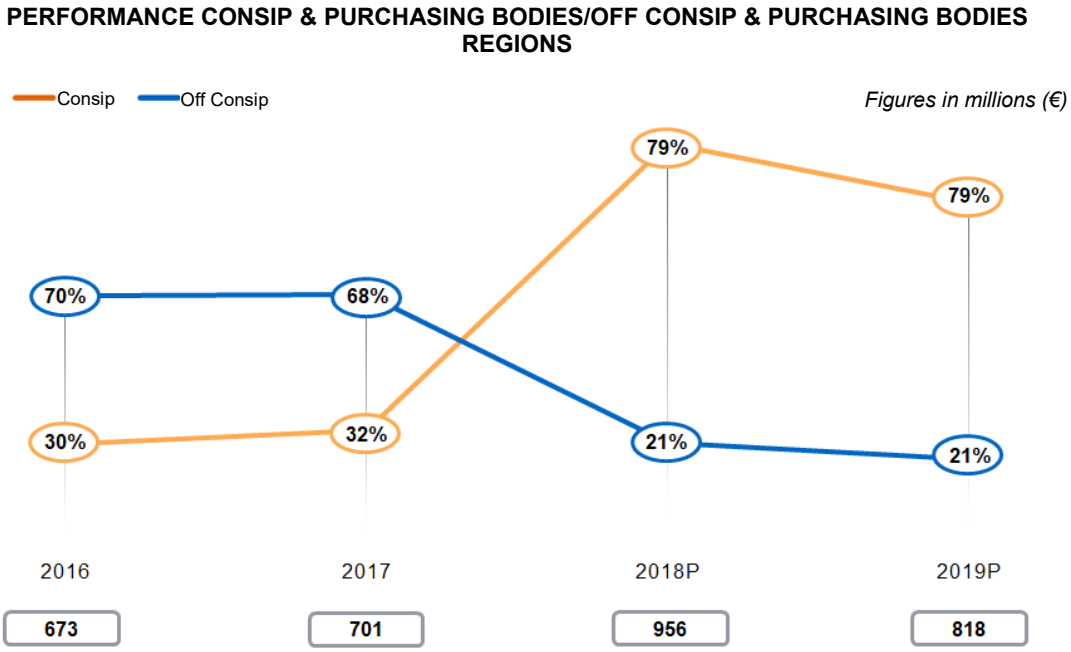


Figure A2.2.2 - Breakdown of ICT spending by procurement channel in regions

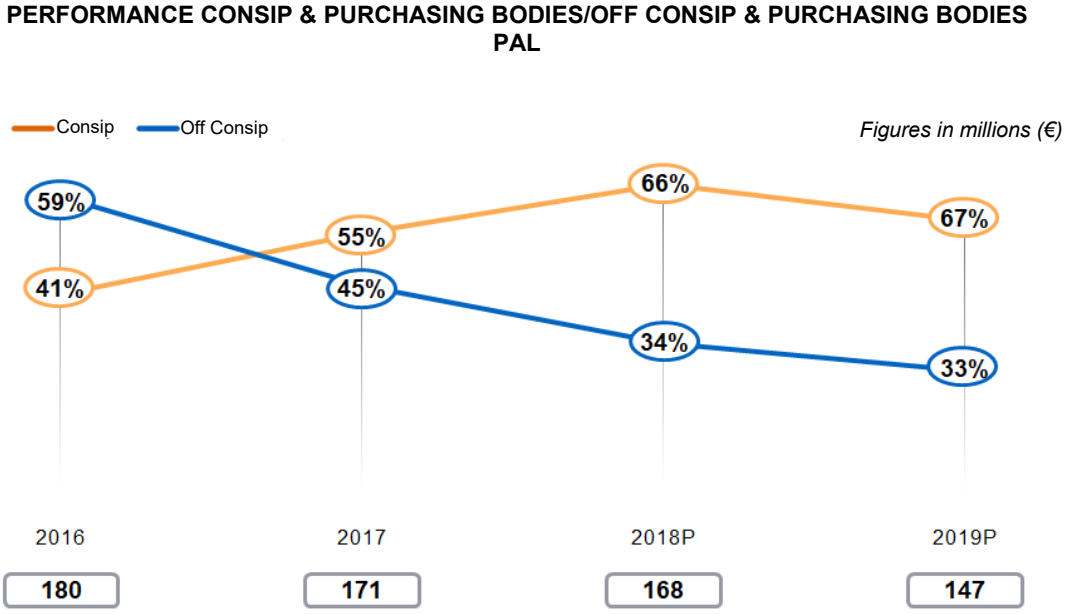
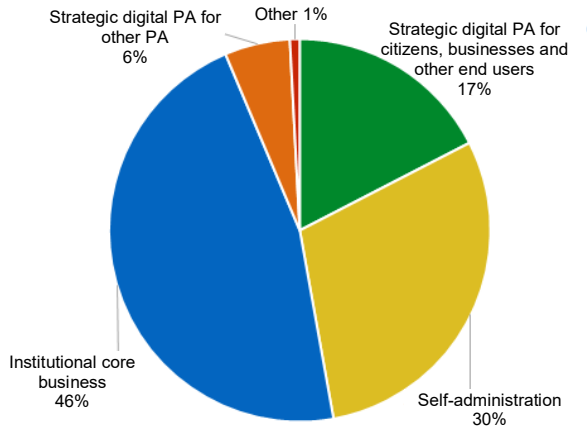


Figure A2.2.3 - Breakdown of ICT spending by procurement channel in local administrations

