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MINISTERIO DE HACIENDA Y FUNCIÓN PÚBLICA
INAP INSTITUTO NACIONAL DE ADMINISTRACIÓN PÚBLICA
U23

Plan de Recuperación, Transformación y Resiliencia

Digital Competencies of Public Employees

Reference framework V.3.

MADRID, December 2023

Index

PRESENTATION

Update of the framework for the inclusion of Artificial Intelligence-related competencies (December 2023).

Artificial Intelligence (AI) has become a fundamental element in the evolution of the working environment in the digital era. In this ever-changing world, the digital skills of public servants are essential to maintain and improve the efficiency of public services. Training developers must offer upskilling and reskilling opportunities so that public servants are prepared to face the challenges and opportunities offered by this disruptive technology, which has great potential to transform public services and improve the quality of life of citizens.

The INAP digital competencies framework is a reference for professional development and adaptation to change in public administration. However, in the INAP Learning Subdirectorate, considering that it is a living document, it is necessary to adapt and improve it by incorporating some aspects, in this case, related to AI that would enhance the capabilities and skills of employees in the already current context.

AI plays a crucial role in enhancing these competencies by providing tools and solutions that can optimize productivity, decision-making and problem-solving in the professional environment.

The integration of AI in the digital competencies of employees impacts on such relevant aspects as:

- **content creation** (linked to competency 3.1. digital content development),
- **automation of repetitive tasks** (linked to competency 6.2 Innovation in public services),
- the ability to **analyze large volumes of data** (linked to competency 1.5. Data analysis and exploitation) or
- **personalization of services to the citizen** (linked to competence 1.5. Analysis and exploitation of data).

It also includes a specific competency on the **ethical and responsible use of AI**, covering aspects such as privacy, transparency, fairness and accountability. This competency cuts across all other competencies and enables public employees to apply ethical criteria in the design, implementation and evaluation of AI-based solutions.

Secondly, it deepens the **knowledge and understanding of AI principles, concepts and applications**, both from a technical and strategic perspective. This involves developing competencies such as the identification of AI opportunities and challenges.

AI for public services, the selection and appropriate use of available AI tools and methods, or the critical evaluation of AI outcomes and impacts.

Thirdly, the **development of skills related to continuous learning and collaborative work in AI-mediated digital environments** is encouraged, enhancing competencies such as the ability to learn autonomously and adaptively with the support of intelligent systems, active participation in communities of practice and professional networks that integrate AI, or effective and creative communication with different actors and stakeholders in AI projects.

Finally, it should be noted that this Competency Framework is part of INAP's competency ecosystem, which is made up of different frameworks that form a whole in which the skills of public employees for teleworking, public procurement, public policy evaluation, certain administrative competencies (IFCA), as well as managerial competencies are described. In addition, they are connected to the 5 common competency axes of the INAP Learning Strategy 2023-2024.

Submission to the November 2022 publication

The National Institute of Public Administration (INAP) is an autonomous body attached to the Ministry of Finance and Public Function whose mission is to carry out processes of selection and attraction of valuable and plural talent to the Public Administration, to promote lifelong learning for the development of the skills of public employees throughout their professional career, and to promote research and reflection on the challenges of the State. All this within a broad framework of alliances with different social agents and cooperation and collaboration with similar national and international institutions.

INAP's Strategic Plan 2021-2024 shows that, in order to respond to the needs of citizens, the Administration of the 21st century must deepen the digitization and improvement of services and the strengthening of programs for attracting and selecting talent, as well as training and capacity building. One of the lines of INAP's multi-year Strategic Plan 2021- 2024 is to develop and apply a competency-based approach. INAP has been working for several years on the need to focus on the development of professional competencies rather than on the mere acquisition of knowledge.

The new Digital Agenda called Digital Spain 2025, presented in July 2020, included the development of a National Digital Skills Plan. This Plan was approved on January 27, 2021 and contains within the line of action 5, training in digital skills of people in the service of Public Administrations, measure 13 Digital training program for Public Administrations. In this context, INAP is entrusted with the development and implementation of a digital training plan for employees in the General State Administration.

The Public Administration Digitalization Plan 2021 -2025, Digital Administration and Digital Public Services Strategy, aims to improve the effectiveness and efficiency of the Public Administration, advance in transparency and the elimination of administrative obstacles through the automation of management, a greater focus on the personalization of services and user experience, and act as a catalyst for technological innovation in our country from the public sector.

Royal Decree 203/2021, of March 30, which approves the Regulation of action and operation of the public sector by electronic means, develops and specifies the legal provisions of laws 39/2015 and 40/2015, among other aspects, to facilitate and promote the use of technological means. This generates, therefore, a real and direct need to public servants.

For its part, the Recovery, Transformation and Resilience Plan (PRTR) includes among its ten lever policies the achievement of a modernized Administration through digitalization, both at a transversal level and in strategic areas, acting as a driver of technological change.

Digital transformation not only involves knowing how to use tools, but also developing competencies and promoting organizational, procedural and work culture changes. In short, it means developing the ability to learn continuously in order to adapt to new contexts and needs.

Within component 11, Modernization of Public Administrations of the Recovery, Transformation and Resilience Plan, INAP has included project 21 called Development of digital skills of public employees, aimed at strengthening and developing these skills, especially in the General State Administration, so that public employees can offer efficient digital public services that contribute to the reduction of administrative burdens, as well as a more efficient way of working with the application of the technological layer on administrative processes. In addition, the importance of making digital public services fully accessible to people with disabilities, as well as to those who may have difficulties in understanding and using them, has been emphasized. To this end, some competencies have been nuanced in this regard, thus trying to contribute from training to truly universal public services.

In this context, and in view of the challenge of developing and implementing this training plan, the first action consists of developing a reference framework that includes common elements for the evaluation, development and accreditation of digital competencies in all public administrations, which are necessary for the digital era and essential for improving public service.

Currently, the main reference is the European Framework of Digital Competences for Citizenship. The Joint Research Center (JRC) of the European Commission launched at the end of 2010 the project "Digital Competence: Identification and European-wide validation of its key components for all levels of learners" (DIGCOMP), which proposes a set of digital competences for all citizens to address objectives related to work, learning, leisure and participation in Society as a whole.

Regarding the digital skills of public employees, the OECD published in April 2021 The OECD Framework for digital talent and skills in the public sector (Working Papers on Public Governance No. 45) which aims to provide guidance to public administrations to equip public servants with digital skills.

Following this line, the Italian government is working on a plan of Competenze digitali per la PA whose objective is to describe the minimum set of knowledge and skills that every public employee, not ICT specialist, must have to actively participate in the digital transformation of public administration. In Spain it is important to highlight some initiatives at the autonomic level to adapt DigComp to public employees. However, to date there has been a lack of a common inter-administrative reference framework for the identification and definition of the digital competencies of all public employees.

