

# Digital Society

## Specific Concepts and Features

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### **Abstract:**

*Digital Society (DS) has become a concept that tends to replace the concept of Information Society because it expresses much better the reality in which we live. Digital Society is a society in which technologies are widely used to respond to various requests, needs, or challenges at individual, community, and social level. The concepts that define Digital Society can be grouped into three categories according to their field of reference: A first category of concepts includes technical, infrastructure aspects that contribute to the concrete realization of DS. The second category of concepts expresses a second level of manifestation of DS in terms of representation in the digital space of the activities and domains of societies in the form of specific applications for interaction, communication, and work. The third category of concepts expresses a third level of digital interaction and considers man and the implications of his presence in the digital environment (psycho-cognitive aspects and behaviours, as well as ethical, moral, legal, deontological aspects, etc.).*

**Keyword:** *Digital Society, concepts, technical characteristics, digital environment, man in digital space.*

## **Introduction**

*Digital Society (DS)* is a phrase commonly used nowadays in different contexts. Defining, however, the digital society becomes a rather difficult task because it has a social complexity that characterizes the reality of its numerous facets, because of the various factors involved and of the related technologies, of the economic, social, cultural, psychological, etc. implications. Therefore, a definition or a characterization of the *Digital Society* can only be done by describing the concepts of its basic characteristics.

*Digital Society* has become a concept that tends to replace the concept of the *Information Society* on the grounds that it expresses much better the reality in which we live. As in the 1990s, at the end of the last century, *Information Society* replaced other phrases such as *Industrial Society* or *Technological Revolution* (which defined a social reality that gave major importance to industrialization and shifted attention at social level to data and information as the main generating elements of economic growth and well-being), the phrase *Digital Society* now tends to be imposed, which describes and defines a social reality in which information and ICT assimilated into all social activities and sectors have become paramount.

An all-encompassing definition of *Digital Society* is rather difficult to produce. There are several theoretical approaches regarding this concept, trying to define it by explaining its basic features.

Each definition emphasizes an aspect or a feature considered dominant, but, in essence, *Digital Society* is considered a society in which everything works on the basis of digital

technologies, without the need for classic technologies on analogous support or traditional paper. (Jamil and Almunawar 2021) From another perspective, *Digital Society* is privileged as being the higher stage, natural in the evolution of *Information Society* being, in fact, an evolutionary process of digital technologies centred on Internet which is privileged as a collaborative platform of planetary dimensions in which all aspects of social life embodied in economic, educational, scientific, cultural, recreational activities, etc. are naturally found. (Budea and Budea 1 AD) *Digital Society* is considered a modern society formed as a result of the adoption, assimilation, and integration of ICT and of specific applications, at all levels of social life both in the private life of each individual (through the use of ICT at home and in any other space and context), as well as at work, in educational, cultural and recreational activities. (Lokshina *et al.* 1 AD) If they talk about a digital era in the evolution of humanity, then *Digital Society* is the society that corresponds to this historical stage or era. It is a society dependent on digital technologies (mainly wireless ones) and in which all economic, political, and cultural processes depend on the creation, distribution and communication, use, manipulation of information in digital format. (Muchnik-Rozanov and Tsybulsky 2020) *Digital Society* is the society in which technologies are widely used to respond to various requests, needs, or challenges at individual, community and social levels. (Bobrowicz-Campos and Matos 2020) In literature, there is also the concept of *Society 5.0*<sup>1</sup> defining a society dominated by technologies. The concept of *Society 5.0* appeared in 2015, in Japan, in a national public policy initiative (Sá *et al.* 2021) referring to the integration of human activities in a social environment dominated by technologies. *Society 5.0* is defined as a socio-economic and cultural system that, based on the processing of digital data results, develops in a sustainable way in the direction where physical and cyberspace become a whole, a system more integrated at many levels used to solve social problems, providing security and ecology of innovations and sustainable economic growth. *Society 5.0* is a super-intelligent society embodied in a cyber-physical-social relationship that aims, above all, to improve the quality of life. (Sá *et al.* 2021) The ultimate goal of *Society 5.0* is to incorporate real-world models into cyberspace so that they can provide highly nuanced solutions to real-life problems. (Sá *et al.* 2021)

The terminology used to define and describe what is happening in the digital environment is quite dynamic, i.e., new notions frequently appear and, then, either impose themselves and are reformulated to more concretely describe a real situation or product, or disappear and are replaced by other notions or terms considered more appropriate. A term or concept can be considered common and entered into the specialized vocabulary when it has a wide usage in professional, academic, and political language, but also in common everyday language.

In ordinary language, two terms are used, *digital* and *digitized*, with all their variants, which appear to be synonymous. In fact, each term has a precise use. *Digital* denotes the transposition from traditional format to digital format of an object, document, item of any kind (or a digitally-born document, i.e., created directly in digital format), while *digitized* expresses a process, an application that involves digital content and digital technologies.