Figure 3. Distribution of PA ICT projects by type

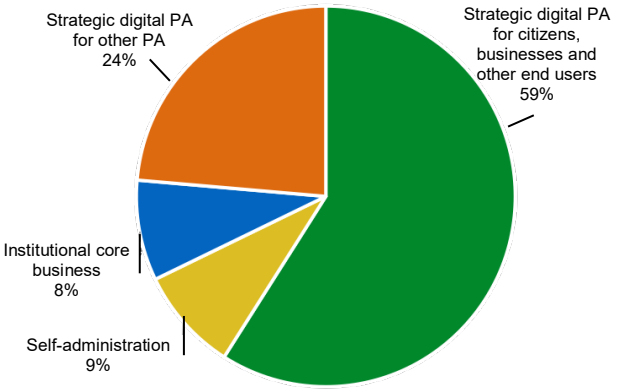
Central administrations



PA ICT projects	Total amount for three years 2017-2019 (€)	No. projects
Institutional core business	1,304,269,622	165
Self-administration	834,056,868	62
Strategic digital PA for citizens, businesses and other end users	489,639,504	75
Strategic digital PA for other PA	155,717,398	33
Other	23,147,891	5
TOTAL	**2,806,832,283**	**340**

Figure A2.3.1 - Distribution of central PA ICT projects by type

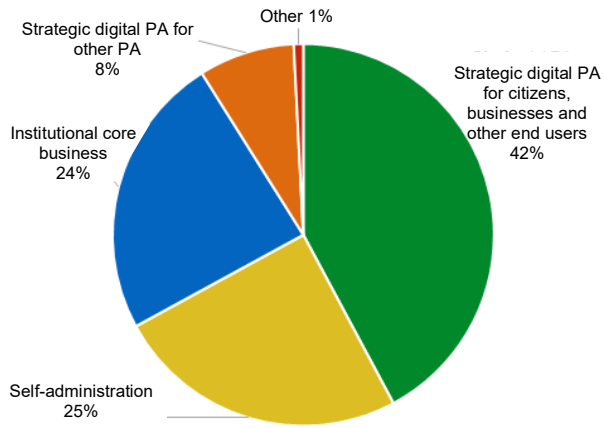
Regions



PA ICT projects	Total amount for three years 2017-2019 (€)	No. projects
Strategic digital PA for citizens, businesses and other end users	600,790,210	111
Strategic digital PA for other PA	241,034,372	50
Self-administration	89,655,065	30
Institutional core business	86,960,677	29
TOTAL	**1,018,440,324**	**221**

Figure A2.3.2 - Distribution of central regions ICT projects by type

Local administrations

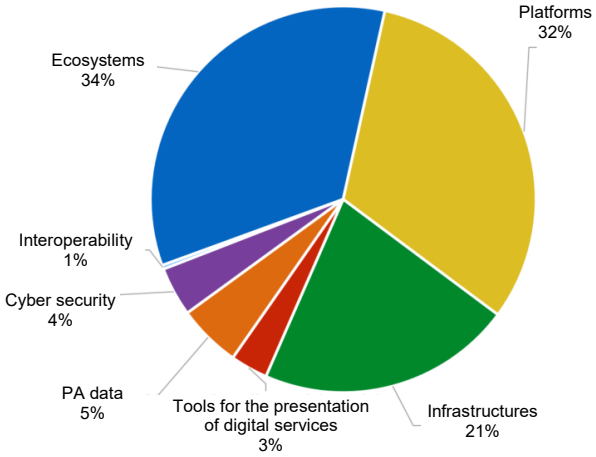


PA ICT projects	Total amount for three years 2017-2019 (€)	No. projects
Strategic digital PA for citizens, businesses and other end users	78,724,403	67
Self-administration	46,465,539	37
Institutional core business	44,813,806	23
Strategic digital PA for other PA	15,191,961	15
Other	1,490,000	3
TOTAL	**186,685,709**	**145**

Figure A2.3.3 - Distribution of local PA ICT projects by type

Figure 4. Distribution of PA ICT projects by macro areas of the Strategic Model

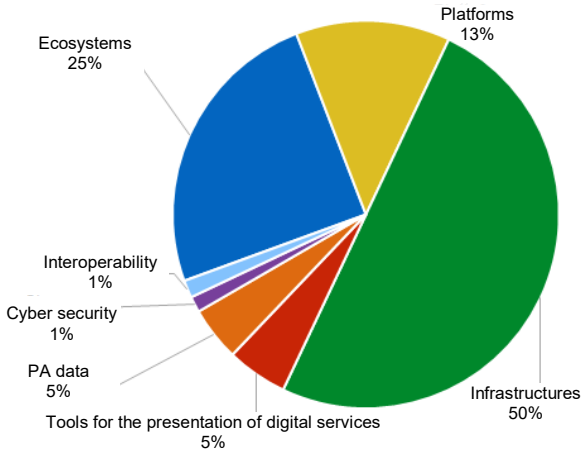
Central administrations



Macro areas	Total amount for three years 2017-2019 (€)	No. projects
Ecosystems	955,186,611	111
Platforms	890,027,809	67
Infrastructures	600,123,988	57
PA data	148,518,844	38
Tools for the presentation of digital services	115,555,007	23
Cyber security	88,105,453	37
Interoperability	9,313,571	7
TOTAL	**2,806,831,283**	**340**

Figure A2.4.1 - Distribution of central PA ICT projects by macro areas of the Strategic Model