Therefore, as mentioned above, the main objective of this project is to achieve a common framework for all public administrations that meets the needs of public employees in the coming years. It will also serve as a basis for the development of training, as well as for its accreditation and certification.

Different organizations and institutions that form part of the working group set up in April 2021 at the initiative of INAP have participated in the preparation of this framework. It is necessary to thank and highlight the spirit of collaboration that has characterized the development of this work and that has provided greater richness and dynamism to the document.

The following institutions have participated in the elaboration of this Digital Competencies Framework for Public Employees:

School of Public Administration of Castilla y León (ECLAP) School of

Regional Administration of Castilla La Mancha (EAR) Balearic School

of Public Administration (Escuela Balear de Administración Pública)

Murcia School of Training and Innovation of Public Administration Riojan School

of Public Administration

Escola d'Administració Pública de Catalunya Spanish

Federation of Municipalities and Provinces Andalusian

Institute of Public Administration

Asturian Institute of Public Administration (IAAP)

Canary Islands Institute of Public Administration

(IAAP)

Valencian Institute of Public Administration (IVAP) Basque

Institute of Public Administration (IVAP)

General Directorate of Civil Service. Ministry of Economy, Finance and Employment (Community of Madrid).

Agency for the Digital Administration of the Community of Madrid

National Institute of Public Administration (INAP)

This competency framework is the first step in the development of a training and certification program that will enable the largest possible number of public employees to have the necessary digital competencies to ensure proper performance of public service.

Israel Pastor Sainz-Pardo

Deputy Director for

Learning

National Institute of Public Administration.

INTRODUCTION TO THE FRAMEWORK

Introduction to the November 2022 framework

The 2006 European recommendation identified digital competence as a fundamental basic competence, with the following definition: "Digital competence involves the critical and confident use of Information Society Technologies for work, leisure and communication. Relying on basic ICT skills: use of computers to retrieve, evaluate, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet" (European Parliament and the Council, 2006).

Thus, in general terms, digital competence can be defined as the creative, critical and safe use of information and communication technologies to achieve objectives related to work, employability, learning, inclusion and participation in society.

A competency framework defined within an organization is a document that identifies and defines, through competencies, the skills and abilities required to perform a job position within that organization.

This document presents the latest version of the Digital Competency Framework for public employees. It is structured in 6 competency areas and 17 competencies, in each of which there are three levels of complexity. For each level, descriptors based on knowledge, skills and abilities are specified.

The 6 areas that define the framework are as follows:

Area 1. Digital literacy, information and data

Area 2. Communication and collaboration

Area 3. Digital content creation **Area 4.**

Security

Area 5. Problem solving

Area 6. Digital transformation and innovation

The competencies defined within each area are:

Competencies area 1. Digital literacy, information and data.

1.1 Literacy in digital environments

1.2 Navigation, search and filtering of information, data and digital contents.

1.3 Evaluation of information, data and digital content

1.4 Storage and retrieval of information, data and digital content

1.5 Data analysis and exploitation

Competencies area 2. Communication and collaboration.

2.1 Communication and collaboration within my administration and with other public administrations.

2.2 Communication and collaboration with citizens, companies and other private organizations.

2.3 Digital identity

Competences area 3. Creation of digital contents.

3.1 Digital content development

3.2 Copyright and licenses

Competencies area 4. Safety.

4.1 Device protection

4.2 Personal data protection and digital identity

4.3 Health and environmental protection

Competencies area 5. Problem solving.

5.1 Identification of technological needs and resolution of technical problems

5.2 Identifying gaps in digital competence and self-learning

Competencies area 6. Digital transformation and innovation.

6.1 Digital transformation objectives and mechanisms

6.2 Innovation in public services

Each of the above competencies is divided into three levels that allow to identify the degree of deepening of the public employee in a specific digital competency, thus establishing a progressive level of development and autonomy ranging from level A to level C.

Basic Level (A)

A public employee with this level of competence is capable of performing simple tasks in digital environments.

Knows basic digital technologies and is able to use them as long as their use is well integrated in the development of their professional activity.

He is aware of the potential of digital technologies and is interested in exploring them to improve his professional practice.

Intermediate Level (B)

A public employee with this level of competence is capable of performing routine and novel tasks as long as they are well defined and can solve simple problems in digital environments.

Uses various digital technologies with confidence and is able to select the most appropriate technology for each situation. Understands the benefits and disadvantages of different digital strategies in the development of their professional activities.

Experiments with digital technologies in a variety of contexts and for diverse purposes, integrating some of them in their professional practices.

Advanced Level (C)

A public employee with this level of competence is able to perform tasks with ease using the Administration's digital environments. They are able to adapt to the technological resources available and adequately perform more complex tasks.

It has a consistent and comprehensive approach to applying the most appropriate digital technologies in each situation.

Experiment with innovative and/or complex digital technologies, developing novel professional approaches and driving the digital transformation of your workplace.

Areas	Competencies	Levels
Area 1. Digital literacy, information and data	1.1 Literacy in digital environments 1.2 Navigation, search and filtering of information, data and digital contents. 1.3 Evaluation of information, data and digital content 1.4 Storage and retrieval of information, data and digital content 1.5 Data analysis and exploitation	There are 3 levels, basic, intermediate and advanced levels, for each of the competencies of the framework
Area 2. Communication and collaboration	2.1 Communication and collaboration within my administration and with other public administrations. 2.2 Communication and collaboration with citizens, companies and other private organizations. 2.3 Digital identity	
Area 3. Creation of digital content	3.1 Digital content development 3.2 Copyright and licenses	
Area 4. Security	4.1 Device protection 4.2 Personal data protection and digital identity 4.3 Health and environmental protection	
Area 5. Problem solving	5.1 Identification of technological needs and resolution of technical problems 5.2 Identifying gaps in digital competence and self-learning	
Area 6. Digital transformation and innovation.	6.1 Digital transformation objectives and mechanisms 6.2 Innovation in public services	

FRAMEWORK DEVELOPMENT

Area 1. Digital literacy, information and data

General Description

Know the basic concepts and terms to be able to work in digital environments. Identify, locate, obtain, store, organize and analyze digital information, data and digital content, evaluating its purpose and relevance to the tasks of the job.

Competency 1.1 Literacy in digital environments

Definition: To know the basic concepts and terms used in the field of information and communication technologies. Handle digital devices and environments and perform the necessary configurations on them. Understand the operation of applications and digital public services.