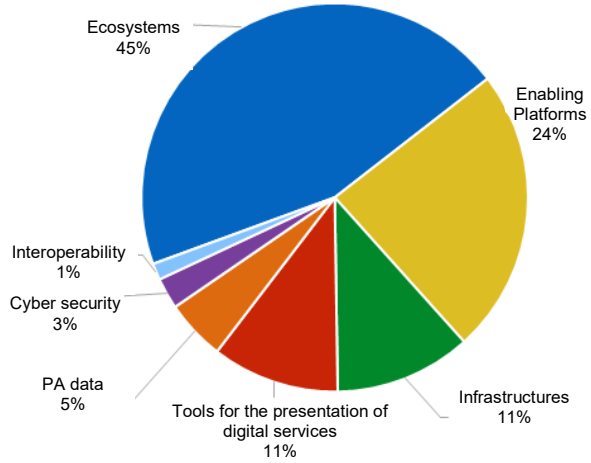
Regions



Macro areas	Total amount for three years 2017-2019 (€)	No. projects
Infrastructures	508,897,868	29
Ecosystems	251,405,945	94
Enabling Platforms	131,442,942	51
Tools for the presentation of digital services	52,293,595	22
PA data	46,047,147	14
Interoperability	14,825,363	7
Cyber security	13,527,464	4
TOTAL	**1,018,440,324**	**221**

Figure A2.4.2 - Distribution of regions ICT projects by macro areas of the Strategic Model

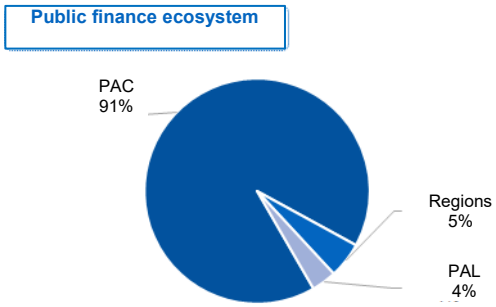
Local administrations



Macro areas	Total amount for three years 2017-2019 (€)	No. projects
Ecosystems	84,159,276	65
Platforms	44,428,222	24
Infrastructures	21,327,405	11
Tools for the presentation of digital services	19,944,078	21
PA data	9,416,661	15
Cyber security	4,848,427	6
Interoperability	2,561,640	3
TOTAL	**186,685,709**	**145**

Figure A2.4.3 - Distribution of local PA ICT projects by macro areas of the Strategic Model

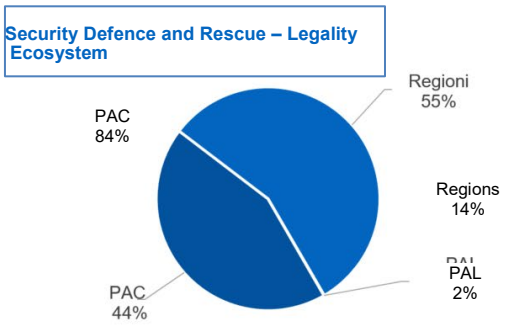
Figure 5. Detail of distribution of the central administrations, regions, local administrations projects for each ecosystem



Public finance ecosystem	Total amount for three years 2017-2019 (€)	No. projects
PAC	526,076,805	38
Regions	29,599,202	11
PAL	20,541,797	11
TOTAL	**576,217,804**	**60**

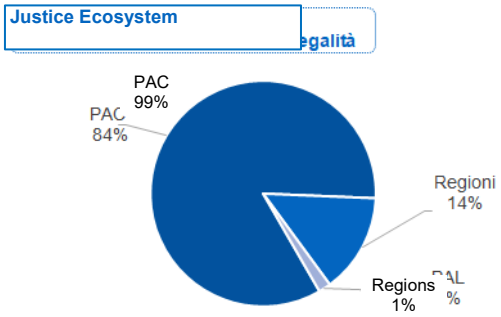
Figure A2.5.1 - Detail of distribution of ICT projects for public finance ecosystem

Healthcare Ecosystem	Total amount for three years 2017-2019 (€)	No. projects
PAC	92,022,315	14
Regions	118,453,140	32
PAL	122,000	1
TOTAL	**210,597,455**	**47**



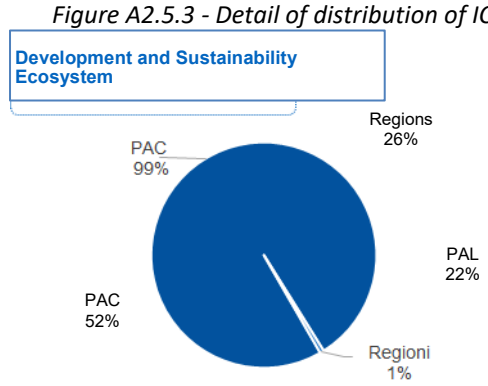
Security Defence and Rescue - Legality Ecosystem	Total amount for three years 2017-2019 (€)	No. projects
PAC	132,143,000	13
Regions	22,448,348	4
PAL	2,734,174	5
TOTAL	**157,325,522**	**22**

Figure A2.5.2 - Detail of distribution of ICT projects for healthcare ecosystem



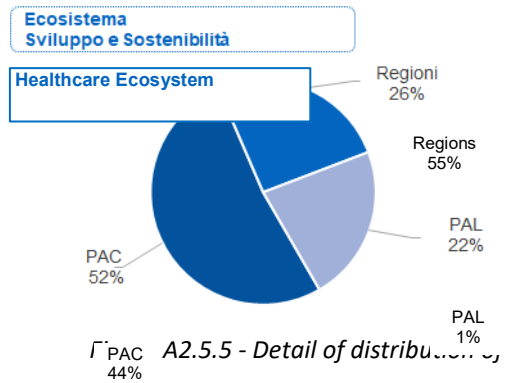
Justice ecosystem	Total amount for three years 2017-2019 (€)	No. projects
PAC	97,592,599	8
Regions	550,000	1
TOTAL	**98,142,599**	**9**

Figure A2.5.3 - Detail of distribution of ICT projects for security defence and rescue - legality ecosystem -