Descriptors according to proficiency levels Basic (A)

- I know the basic technical characteristics of the devices and digital tools that I use in my workplace.
- I recognize and know how to use the different peripheral devices for data input and output (keyboard, mouse, webcam, headphones, monitor, printers, etc.).
- I understand the basic operation of the operating system and I know how to handle its interface.
- I know and properly apply the terminology of computer measurement units (transmission speed, storage capacity, etc.).
- I understand the logical processes performed by the specific digital applications and utilities I use in my job.
- I understand the concepts of document and electronic file.
- I know the implications of the use of artificial intelligence products and the use they can make of the data I provide to them.

Intermediate (B)

- I know and know how to differentiate the different types of computer connections existing in a standard workstation in the administration.
- I know how to make basic configurations in my digital devices and select the different peripherals to use according to the needs of each situation.
- I know how to use the different types of wireless connectivity (bluetooth, NFC, wifi, 5G, etc.) and the usefulness of each.
- I know what a virtual assistant is, I know the functionalities it has and I know how to interact with it.
- I know that there are different computer programming languages that can be used to develop different applications that I use in my work.
- I am aware of the existing logic in programming, and I understand very simple block programming codes.
- I know the accessibility features that all digital public applications and services must be equipped with.
- I know how to use generative artificial intelligence tools, introducing *prompts* and in a safe and secure manner.

Advanced (C)

- I have a good understanding of general computer system concepts (client-server architecture, cloud services, etc.).
- I have a good understanding of general computer security concepts (firewall, access permission, captcha, etc.).
- I understand how communication networks work and the connectivity between different computer equipment.
- I modify the configuration of the applications I use to suit t h e needs of each task.
- I can collaborate in the design of applications and digital public services.

- I know how to collaborate in the design of standards, applications and digital public services to make them easier for people to use.
- I understand how the great foundational models of artificial intelligence, deep learning and multimodality work.

Navigation, search and filtering of information, data and digital contents.

Definition: Searching for and accessing information, data and digital content on the network; expressing information needs in an organized manner, finding information relevant to job tasks, selecting professional resources effectively, managing different information sources and creating personal information strategies.

Descriptors according to proficiency levels Basic (A)

- I understand how the internet works, I understand that it is a good source of information and I use it to search for data, information and professional resources.
- I know the differences between a browser and a search engine.
- I can perform simple searches through widely used search engines to access information, resources and services.
- I know the main features and elements of browsers and use their basic functions.
- I browse, search and find professional content of different characteristics within websites, taking into account indications on the navigation to be performed, for example, through hyperlinks.
- I know the different web spaces of my institution.
- I understand the limitations of the information provided by generative artificial intelligence applications.

Intermediate (B)

- I know the basic differences between internet, intranet and extranet and the type of services each of them can offer.
- I use basic search filtering tools, such as keywords, date of publication, language, type, etc.
- I know how to mark and tag information relevant to my professional work, allowing me to retrieve it easily.
- I understand that browsers collect data from our browsing, I know the meaning of terms such as cache, cookies and history, I know how they affect our privacy and I know how to manage such data.
- I perform searches for information within a web page or in a document that is on the internet, as well as in office suites in the cloud.
- I know and use official websites (e.g. open data portals, INE, etc.) to collect reliable and useful data and information, exploring the web to find new sources of public information.
- I know how to interact with generative artificial intelligence applications in an ethical and responsible manner to obtain accurate answers.

Advanced (C)

- I know how to use advanced search tools, operators and filters to find information and resources in different formats, refining the results I obtain.
- I use tools to synchronize browsers, as well as to organize, find and filter the flow of information on the Internet.
- I install and use different plugins and extensions in the browsers to get the functionality I need.
- I know how to use RSS feeds and subscriptions for easier access to information, as well as how to manage those information flows for my professional update.
- I use generative artificial intelligence applications to help me organize and structure my knowledge and that of my unit.

Competency 1.3. Evaluation of information, data and digital content

Definition: Gather, process, understand and evaluate information, data and digital content for practical application in the workplace.

Descriptors according to proficiency levels Basic (A)

- I know that there is a lot of false or unreliable information on the internet and therefore it is necessary to contrast the information I find with different sources.
- I establish simple strategies for gathering information and resources relevant to my work via the web or generated with generative artificial intelligence applications, such as source, format or other data.
- I know web portals of different agencies and other sources where to find professional resources and reliable information.
- I know how to use web portals to download information and subscribe to newsletters or mailing lists of interest to my professional work.

Intermediate (B)

- I routinely compare and contrast information from different sources, integrating that which is reliable and useful.
- Before accessing an unfamiliar website be sure to check the reputation of the site using browser tools or specific online tools.
- I analyze the provenance, reliability and authorship, as well as the license of use, of the professional resources I find on the Internet before using them in my work.
- I evaluate the professional resources that I find on the Internet, generate with artificial intelligence systems or that come to me by other electronic means and try to select the most suitable for my work environment.

Advanced (C)

- I manage and share different digital strategies to critically compare and meaningfully combine quality information and content from different sources.

- I know how search engine crawling, indexing and ranking works, and I am able to selectively choose between organic results (SEO) and advertised results (SEM).
- I can use simple tools for collecting and evaluating information (e.g. online surveys).
- I ethically and safely use generative artificial intelligence tools to generate information and knowledge.

Competency 1.4. Storage and retrieval of information, data and digital content.

Definition: Manage and store information, data and digital content for easy retrieval; organize information, data and digital content.

Descriptors according to proficiency levels Basic (A)

- I know that there are different media and storage options, both local and online.
- I use the basic functions of a file explorer and know how to organize files into folders within my computers and devices.
- I know the most common types of files and the kind of information they contain (pdf, csv, png...).
- I know how to access different types of files with the appropriate applications.
- I know how to use some corporate cloud storage service and I store professional files in it.
- I know how to compress and decompress files efficiently.
- I am aware of how to store information to be backed up within my institution's backup strategy.

Intermediate (B)

- I understand how information is stored on different devices, both local, corporate network and cloud, using the most appropriate in each circumstance.
- I use various portable devices and external storage drives that allow me to transfer files and data between devices.
- I know how to restore deleted information or content from my devices.
- I use advanced features of cloud storage services, share files and manage file permissions.
- I retrieve information, data and digital content through version control in the cloud.
- I know how to transform and integrate content from different file types with the right tools.
- I know what metadata is and use cloud applications and services to tag, store and retrieve professional information and resources.
- I know how to use the artificial intelligence tools allowed in my organization to securely access archived data, information and documents.

Advanced (C)

- I develop a strategy for organizing, updating and storing the resources I use in my work, thus facilitating their management and retrieval.
- I combine various connectivity technologies to transfer professional files between devices.
- I use tools to synchronize information between different storage systems, environments and devices.