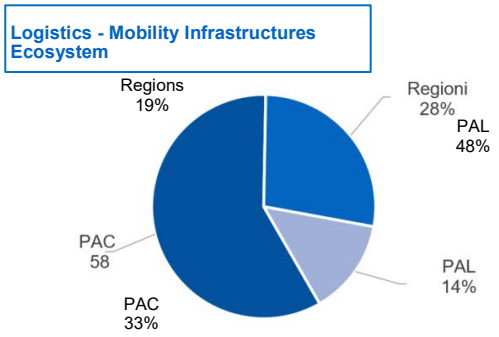
Development and Sustainability Ecosystem	Total amount for three years 2017-2019 (€)	No. projects
PAC	46,241,176	2
Regions	22,899,585	16
PAL	20,038,065	13
TOTAL	**89,178,826**	**31**

Figure A2.5.4 - Detail of distribution of ICT projects for justice ecosystem



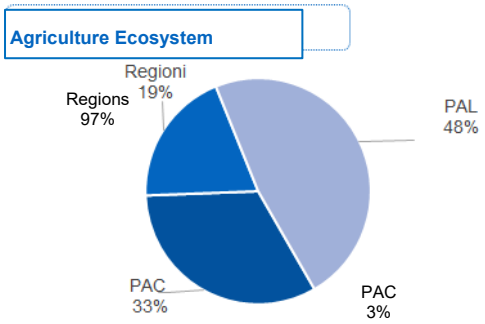
Ecosistema Sviluppo e Sostenibilità	Importo complessivo triennio 2017-2019 (€)	N° Progetti
PAC	46.241.176	2
Regioni	22.899.585	16
PAL	20.038.065	13
TOTALE	**89.178.826**	**31**

Figure A2.5.5 - Detail of distribution of ICT projects for development and sustainability ecosystem



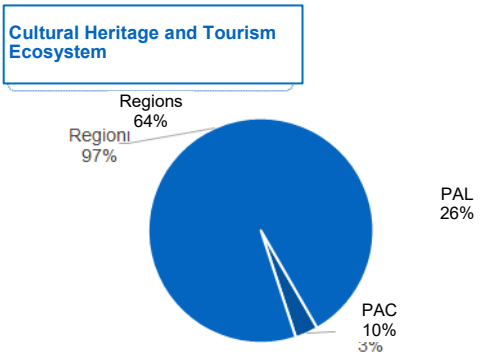
Logistics - Mobility Infrastructure Ecosystem	Total amount for three years 2017-2019 (€)	No. projects
PAC	17,394,590	11
Regions	10,357,083	9
PAL	25,406,263	18
TOTAL	**53,157,936**	**38**

Figure A2.5.6 - Detail of distribution of ICT projects for welfare ecosystem



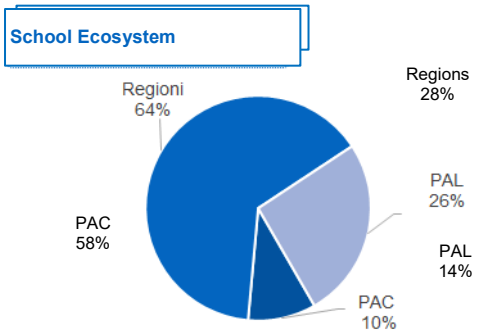
Agriculture Ecosystem	Total amount for three years 2017-2019 (€)	No. projects
PAC	619,504	1
Regions	18,094,142	5
TOTAL	**18,713,646**	**6**
TOTALE	**53.157.936**	**38**

Figure A2.5.7 - Detail of distribution of ICT projects for logistics - mobility infrastructures ecosystem



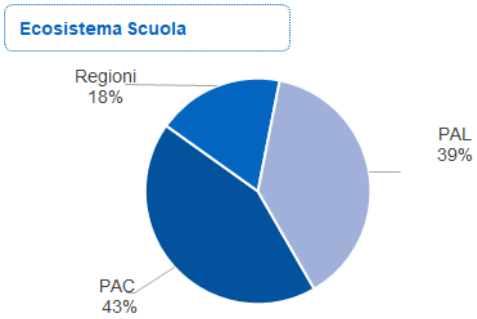
Cultural Heritage and Tourism Ecosystem	Total amount for three years 2017-2019 (€)	No. projects
PAC	1,450,232	3
Regions	9,529,207	8
PAL	3,849,064	6
TOTAL	**14,828,503**	**17**

Figure A2.5.8 - Detail of distribution of ICT projects for agriculture ecosystem



Welfare Ecosystem	Total amount for three years 2017-2019 (€)	No. projects
PAC	39,099,165	16
Regions	18,400,168	7
PAL	9,123,754	8
TOTAL	**66,693,087**	**31**

Figure A2.5.9 - Detail of distribution of ICT projects for cultural heritage and tourism ecosystem

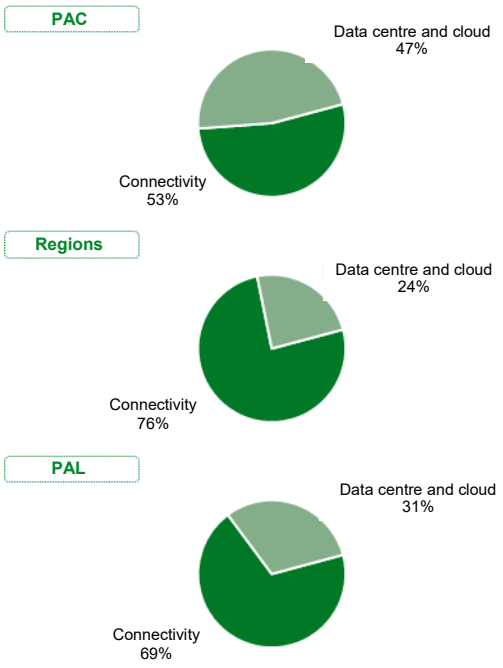


Ecosistema Scuola	Importo complessivo triennio 2017-2019 (€)	N° Progetti
PAC	2.547.225	5
Regioni	1.075.070	1
PAL	2.274.159	3
TOTALE	**5.896.454**	**9**