Competency 1.5. Data analysis and exploitation

Definition: To be aware of the data economy in which we are immersed and to know the information related to data in all its extension: generation by Public Administrations, open data, infomediaries, reuse of public information, *big data*, *data driven*,

artificial intelligence, machine and deep learning, roles involved, etc. Interpret, analyze and extract useful information from data.

Descriptors according to proficiency levels Basic (A)

- I am aware that there is ample data generation and that data can be reused.
- I know what a scorecard, indicators and reports are.
- I am able to analyze information from a scorecard.
- I can interpret information in graphical format (diagrams, timelines, etc.).
- I know the ability of machine learning and deep learning artificial intelligences to analyze large volumes of data.
- I understand the ability of artificial intelligence tools to enable the personalization of services to citizens and make available to them the appropriate information so that they can exercise their rights and fulfill their obligations.

Intermediate (B)

- I know the main features of *big data, artificial intelligence* and data analysis.
- I know that there is open data in Public Administrations available to infomediaries and the administration itself.
- I understand the concept of "data-driven" Public Administration, and how information is efficiently used to design more inclusive, efficient, personalized, proactive and quality digital services for citizens.
- I know how to define indicators on the activity I perform or manage.
- I know and use data processing tools at user level.

Advanced (C)

- I recognize the main application areas of *big data*, artificial intelligence and data analytics.

- I use mechanisms to facilitate the reuse of my organization's information and I am aware of open data initiatives of Public Administrations.
- I am able to design and elaborate a scorecard.
- I know and know how to expose the importance of business analysis through data.
- I am able to collaborate in the design of data-driven digital public services.
- I know how to use artificial intelligence tools to analyze large volumes of data and how to personalize the services offered by my organization to citizens.

Area 2. Communication and collaboration

General Description

This area includes the different communication and collaboration methods and tools available in the administration that public employees need to master. The correct use of digital communication and exchange methods. As well as the handling of the concept of digital identity and its implications in the access to public services and recognize the value attributed to the communications sent by electronic office.

Competency 2.1. Communication and collaboration within my administration and with other public administrations.

Definition: To know the technological tools available to interact and share information and work documents with other people within my administration and with other public administrations. Know how to select the most appropriate digital communication and exchange methods according to the nature of the information, the content to be transmitted and the degree of formality required, and be familiar with the rules of conduct in interactions in digital environments. Know the implications of the obligation not to acquire information already in possession of the administration on citizens and companies.

Descriptors according to proficiency levels Basic (A)

- I carry out through the intranet the procedures that require it.
- I know how to use e-mail as a basic communication tool, using CC and BCC appropriately when appropriate.
- I am familiar with the main tools for communication and sending information between public administrations.
- I use at a basic level instant messaging, chat and videoconferencing applications as a means of communication in my work environment (making calls, screen sharing, etc.).
- I know and apply the rules or conventions of communication in digital environments.

- I autonomously use the technological tools provided by my institution to telework.
- I know what the National Interoperability Scheme is and I know that it is possible to exchange data in an automated way between public administrations avoiding asking citizens for information that the administration already has.

Intermediate (B)

- I use the internal communication channels of my institution.
- I know how to choose the most appropriate communication tools or applications according to the characteristics of the message, including the nature, complexity and degree of formality of the content.
- I know how to use the communication and information sending tools between administrations that I need in the performance of my duties.
- I know how to use online collaborative work applications to share and edit files both synchronously and asynchronously.
- I use specific functions of instant messaging or videoconferencing applications (e.g. organize meetings, manage permissions, make recordings).
- I use techniques to manage and organize emails, calendars and tasks.

Advanced (C)

- I manage the roles and permissions of my coworkers in collaborative digital spaces.
- I use advanced email client options, such as setting up views and using rules for automated mail handling.
- I know how to use mass information dissemination tools (mailers, mailing lists, etc.).
- I know and know how to use the digital services of public administrations for the management and archiving of documents and electronic files.
- I use advanced video collaboration features, such as file transfer or use of whiteboards.

- I know what SARA (Systems of Applications and Networks for Administrations) network is and the common e-administration services to which it allows access.

Competency 2.2. Communication and collaboration with citizens, companies and other private organizations.

Definition: Identify the most appropriate digital tools and communication style according to the different messages and contents to be transmitted, activate public communication and effective forms of participation in favor of citizens and companies.

To know which electronic administration services are available to citizens and the principles that guide their provision, with special attention to the accessibility of citizens with greater difficulties, especially those with some type of disability.

To know how to recognize the value attributed to communications sent by electronic office to citizens and companies and how to validly submit applications and declarations electronically.

Descriptors according to proficiency levels Basic (A)

- I am familiar with the General Access Point for citizens and companies to access electronic procedures with the Public Administration.
- I know the functions of the electronic office of my institution in the communication with citizens and companies.
- I can use different communication styles and linguistic registers depending on the addressee and the tool used, and I understand the need to ensure communication with citizens based on simplicity and clarity.
- I am familiar with the tools for the dissemination of information for the benefit of citizens and companies (institutional websites, newsletter, etc.).
- I understand the concept of Open Government (transparency, participation, collaboration and open data).

Intermediate (B)

- I know the applications and platforms where citizens and companies can carry out online procedures with the administration where I work.
- I am aware of the possibility for citizens to make payments of public fees and prices telematically and the existence of an electronic registry of telematic payments.
- I am familiar with the electronic services for citizen registration and representation before public administrations.
- I know the digital tools for sending notifications to citizens and companies and the legal effectiveness of these communications.
- I know which are the communication and participation tools that the administration can use in favor of citizens, companies and other interested parties.
- Differentiate between the most widespread social networks (Facebook, LinkedIn, Twitter, Instagram, etc.) when sharing information and digital content.

Advanced (C)

- I know how to choose and use the most appropriate digital communication and participation tools to interact with citizens and companies according to the legal nature, complexity and degree of formality of the contents.
- I know how to apply the regulations on electronic administration in the aspects related to the communication between the administration and the citizens.

Competency 2.3 Digital Identity

Definition: To know the concept of digital identity and its implications in the access to online services offered by the Public Administration. To know the different authentication tools and electronic signature procedures. To understand what digital reputation is and to know how to manage the data generated through the different accounts and applications used.

Descriptors according to proficiency levels Basic (A)

- I understand the concept of digital identity.

- I am familiar with the concept of digital reputation as well as the right to be forgotten.
- I am aware that I must not provide my own or other people's sensitive data by digital means in the course of my work.
- I know how the unified electronic identification system for citizen access to online services provided by public administrations (CI@ve) works.

Intermediate (B)

- I know how to obtain, renew, revoke and use electronic certificates and DNIe.
- I am able to import and export certificates for use in browsers and other applications, as well as view their properties.
- I understand the concept of electronic signature, I know its legal validity and I use it to sign documents when necessary.
- I know and use the authentication and authorization services for public employees in my Public Administration.