Figure A2.5.10 - Detail of distribution of ICT projects for school ecosystem

School Ecosystem	Total amount for three years 2017-2019 (€)	No. projects
PAC	2,547,225	5
Regions	1,075,070	1
PAL	2,274,159	3
TOTAL	**5,896,454**	**9**

Figure 6. Detail of distribution of projects for the macro area INFRASTRUCTURES



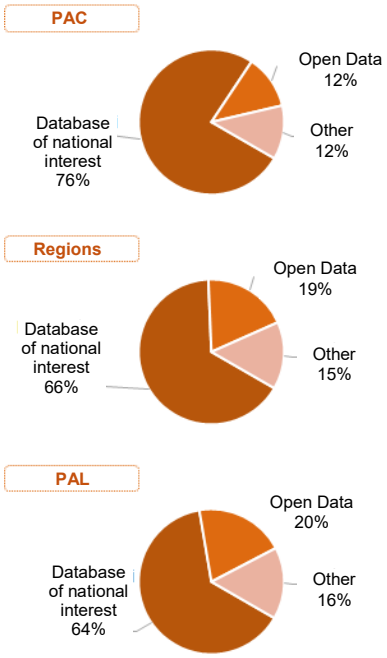
Infrastructures	Total amount for three years 2017-2019 (€)	No. projects
Connectivity	316,633,356	26
Data centre and cloud	283,490,632	31
TOTAL	**600,123,988**	**57**

Infrastructures	Total amount for three years 2017-2019 (€)	No. projects
Connectivity	389,272,463	13
Data centre and cloud	119,625,405	16
TOTAL	**508,897,868**	**29**

Infrastructures	Total amount for three years 2017-2019 (€)	No. projects
Connectivity	14,759,555	6
Data centre and cloud	6,567,850	5
TOTAL	**21,327,405**	**11**

Figure A2.6 - Distribution of ICT projects by macro area Infrastructures

Figure 7. Detail of distribution of projects for the macro area PA DATA



PA data	Total amount for three years 2017-2019 €	No. projects
Database of national interest	112,487,625	25
Other	18,541,152	6
Open Data	17,490,067	7
TOTAL	**148,518,844**	**38**

PA data	Total amount for three years 2017-2019 €	No. projects
Database of national interest	30,448,050	7
Open Data	8,599,097	5
Other	7,000,000	2
TOTAL	**46,047,147**	**14**

PA data	Total amount for three years 2017-2019 €	No. projects
Database of national interest	6,006,271	11
Other	1,910,390	3
Open Data	1,500,000	1
TOTAL	**9,416,661**	**15**

Figure A2.7 - Detail of distribution of ICT projects by macro area PA data

Table 2. Detail of distribution central administration projects by macro areas of the Strategic Model

PAC	Infrastructures		Interoperability		PA data		Platforms		Ecosystems		Cyber security		Tools for the presentation of digital services		total No.	Total amount (€)
	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)		
ACI	1	1,730,000	0	0	3	1,539,692	1	771,000	3	4,333,705	0	0	5	3,399,911	13	11,774,308
Public Property Agency	1	150,000	0	0	0	0	2	2,067,117	0	0	2	164,000	3	356,399	8	2,737,516
Customs and Monopolies Agency	6	97,978,892	0	0	1	3,388,429	8	19,100,045	18	94,313,861	2	16,500,138	3	4,279,651	38	235,561,016
Revenue Agency	0	0	0	0	3	46,707,129	3	78,476,099	4	297,668,269	1	36,493,547	2	19,732,973	13	479,078,017
Revenue Agency Collections	2	4,258,182	1	253,524	2	150,000	8	18,795,731	10	90,331,038	1	8,658,716	5	16,633,560	29	139,080,751
National Institute for Insurance against Accidents at Work (INAIL)	5	21,581,004	0	0	2	2,142,249	7	5,945,786	9	9,436,871	5	1,434,000	4	2,540,189	32	43,080,099
National Social Security Institute (INPS)	0	0	0	0	1	990,500	2	3,061,200	1	22,295,820	0	0	0	0	4	26,347,520
Ministry for International Cooperation and Foreign Affairs	0	0	0	0	1	43,406	0	0	0	0	0	0	0	0	1	43,406
Ministry of Cultural Heritage and Cultural and Tourism Activities	1	1,500,000	0	0	0	0	3	1,900,000	3	1,450,232	0	0	1	300,000	8	5,150,232
Ministry of Employment and Social Policy	6	16,261,180	0	0	0	0	0	0	7	10,017,719	0	0	1	99,983	14	26,378,882
Ministry of the Interior	14	229,090,000	0	0	7	30,738,388	4	567,760,000	11	113,543,000	4	46,640,000	1	1,250.0001	41	989,021,388
Ministry of Education, University and Research	1	873,121	1	538,875	2	2,079,300	2	1,770,400	5	2,547,225	1	419,000	2	2,334,000	14	10,561,921
Ministry of Defence	9	42,244,657	2	2,370,000	0	0	2	980,000	1	3,900,000	1	1,500,000	0	0	15	50,994,657
Ministry of Justice	3	171,314,350	0	0	1	15,260,375	2	91,674,500	4	92,917,021	1	750,000	1	25,639,344	12	397,555,590
Ministry of Health	2	1,277,107	1	1,130,000	2	1,880,000	3	1,000,000	8	4,585,000	0	0	2	200,698	18	10,072,805
Ministry for Infrastructures and Transport	1	9,470,000	0	0	3	1,660,000	1	340,000	6	22,000,000	0	0	1	1,750,000	12	35,220,000
Ministry for Agricultural, Food and Forestry Policy	1	200,000	0	0	0	0	1	1,200,000	0	0	0	0	0	0	2	1,400,000
Ministry of Economic Development	1	136,640	1	793,630	0	0	0	0	1	2,347,000	2	425,000	0	0	5	3,702,270
Ministry of the Economy and Finance	3	2,058,855	1	4,227,542	10	41,939,376	18	95,185,931	20	183,499,850	3	2,570.6061	6	9,588,745	61	339,070,905
General total	**57**	**600,123,988**	**7**	**9,313,571**	**38**	**148,518,844**	**67**	**890,027,809**	**111**	**955,186,611**	**23**	**115,555,007**	**37**	**88,105,453**	**340**	**2,806,831,283**

Table 3. Detail of distribution of regions projects by macro areas of the Strategic Model

REGIONS	Infrastructures		Interoperability		PA data		Platforms		Ecosystems		Cyber security		Tools for the presentation of digital services		total No.	Total amount (€)
	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)		
Autonomous Province of Bolzano	2	3,934,426	0	0	0	0	3	3,990,881	5	4,067,006	0	0	1	1,036,885	11	13,029,198
Autonomous Province of Trento	0	0	0	0	1	3,568,115	0	0	3	5,415,561	0	0	0	0	4	8,983,676
Region of Abruzzo	1	4,100,000	0	0	0	0	0	0	0	0	0	0	0	0	1	4,100,000
Autonomous Region of Sardinia	0	0	0	0	0	0	2	4,157,800	0	0	1	5,860,656	1	3,163,869	4	13,182,325
Autonomous Region of Friuli Venezia Giulia	3	12,567,579	1	259,013	1	7,823,259	5	15,210,054	4	9,261,261	0	0	0	0	14	45,121,166
Autonomous Region of Valle d'Aosta	0	0	0	0	2	2,267,621	2	671,752	4	2,245,315	0	0	1	313,015	9	5,497,703
Region of Basilicata	2	11,800,000	0	0	0	0	3	400,000	4	17,859,116	0	0	0	0	9	30,059,116
Region of Calabria	0	0	1	2,636,350	0	0	3	12,825,264	3	20,237,767	0	0	0	0	7	35,699,381
Region of Campania	1	8,870,000	0	0	2	8,500,000	0	0	9	16,375,000	0	0	2	1,075,000	14	34,820,000
Region of Emilia Romagna	0	0	0	0	0	0	1	11,621,000	0	0	0	0	0	0	1	11,621,000
Region of Lazio	1	6,518,094	0	0	0	0	4	30,643,799	15	43,179,644	0	0	0	0	20	80,341,537
Region of Liguria	2	27,533,606	0	0	0	0	2	719,330	3	4,763,595	1	983,606	1	491,578	8	34,491,715
Region of Lombardy	1	22,207,377	0	0	3	10,705,437	3	17,025,224	7	42,258,644	0	0	2	9,298,015	16	101,494,697
Region of the Marches	0	0	0	0	0	0	2	2,100,000	7	12,100,000	0	0	1	600,000	10	14,800,000
Region of Molise	0	0	0	0	0	0	0	0	1	6,000,000	0	0	1	5,000,000	2	11,000,000
Region of Piedmont	2	304,539,472	0	0	1	5,320,997	4	12,594,132	7	27,563,185	0	0	0	0	14	350,017,786
Region of Apulia	1	10,893,872	0	0	0	0	2	1,802,900	1	1,557,000	1	6,503,202	1	1,516,000	6	22,272,974
Region of Sicily	2	2,155,622	2	4,700,000	2	7,290,118	1	525,064	11	15,763,728	0	0	2	230,000	20	30,664,532
Region of Tuscany	5	39,315,000	2	6,830,000	1	420,000	7	9,652,563	6	18,342,561	1	180,000	2	9,960,000	24	84,700,124
Region of Umbria	3	7,907,000	1	400,000	0	0	1	1,500,000	2	3,093,000	0	0	1	3,125,360	8	16,025,360
Region of Veneto	3	46,555,820	0	0	1	151,600	6	6,003,179	2	1,323,562	0	0	6	16,483,873	18	70,518,034
General total	**29**	**508,897,868**	**71**	**14,825,363**	**14**	**46,047,147**	**51**	**131,442,942**	**94**	**251,405,945**	**4**	**13,527,464**	**22**	**52,293,595**	**221**	**1,018,440.32**

Table 4. Detail of distribution of local administration projects by macro areas of the Strategic Model