Advanced (C)

- I know how to use electronic signature systems that allow multiple user signatures (co-signatures and cascading signatures) by choosing the appropriate type in each situation.
- I know how to use the centralized electronic signature system in the cloud provided by the Public Administration and understand the advantages and disadvantages of its use.
- I know the different types of electronic certificates that exist depending on the type of identity and I know when each of them should be used.
- I know the mechanisms that Public Administrations can use to identify themselves electronically as such (e-Office Certificates, Electronic Seal) and authenticate the electronic documents they produce.
- I use systems to check the validity of electronic signatures and certificates.

Area 3. Creation of digital content

General Description

Create new digital content and edit or integrate previous content into new products. Create multimedia content and support software development. Know how to apply intellectual property rights and licenses.

Competency 3.1. Digital content development

Definition: create digital content in different formats, including multimedia content, edit and improve content created by oneself or others, express oneself creatively through digital media and technologies, taking into account people with disabilities.

Descriptors according to proficiency levels Basic (A)

- I know that digital content can be created in different formats and with different applications, including generative artificial intelligence tools.
- I can handle basic editing functionalities with office applications in the management of text documents, spreadsheets, presentations and databases.
- I know how to make small modifications to a standard template to adapt it to my work needs.
- I know how to take screenshots, take pictures and record audio and video with digital devices when I need to for my work.

Intermediate (B)

- I handle advanced editing functionalities with office applications in the management of text documents, spreadsheets, presentations and databases.
- I use different applications for editing graphic and multimedia material, depending on the one that best suits the type of content I am going to create or edit.
- I know the basic concepts about web accessibility and accessibility in electronic documents and I take them into account when I create digital content.

- I know how to create content ethically, safely and responsibly with generative artificial intelligence products.

Advanced (C)

- I design, create and share with my colleagues digital materials using iconic and/or audiovisual formats and languages, such as infographics, concept maps, podcasts or videos.
- I analyze parameters of image, audio or video files, such as size, resolution, duration, quality, etc.
- I am able to automate tasks by creating macros in office suite applications.
- I know how to publish content and share digital materials on websites, blogs, wikis, video channels, etc.
- Use generative artificial intelligence products in an ethical and responsible manner, taking into account aspects such as privacy, transparency, fairness and accountability.

Competency 3.2. Copyright and licensing

Definition: Understand how copyright and licensing apply to digital information and content.

Descriptors according to proficiency levels

Basic (A)

- I am aware that the software, audiovisual material or any other digital product that I use in my work is copyrighted and that the simple creation of any work entails those rights.
- I know that there are different ways to license digital content, for example, that there is public domain content that can be used in my work.
- I am aware of the implications of using generative artificial intelligence tools in terms of copyright and licensing.

Intermediate (B)

- I know the main forms of licensing digital content, copyright (C), copyleft (Ↄ), Creative Commons (CC) and the main differences between them.
- When I search for any other type of digital resource I check what type of license it has and use only those that have the appropriate license for it.

Advanced (C)

- I am updated on the legal regulations for the citation and reuse of copyrighted digital content and I know the legal consequences of non-compliance with these rights.
- I know the terms of use that are in Creative Commons (Attribution, Noncommercial, No Derivative Works, Share Alike) and the types of licenses that can be applied from them.
- When I create digital content I know how to publish it with Creative Commons licenses to facilitate its reuse.

Area 4. Security

General Description

Protect personal information and data, devices, identity and digital content, take security measures and use technology in a responsible and healthy way.

Competency 4.1. Device protection

Definition: protect one's devices and digital content, understand the risks and threats in the network and know protection and security measures.

Descriptors according to proficiency levels Basic (A)

- I am aware of the main risks and threats that exist in digital environments.
- I adopt the basic protection measures recommended in the digital devices I handle.
- I follow the recommendations of experts in the definition, use and management of passwords, both in hardware devices and in the access to web services.
- I am aware of the importance of security updates for both the operating system and the applications I use.
- I am generally familiar with the terms spam, malicious mail, cyberbullying and similar terms related to the use of technology in my work.
- I have installed some protection software (antivirus, malware detectors, antispam, etc.) in the digital devices I use in my work.

Intermediate (B)

- I use specific security software to scan files I download from the Internet or receive by e-mail from untrusted sources.
- I know at user level the security measures and protocols implemented in my organization and I comply with them.

- I know the main types of cyber-attacks that exist and can recognize them when they happen in my work environment (phishing, spoofing, viruses, ransomware, etc.).
- I know how to deal with malicious e-mails.

Advanced (C)

- I am fully aware of the risks associated with accessing certain websites and using certain online tools and avoid them on the digital devices I use.
- I know how to react to a cyber-attack with basic protection measures for my device and the rest of the environment in which I work.
- I manage up-to-date information on new threats and attacks, as well as the best strategies to avoid them, and I am able to detect security gaps or vulnerabilities in my work environment.
- I know what the National Security Scheme is and how important it is in establishing a security policy for the use of electronic media.
- I know the role of INCIBE and CCN as the main public entities that provide support in cybersecurity at the national level.

Competency 4.2. Personal data protection and digital identity

Definition: understanding the common terms of use of digital programs and services, actively protecting personal data, respecting the privacy of others, and protecting oneself from threats, fraud and cyberbullying.

Descriptors according to proficiency levels

Basic (A)

- I am aware that the use of the Internet entails privacy risks and I understand that when registering for online services, personal data, as well as the contents published in such services, are stored by the company or institution that offers them.
- I generate and periodically change secure keys or passwords that combine numbers, signs and letters for the accounts I use at work.

- I am aware of the dangers of having my passwords or my devices hijacked and my digital identity manipulated.
- I am aware of the current legislation on data protection and the main rights of citizens contained therein.
- I understand the information security risks that exist when using generative artificial intelligence tools.

Intermediate (B)

- I understand the concept of digital footprint and the implications of my online activities.
- I apply secure work strategies and practices for the protection of my personal data and digital identity.
- I understand the different levels of privacy that can be configured on my own digital devices as well as on cloud services and apply it to my work.
- I securely store and retrieve the different access data to my accounts using tools and applications.
- I am familiar with the general principles defined in the current legislation on personal data protection and guarantee of digital rights.
- I understand the concepts of authenticity, confidentiality, integrity and non-repudiation in the field of digital communications.
- I am able to identify and act in cases of cyberbullying or fraud through the Internet in the event that they occur in my institution.