PAL	Infrastructures		Interoperability		PA data		Platforms		Ecosystems		Cyber security		Tools for the presentation of digital services		total No.	Total amount (€)
	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)	No.	Amount (€)		
Metropolitan City of Bari	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metropolitan City of Bologna	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metropolitan City of Cagliari	0	0	0	0	0	0	0	0	0	0	0	0	1	360,000	1	360,000
Metropolitan City of Catania	0	0	1	901,640	0	0	0	0	2	1,803,278	0	0	0	0	3	2,704,918
Metropolitan City of Florence	0	0	0	0	2	736,500	0	0	0	0	0	0	0	0	2	736,500
Metropolitan City of Genoa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metropolitan City of Messina	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metropolitan City of Milan	2	1,616,820	0	0	0	0	0	0	1	300,000	0	0	0	0	3	1,916,820
Metropolitan City of Naples	0	0	0	0	0	0	2	36,500	0	0	0	0	0	0	2	36,500
Metropolitan City of Palermo	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	10,059	1	10,059
Metropolitan City of Reggio Calabria	0	0	0	0	0	0	0	0	1	260,000	0	0	0	0	1	260,000
Metropolitan City of Rome Capital	0	0	0	0	0	0	0	0	0	0	0	0	2	1,800,000	2	1,800,000
Metropolitan City of Turin	0	0	0	0	1	100,000	2	400,000	2	500,000	0	0	0	0	5	1,000,000
Metropolitan City of Venice	3	1,372,790	0	0	0	0	1	144,900	0	0	0	0	1	570,096	5	2,087,786
Municipality of Bari	0	0	0	0	0	0	4	6,296,962	1	2,000,000	0	0	3	5,612,759	8	13,909,721
Municipality of Bologna	0	0	0	0	2	1,750,000	3	1,800,000	3	3,200,000	1	1,055,000	1	3,500,000	10	11,305,000
Municipality of Cagliari	1	1,094,060	0	0	1	1,336,620	0	0	1	1,367,988	0	0	1	700,000	4	4,498,668
Municipality of Catania	0	0	0	0	1	1,416,000	0	0	0	0	0	0	0	0	1	1,416,000
Municipality of Florence	1	1,565,000	0	0	0	0	0	0	3	4,914,472	0	0	0	0	4	6,479,472
Municipality of Genoa	1	240,000	2	1,660,000	1	260,000	0	0	3	1,470,000	1	360,000	1	500,000	9	4,490,000
Municipality of Messina	1	2,700,000	0	0	0	0	0	0	2	2,951,000	0	0	0	0	3	5,651,000
Municipality of Milan	1	10,074,800	0	0	0	0	1	8,144,869	0	0	2	1,937,100	1	5,031,063	5	25,187,832
Municipality of Naples	0	0	0	0	1	573,771	1	490,000	11	11,289,288	1	1,086,491	1	1,127,049	15	14,566,599
Municipality of Palermo	0	0	0	0	0	0	0	0	9	16,292,800	0	0	1	134,200	10	16,427,000
Municipality of Reggio Calabria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Municipality of Turin	0	0	0	0	2	2,600,000	2	1,880,000	6	7,312,000	0	0	0	0	10	11,792,000
Municipality of Venice	1	2,663,935	0	0	4	643.7700	5	614,000	13	7,696,963	0	0	6	393,934	29	12,012,602
ROME CAPITAL	0	0	0	0	0	0	3	24,620,991	7	22,801,487	1	409,836	1	204,918	12	48,037,232
General total	**11**	**21,327,405**	**3**	**2,561,640**	**15**	**9,416,661**	**24**	**44,428,222**	**65**	**84,159,276**	**6**	**4,848,427**	**21**	**19,944,078**	**145**	**186,685,709**

"NA": includes both cases where no projects were reported and where the set of information supplied was missing/insufficient

ANNEX 3. Operative instructions for the migration of SP-Coop services

A3.1 Planning

According to the Guidelines for the Transit towards the new Interoperability Model, the administrations are called to "*adjust their systems and prepare them for direct interfacing, without the intermediation of the Domain Port (DP), thereby allowing for the Port to be subsequently closed*".

This adjustment will lead to a method by which to supply services, currently in production, which will be definitive and in force after the introduction of the new Interoperability Model, currently being defined.

The adjustment of all services will allow for the elimination of the domain ports currently operating, which should take place according to the scheme set out below, implemented with the help of the AGID.

1. The administrations must first **plan** the adjustment of their services supplied within 3 months of the publication of the 2019-2021 Three-Year Plan. This planning must include the following elements:
    - a list of services supplied and systems using them, currently in production;
    - for each service supplied, the following information is required:
        - a list of users
        - type of security adopted (see paragraph A3.2.2 Access management);
        - the date starting from which the service will be available directly. This date must fall within 3 months of the plan.

    The administrations shall send their plans to the Agency via the services that will be made available on its institutional website.

2. On the basis of the plans notified by the administrations, the Agency will then outline the **global plan** for the migration of the domain ports.

3. On the basis of this information, the administrations using the services will then be able to plan the effective direct interfacing of services. To this end, each will prepares its own **plan of use**, which will contain:
    - a list of the services currently used in production;
    - for each service used, the following must be specified:

- supplying administration;
- the date by which the users must use the direct model on the basis of the interventions to be implemented on the security policies (see paragraph A3.2.2 Access management); this date shall be no more than 5 months after the date of publication of the global plan prepared by AGID.

4. As the adjustment continues, the using administrations shall confirm to the Agency that they have **concluded their works**, so as to allow it to monitor the migration process.

5. Each supplying administration, once all users have adopted the services with direct interfacing, will definitively be able to decommission its domain port. The administrations will notify the Agency of the **decommissioning** of their domain port.

The Agency shall use the "Digital Transition Manager" (RTD) as a point of contact with the administrations. To this end, the administrations are reminded to proceed, with all due urgency, to choosing their RTD appointed to the Office for the Digital Transition and duly register this in the Index of Public Administrations (IPA).

A3.2 Indications for service migration activities.

According to the Guidelines for the transition towards the new interoperability model, the migration of the services currently supplied through the domain port must be carried out, guaranteeing:

- the security of the communication channel,
- the correct management of accesses (authorisation to use the service),
- tracking, in lieu of that carried out by the domain port.

Below are more details on each of these points, giving, by way of example, possible implementation solutions. The fact remains that the administrations are free to opt for different solutions, including involving the use of specialised platforms able to supply the functions required.

A3.2.1 Channel security

In the domain port, the security of the channel is guaranteed by the use of the http over TLS (https) protocol, through the use of the certificate issued by the CA spcoop.gov.it.

Once the domain port has been removed, the entities operating the dialogue must create secure channels, using the TLS protocol, at least in version 1.2, and certificates they must obtain autonomously. It is specified that the certificates used to create the secure channel must be issued by a public CA, where possible preferring use of the Extended Validation Certificate.

The choice of channel terminators is left to the administration, which may even opt for reverse proxies for all services on which to end the encrypted channels.

A3.2.2 Access management

As regards access management, as envisaged by the Guidelines for the Transition to the New Interoperability Model "*the supplying administrations must, through their own access management infrastructures, ensure the authorisation of the service requests in regard to the using administrations"*.