Advanced (C)

- I am aware of the obligations and powers of my administration in the development of its activity, with respect to the protection of personal data and the guarantee of digital rights.
- I apply digital identity protection protocols in all the actions I perform through the network and transmit them to my work environment.
- I am familiar with the new digital identity models, which allow citizens to be accredited telematically in a totally secure manner using technologies such as biometrics or image recognition.
- I use tools to encrypt information when necessary.

Competency 4.3. Protection of health and the environment

Definition: Avoiding health risks related to the use of technology in terms of threats to physical integrity and psychological well-being. Take into account the impact of digital technologies on the environment.

Descriptors according to proficiency levels Basic (A)

- I am aware of the risks to my physical and psychological health of using technology inappropriately.
- I know the correct postural habits (ergonomics, digital wellness, etc.) and apply them in my work.
- I am aware of the environmental impact of digital technologies and that costs and emissions can be reduced by applying good practices in their use.
- I apply basic energy saving measures in the use of equipment.
- I apply principles of responsible use of consumables in my workplace.

Intermediate (B)

- I control the time I work in digital environments, developing a routine of use that includes breaks at small intervals and measures to prevent possible health problems.
- I apply prevention strategies when working with devices or in digital environments, in the face of the physical and psychological risks I am aware of, derived from an inappropriate use of technology.
- I put into practice specific recommendations to optimize the use of digital devices, saving energy and extending their useful life.
- I encourage the saving of energy resources by acquiring or proposing the acquisition of efficient equipment and services that are environmentally friendly.

Advanced (C)

- I handle technology with a positive, approachable and confident attitude.

- I promote the application of patterns and guidelines to prevent cyberbullying and to reinforce a safe use of the network in my institution.
- I make proposals aimed at recycling and reusing disused equipment of the institution to spread the need to be respectful with the environment.

Area 5. Problem solving

General Description

Identify needs for the use of digital resources and make informed decisions about the most appropriate digital tools according to these needs. Solve technical problems and conceptual problems through digital means. Updating one's own competence and that of others through learning.

Competency 5.1. Identifying technological needs and solving technical problems.

Definition: Identify possible technical problems and know how to deal with them. Analyze and understand the needs in the use of digital resources and tools. Assign possible solutions to the detected needs.

Descriptors according to proficiency levels Basic (A)

- I know there is a technology unit at my institution and I communicate with them fluently for technology related issues.
- I solve problems of low complexity that arise in my work so that they do not prevent me from following the scheduled activities normally.
- I know some tasks that can be performed by using digital technologies for the improvement of my functions as a public employee.
- I select different digital applications to solve some common problems or cover different technological needs in my work.

Intermediate (B)

- I am able to inform the technical support unit of my institution about those technical problems that I cannot solve, explaining clearly the incidence.
- I know how to differentiate the origin of a technical problem, whether it is a hardware device, the operating system or the applications I am working with.

- I know where and how to look for information for application in solving simple technical problems.
- I am able to solve some technical issues in my work using different ways of communication in digital environments.
- I identify and apply appropriate alternatives to solve technology limitations in order to perform necessary tasks in my job (e.g., using alternative applications, scanning a document with a mobile device, etc...).

Advanced (C)

- I am able to help other public employees, both in person and virtually, in the resolution of technical problems, thus collaborating in the improvement of their digital skills.
- I collaborate with the technology managers of my institution in the shared resolution of technical problems, not only at the level of my job, but also at the institutional level.

Competency 5.2 Identifying gaps in digital competence and self-learning

Definition: To understand the need to improve and update one's own digital competence, to support others in the development of their own and to keep abreast of new developments. Knowing the necessary resources to know which sources to turn to when faced with the need for knowledge. Know how to search and find reliable self-learning content to solve knowledge needs.

Descriptors according to proficiency levels Basic (A)

- I am aware of the limits of my own digital competence and my training needs in this area.
- I am aware of the training resources that exist in the learning plans of the Public Administrations.
- I search and find learning solutions on the web to fill certain gaps in my digital competence.

- I inform myself through other colleagues of the latest developments regarding digital competencies for my improvement as a professional.

Intermediate (B)

- I know how to access and use the resources included in my administration's training plans.
- I identify what learning resources I need to meet my needs.
- I keep myself updated on the latest developments related to digital skills by participating in professional networks or online training actions.

Advanced (C)

- I know the strategic lines of the training plans in digital competencies that apply to my job within my administration.
- I know how to use all the resources available on my Administration's online learning campuses.
- I apply the knowledge acquired through self-learning in my work.
- I actively participate in digital competence training activities by selecting those that best fit my professional development needs.

Area 6. Digital transformation and innovation.

General Description

To be aware of the importance of digital transformation in the provision of different public services. To know the transversal projects of digital transformation and innovation in the Public Administration as well as the potential of emerging technologies to carry them out.

Competency 6.1. Objectives and mechanisms of digital transformation

Definition: To know the different institutional actors involved in the implementation of the digital transformation of the Public Administration. To know the digital transformation strategies and the main implementation methods.

Descriptors according to proficiency levels Basic (A)

- I know that there is a plan for the Digitalization of Public Administrations.
- I know the main drivers of digital transformation within public administrations.
- I am able to identify and describe practical examples of digital transformation carried out in my institution.

Intermediate (B)

- I am familiar with the governance model established in the Administration's Digitalization plan and I know the role of the different actors involved in it.
- I identify which work processes in which I am involved can be transformed through the use of digital technologies to improve their efficiency, reliability and safety.
- I know the basic regulations of electronic administration and how it influences t h e digital transformation of my Administration.
- I understand the design concept of new services that takes into account, in the first instance, mobile devices.

Advanced (C)

- I know the strategic lines that govern the transformation of the Digital Administration and Digital Public Services.
- In my work I use analysis processes that involve modeling and decomposing a complex problem, processing data, creating algorithms and generalizing them.
- I am able to analyze the characteristics necessary to evaluate the provision of an online service: effectiveness, cost, usefulness, usability, accessibility and timeliness.
- I can understand and assess whether a new digital service is consistent with a broader strategic activity.

Competency 6.2 Innovation in public services

Definition: To know the meaning of innovation in the public services of a Public Administration. To know how to distinguish innovative processes from non-innovative ones and to discern innovative concepts that help in my daily work. To recognize key emerging technologies, as well as consolidated ones, and how they can be used for innovation.

Descriptors according to proficiency levels Basic (A)

- I know what is meant by the concept of innovation applied to Public Administrations.
- I am familiar with innovation initiatives in Public Administrations.
- I am aware of the potential and possibilities of emerging technologies in Public Administration.
- I know at a basic level the concepts of artificial intelligence, *big data*, internet of things, *business intelligence, blockchain, cloud* computing, automation and robotization of processes.