For the elimination of the domain port, the choice is recommended fr only mutual authentication of the channel as authentication system on the basis of which to apply authorisation to use the services, insofar as the possible cases that may arise are:

- the supplier and user use WS-Security without the intervention of the domain port: direct display of the service can continue to work without intervention.
- the supplier uses WS-Security without the intervention of the domain port, while the user uses the domain port for the management of WS-Security: direct display of the service may continue to apply without intervention by the supplier, however, the user will need to re-factor the security aspect of the service exclusively in order to introduce WS-Security management.
- the supplier and user use WS-Security with the intervention of the domain port: the use of TLS mutual authentication by both makes it possible to display the service directly without intervention.
- the supplier uses the domain port to manage the WS-Security, while the user uses WS-Security without the intervention of the domain port: the use of TLS mutual authentication by both makes it possible to display the service directly without intervention by the supplier, while the user will need to re-factor the security aspect of the service exclusively in order to introduce WS-Security management.

- the supplier and the user implement authentication/authorisation through channel security: by means of the use of TLS Mutual authentication managed by the domain port, they can continue to operate by configuring mutual authentication on the applications.

In the previous points, the term "re-factoring of the service security aspect" has been used to refer to the minimum activities necessary to an administration using a service in order to preserve communication with the supplier, which envisages, as applicable, the addition or elimination of the WS-Security management for the service.

The table below summarises that described above.

Scenario with domain port (ex ante migration)		**Direct interfacing scenario (post migration)**	
SUPPLIER	**USER**	**SUPPLIER**	**USER**
WS-Security on service	WS-Security on service	No intervention	No intervention
WS-Security on service	WS-Security on domain port	No intervention	USER intervention to add WS-Security
WS-Security on domain port	WS-Security on service	TLS Mutual authentication	USER intervention to eliminate WS-Security TLS Mutual authentication
WS-Security on domain port	WS-Security on domain port	TLS Mutual authentication	TLS Mutual authentication
TLS Mutual authentication on domain port	TLS Mutual authentication on domain port	TLS Mutual authentication	TLS Mutual authentication

Table A3.1 - Cases of authorisation to use services

That indicated above with “TLS Mutual authentication” in order to authenticate the user requires the supplier, once a connection has been established by mutual authentication in http over TLS (https), through the use of X509 V3 certificates, to:

1. extract the DN (Distinguish Name) from the certificate used in the handshake of the TLS relative to the user administration;
2. extract the reference to the service recalled;
3. check if the user, identified by the DN, is authorised to access the service.

A3.2.3 Tracking

In respect of tracking management, as envisaged by the Guidelines for the Transition to the New Interoperability Model”, at least the following elements must be given:

- request date and time;
- entity requesting the service;
- service requested;
- result of the call (authorised/rejected).

The administration need merely locate and explain, using specific documentation, the methods adopted by the supply platforms used to track the information requested. An alternative approach would require the administrations to develop components to manage tracking.

Tracking can then also give any other specific information to the type of service supplied (application tracking).

A3.2.4 Example

By way of example, in the list given in figure A3.1, there is a skeleton code for a possible implementation of the access and tracking management, developed in JEE - JSR 53 environment: Java Servlet 2.3 Specification.

```
public class ReadX509ClientCertFilter implements Filter {

	public void init(FilterConfig fConfig) throws ServletException {}
	public void destroy() {}

	private class RequestingEntity{

		String subjectDN;
		String issuerDN;

		public RequestingEntity(String subjectDN, String issuerDN) {
			super();
			this.subjectDN = subjectDN;
			this.issuerDN = issuerDN;
		}

		@Override
		public String toString() {
		   return "RequestingEntity [subjectDN=" + subjectDN + ", issuerDN=" + issuerDN + "]";
		}
	}

	public void doFilter(ServletRequest request,
			ServletResponse response,
			FilterChain chain) throws IOException, ServletException {
		/*
		 * Recovery of elements:
		 * - request date and time;
		 * - entity requesting the service;
		 * - service requested;
		 * - result of the call (authorised/rejected).
		 */

		LocalDate RequestTimeDate = LocalDate.now();

		RequestingEntity RequestingEntity = getRequestingEntity(request);

		String  serviceRequested = getserviceRequested(request);

		boolean callOutcome = checkAuth(RequestingEntity,serviceRequested);

		traceRequest(RequestTimeDate,RequestingEntity,serviceRequested,callOutcome);

		chain.doFilter(request, response);
	}

	private void traceRequest(LocalDate RequestTimeDate,RequestingEntity RequestingEntity,
					String serviceRequested,boolean callOutcome) {
```

```
                // TODO Implement tracking management

                /*
                 * For example, using a dedicated log file to make tracks persistent
                */

        }

        private boolean checkAuth(RequestingEntity RequestingEntity, String serviceRequested) {
                // TODO Implement access management
                return true;
                /*
                 * For example check existence of pairing
                 *  RequestingEntity/serviceRequested on wallet of credentials (LDAP,DBMS, etc.)
                 */

        }

        private RequestingEntity getRequestingEntity(serviceRequested request){

           X509Certificate[] certs =  (X509Certificate[])
                request.getAttribute("javax.servlet.request.X509Certificate");

           if (null != certs && certs.length > 0) {
                return new RequestingEntity(
                                        certs[0].getSubjectDN().getName(),
                                        certs[0].getIssuerDN().getName()
                 );
           }else {
                throw new RuntimeException("No X.509 client certificate found in request");
           }
        }

        private String getserviceRequested(ServletRequest request) {

                return request.getScheme()+"://"+
                                        request.getServerName()+":"+
                                        ((HttpServletRequest)request).getRequestURI();
        }
}
```

Figure A3.1- Example listing