Intermediate (B)

- I am aware of my administration's public service innovation initiatives.
- I identify innovation needs in my work place.
- I understand the main characteristics of cloud computing and know that there are different types of cloud infrastructures (public, private, hybrid).
- I know the main characteristics of artificial intelligence, neural networks, machine learning and deep learning, and I know how to differentiate their different areas of development.
- I know the main features of *blockchain* technology.
- I know the main features of process automation and robotization technologies.

Advanced (C)

- I am able to come up with innovative technological solutions in the field of my work.
- I am able to apply innovative technological solutions from other fields to my own work.
- I can propose improvements in the design of the specific applications that I use in my The aim is to implement new functions or to make them more efficient in the execution of the functions they already perform.
- I understand how intelligent automation of administrative processes can be implemented through robotization and artificial intelligence.
- I am able to identify possible application areas and use cases for the technology. *blockchain*.
- I know and know how to use programming environments to develop applications or websites without needing to know programming languages.
- I know and know how to use foundational artificial intelligence models to automate repetitive tasks.

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GLOSSARY OF TERMS

Glossary of terms

- ***5G:*** These are the acronyms used to refer to the fifth generation of mobile telephony technologies. It is characterized by higher bandwidth and lower latency than previous generations.

- ***Accessibility:*** It is the characteristic that allows environments, products and services to be used without problems by all people, including those with sensory and/or cognitive disabilities, to achieve the objectives for which they are designed.

- ***e-Government:*** This is the Public Administration model that utilizes the information and communication technologies to develop its activity, both in its internal activity and in its relations with citizens, companies and other administrations.

- ***Algorithm***: A sequence of finite instructions that performs a series of processes to provide an answer to a given problem.

- ***Client-server architecture:*** It is a software design model in which a software (client) makes requests to another software (server) that gives a response.

- ***Virtual assistant:*** A software agent that assists users in digital environments, automating and performing tasks with minimal human-machine interaction.

- ***Authenticity: The*** property or characteristic that an entity is who it claims to be or that guarantees the source of the data.

- ***Machine learning:*** creates algorithms that can learn from data and make decisions based on observed patterns. Requires human intervention when the decision is incorrect***.***

- ***Deep learning:*** uses an artificial neural network to reach conclusions without human intervention. Within machine learning there is deep learning, neural networks. Layers of nodes that perform mathematical operations that refine results from one to the next.

- ***Robotic Process Automation (RPA):*** An emerging technology based on the use of software robots to automatically execute transactional processes based on specific rules.

- ***Backup:*** It is a backup copy, on a larger or smaller scale, of the data of an information system.

- ***Big Data:*** These are larger and more complex data sets, especially in the case of from new data sources. These data sets are so voluminous that it is not possible to manage them with conventional data processing software.

- ***Blockchain:*** is a shared, decentralized data structure that functions as a ledger facilitating the process of recording transactions and the asset tracking in a network

- ***Blog:*** A type of website where the author periodically publishes content to which readers can add comments.

- ***Bluetooth:*** A network technology developed as an industry standard for wireless connections.

- ***Search engine (internet):*** It is a software specialized in searching for information on the web.

- ***Business Intelligence:*** It is the set of strategies and tools used to transform information into knowledge, with the objective of improving the decision making process in an organization.

- ***Cache:*** Refers to the temporary memory where information regarding the web pages accessed with the different internet browsers is stored.

- ***RSS feed:*** Really Simple Syndication is a format based on XML language that is used for is used for the distribution of updated content on the web. This technology allows a user of different blogs or news channels to follow their updates through a single aggregator.

- ***Captcha:*** This is a challenge-response test used in computing to determine whether or not the user is human.

- ***CC:*** Refers to the field in the e-mail client used to send copies of an e-mail to other recipients in addition to the main recipients to whom it is addressed.

- ***BCC :*** Refers to the field in the e-mail client used for sending hidden copies of an email to recipients other than the main recipients to whom it is addressed, so that neither the main recipients nor the copied users will be able to see to whom else the email is being sent.

- ***Electronic certificate:*** A document signed electronically by a certification service provider that links signature verification data to a signatory and confirms the signatory's identity.

- ***Cyber-attack:*** Action occurring in cyberspace that compromises availability, integrity and confidentiality of information through unauthorized access, modification, degradation or destruction of information and telecommunications systems or the infrastructures that support them***.***

- ***Cl@ve:*** A system for electronic identification in dealings with public administrations.

- ***CCN:*** The National Cryptologic Center (CCN) is the organization responsible for guaranteeing the security of Information and Communication Technologies in the different entities of the Public Sector.

- ***Digital competence:*** It is the one that implies the creative, critical and safe use of digital technologies.
  information and communication technologies to achieve objectives related to work, learning, use of leisure time, inclusion and participation in society.

- ***Cloud computing:*** It is a way of managing IT resources oriented to offer digital services through a network, usually the Internet.

- ***Confidentiality:*** Property of the information that is kept inaccessible and not disclosed to unauthorized individuals, entities or processes. It is a security service that allows data to be accessed only by authorized personnel.

- ***Cookies:*** Small files created by websites that are sent to the client's browser and allow the client to be identified in successive connections***.***

- ***Copyleft: A*** creative license that consists of releasing a computer program, a work of art or any other type of document for copying, modification and redistribution.

- ***Copyright:*** It is a creative license that grants the exclusive right of an author, publisher or licensee to exploit a literary, scientific or artistic work for a certain period of time.

- ***Creative Commons:*** A set of creative licenses that allow the author to choose the terms and conditions of exploitation of a work.

- ***Open Data:*** This is a global initiative, linked to Open Government policies, which aims to ensure that data and information, especially those held by public administrations, are published in an open, regular and reusable way for everyone.

- ***Digitalization:*** The technological process of converting a document on paper or other non-electronic media into one or more electronic files containing the encoded, true and complete image of the document.

- ***Peripheral devices:*** This is the generic name for any auxiliary and independent device connected to the CPU of a computer.

- ***Electronic document:*** Information of any nature in electronic form, filed in an electronic support according to a specific format and susceptible of identification and differentiated treatment.

- ***Ergonomics:*** Study of the conditions of adaptation of a workplace to the physical and psychological characteristics of the worker or user.

- ***National Interoperability Scheme: This is*** the frame of reference that establishes the principles and guidelines for interoperability in the exchange and storage of electronic information by Public Administrations.

- ***National Security Scheme:*** This is the reference framework that establishes the basic principles and minimum security requirements as well as the protection measures to be implemented in the information systems of the Public Administrations.

- ***Electronic file:*** The set of electronic documents corresponding to an administrative procedure.

- ***(Browser) extension:*** A small software module to customize a web browser and provide it with additional functionality.

- ***Extranet: A*** corporate network that uses Internet protocols to allow access to third parties, i.e., users outside the organization itself.

- ***Facebook:*** It is a social network used to keep people in contact, so that they can share information, news and audiovisual content with each other.

- ***Firewall:*** A security device that separates one network from another, usually a corporate network and the Internet, and filters the traffic between them.

- ***Electronic signature: A*** set of electronic data that accompanies or is associated with an electronic document and allows the signer to be unequivocally identified, as well as ensuring the integrity and non-repudiation of the signed document.

- ***Open government:*** A more transparent, collaborative, ethical and clearly accountable form of government governance.

- ***Hardware:*** Set of physical or material elements that constitute a computer or computer system.

- ***Hyperlink:*** An element of an electronic document that refers to another electronic resource.

- ***Digital identity:*** The identity of an individual or organization in cyberspace, formed both by its data and its actions in cyberspace.

- ***INCIBE:*** The National Institute of Cybersecurity of Spain is the reference entity for the development of cybersecurity, aimed at strengthening the digital confidence of citizens, professionals and companies.

- ***Indexing (web):*** Refers to the process of orderly recording data and information crawled on the Internet, in order to catalog them.

- ***Instagram:*** It is a social network focused on sharing photographs and videos among its users.

- ***Integrity:*** Property or characteristic that the asset has not been altered in an unauthorized manner.

- ***Artificial intelligence:*** Refers to the set of technologies that serve to emulate, by machines, characteristics or capabilities considered exclusive to the human being. human intellect, such as reasoning, learning or problem solving.

- ***Interface:*** Set of elements that allow interaction between a computer system and a human user. For example, the elements displayed on the screen that allow the user to perform actions on the equipment he/she is handling.

- ***Internet of Things: A*** term that refers to physical systems that receive and transfer data over wireless networks with little human intervention, made possible by the integration of computing devices into all kinds of everyday objects.

- ***Interoperability:*** Capability of information systems and procedures to be used in a wide range of applications.
  The aim is to share data and enable the exchange of information and knowledge among them.

- ***Intranet:*** A private corporate network whose access is usually restricted to the organization's users.

- ***Iconic language:*** It is a visual language that tries to represent reality through images.

- ***Programming languages:*** It is a formal language with well-defined rules that allow you to create a series of instructions in the form of algorithms in order to control the physical or logical behavior of a computer system.

- ***LinkedIn:*** It is a social network whose main objective is to create business and professional relationships among users.

- ***Malware: A*** generic term used to describe any malicious program or code that is harmful to systems.

- ***Security measures. A*** set of provisions aimed at protecting against possible risks to the information system, in order to ensure its security objectives. They can be measures of prevention, dissuasion, protection, protection of detection and reaction, or recovery.

- ***Electronic media:*** Mechanism, installation, equipment or system that allows production, store or transmit documents, data and information; including any open or restricted communication networks such as Internet, fixed and mobile telephony or others.

- ***Browser:*** An application that interprets information from different types of files and websites so that they can be viewed and allows the user to interact with their content. The most popular and widely used are Google Chrome, Mozilla Firefox, Safari and Microsoft Edge.

- ***Newsletter:*** It is a newsletter used to send information or content to its subscribers, through the use of e-mail.

- ***NFC: A*** short-range wireless communication technology that allows data exchange between devices in close proximity (15cm)***.***

- ***Non-repudiation:*** Ability to affirm the authorship of a message or communication, preventing the author from denying the existence of its creation or reception. Non-repudiation is a security service that makes it possible to prove the participation of both parties in a communication.

- ***Hybrid cloud: A*** type of cloud computing that combines the infrastructure of a private cloud with a public cloud.

- ***Private cloud: A*** type of cloud computing that offers digital resources and services that are used exclusively by a single organization.

- ***Public cloud: A*** type of cloud computing that offers digital services to the public through the Internet.

- ***Phishing: A*** method of attack that seeks to obtain personal or confidential information from users by means of deception, resorting to the impersonation of the digital identity of a trusted entity in cyberspace.

- ***Plugin:*** A set of software components that adds specific abilities to a larger software application.

- ***Podcast:*** A podcast is a regular digital audio or video publication that can be downloaded from the Internet.

- ***Proactive: A*** quality that denotes initiative and the ability to anticipate future problems or needs.

- ***Natural language processing: A*** branch of artificial intelligence that deals with research on how machines communicate with people by means of natural language. use of natural languages.

- ***General Access Point:*** It is a web portal that offers a single point of access for citizens to information of interest of the Public Administrations and to the procedures that can be carried out with them electronically.

- ***Ransomware:*** A type of malware designed to hijack data, whereby the attacker encrypts the victim's data and demands payment for the decryption key.

- ***Communications network:*** It is a set of technological infrastructures that allow remote communication between autonomous equipment***,*** usually for data transmission.

- ***SARA Network (Systems of Applications and Networks for Administrations):*** It is a set of communications infrastructures and basic services that connects the networks of the Spanish Public Administrations and European Institutions facilitating the exchange of information and access to services.

- ***Digital reputation:*** It is the public perception or image of a person, company or organization on the Internet.

- ***Electronic Headquarters (law 40/2015):*** It is that electronic address, available to the citizens through telecommunications networks, whose ownership corresponds to a Public Administration, or to one or more public bodies or entities of Public Law in the exercise of their competences.

- ***Electronic seal (law 40/2015):*** It is an electronic signature system that allows authenticating an automated administrative action.

- ***SEM:*** It is a digital marketing strategy that uses paid advertisements for promote brands and websites ***by*** improving their visibility in search engine results pages.

- ***SEO:*** It is a set of strategies and optimization techniques that are done on a web page so that it appears organically in Internet search engines***.***

- ***Digital service: A*** service that is provided online to the user and can be accessed through a digital device.

- ***Information system:*** Organized set of resources that work interrelated and have the purpose of managing, processing and distributing data and information.

- ***Spam:*** Any unwanted mail received by the addressee, coming from an automated and massive sending by the sender.

- ***Software: A*** set of programs and routines that enable a computer or computer system to perform certain tasks.

- ***Spoofing:*** Hacking technique based on electronic impersonation.

- ***Digital transformation:*** The integration of technologies into an organization's processes, products and services to improve their efficiency and quality.

- ***Twitter: It*** is a social network based on a microblogging service for communication through short messages.

- ***Usability:*** Characteristic that defines the ease of use of a given tool or service.

- ***Virus (computer): A*** malicious, self-replicating program or code that sneaks into a device without the user's knowledge or permission.

- ***Wifi***: Technology that allows different computer equipment to be connected through a broadband wireless network.

- ***Wiki:*** A collection of collaboratively written web documents. They can be used to create everything from organized repositories of web links to encyclopedias. The best known example is Wikipedia, the world's largest Wiki.