Katzenbach & Bächle consider terms such as *Algorithmic Governance*, *Autonomous Systems*, *Transparency*, and *Intelligent Technologies* to be edifying in this regard. They have become basic concepts in describing current social and technological dynamics. More recently, *Platformisation* and *Datafication* have become common terms, although they refer to much more complex, multifaceted phenomena, which could also be described differently (in terms of technology, specific application implications, digital content, social implications, etc.). (Katzenbach (Christian) and Christian) 2019) There is no fixed or limited number of concepts that can define *Digital Society*. Depending on the aspect addressed, certain concepts are used to define DS

<sup>1</sup>If we were to follow the typology of society in such a timeline, in our opinion, Society 1.0 would be the agrarian society, Society 2.0 would be the pre-industrial society, Society 3.0 would be the industrial society, Society 4.0 would be the information society and Society 5.0 would be the digital society.

from the ICT point of view, others to define it from the point of view of social, economic, cultural activities, etc. and of specific applications, others to define it from the point of view of people's interaction with the digital environment, etc.

The concepts that define *Digital Society* can be grouped into three categories according to their fields of reference.

- A. A first category of concepts refers to the technical and infrastructural aspects that contribute to the concrete realization of what DS represents.
- B. The second category of concepts expresses a second level of manifestation of DS in terms of the representation in the digital space of the activities and fields of society in the form of specific applications for interaction, communication, and work.
- C. The third category of concepts expresses a third level of digital interaction and considers man and the implications of his presence in the digital environment (psycho-cognitive aspects and behaviours, ethical, moral, legal, deontological aspects, etc.)

## 1. Technical Features, ICT Infrastructure, Digital Security

**Algorithmic Governance** is a key (and quite controversial) concept of DS expressing the idea that digital technologies can structure, organize society in a specific (predefined) manner with influences or repercussions on real society. (Katzenbach (Christian) and Ulbricht (Lena) 2019) The fact that social platforms and different applications are designed and made based on predetermined requirements means that the manner of interaction in the digital environment and, implicitly, in the social environment, can be modelled, influenced towards a predefined typology. It is obvious that a technical characteristic, absolutely necessary in the design and realization of a specific infrastructure, shapes individual and community behaviour.

Algorithmic Governance is an approach in which technologies with all systems, platforms, and specific applications are put at the centre rather than social structures and relations. Even if the design and programming follow certain clear social requirements, the resulting digital infrastructure is based on the optimization of algorithmic systems to solve some specific social problems. Psychosocial, individual psychological, emotional aspects, individual preferences and any other characteristic manifested individually or in a small number of people, usually escape programming algorithms. In other words, the manifestation of individuals in the *Digital Society* is much more predictable, more uniform since it is subordinated and conditioned by the limits of the ICT infrastructures used.

**Platformisation.** In the Internet space, platforms have become a regular presence. We find platforms of different types, complexities and sizes in all economic sectors, in the administrative, social, cultural sectors or, in other words, all levels of society and all economic-social and cultural activities, sports, etc., as well as public and private domains benefit from platforms with specific applications. In one form or another, the real society in almost all its aspects has an equivalent in the digital space, becoming, as they say, the *Digital Society*. Platformisation can be defined as the integration and use of digital platforms in all sectors of society and in almost all types of activities. Administration, commerce, transportation, education, science, entertainment, journalism, etc. are areas where the presence of specific platforms is already considered necessary and normal. Digital platforms have become part of our public and private lives.

In literature, platformisation is defined taking into account four fields of research (ICT, business environment, political economy, and cultural studies), each offering its own perspective on the concept. From an ICT perspective, platformisation is defined as data infrastructures; from the perspective of the business environment, platformisation means the market in digital form; from a political economy perspective, platformisation means ways of administration and governance; and, from a cultural perspective, platformisation expresses cultural and social behaviours and practices.

Therefore, a definition of platformisation should integrate all these perspectives. (Poell (Thomas) *et al.* 2019) Internet platforms (platformisation) express the digital space in which a variety of actors interact in different ways, but predefined by programming algorithms.

Platformisation can be approached from three different, but complementary directions. A first approach considers data infrastructures or platform infrastructures that can be integrated into a very large number of devices – from smartphones and smart watches to home appliances and autonomous cars in various fields of activity. These platform extensions allow users to perform human interaction such as data collection, evaluation, oral and written communication, driving and operating machines and mechanisms, applications of multiple types – and, thus, collect data that is further processed by specific algorithms. (Bucher 2018)

A second direction of approach refers to the reorganization of market economic relations. Established models adapt to the digital context. If traditional market models are based on the one-sided relationship between seller and buyer, digital market models add to this one-sided relationship and aggregator and intermediary models that allow end users to interact with a wide variety of third parties. From our personal experience, we have noticed that there are many situations in which a platform only facilitates, mediates interaction between the actors of the markets and commercial relations without necessarily being the owners or holders of the digital objects traded.

From a third direction of approach, platforms facilitate not only economic transactions but also user interactions: so, in essence, they facilitate human interactions. Due to this aspect, the e-government dimension of the platforms has been approached, theoretically and practically as a research field mainly of political sciences. (Gillespie 2021) citing (Gorwa 2019)

**Smart Technologies or Intelligent Technologies.** The emergence and development of computer science has brought into discussion the phrase *Artificial Intelligence* as the component allowing the development and use of intelligent technologies. A simple definition of *Artificial Intelligence* would be the minimal form of manifestation of human intelligence in machines and technologies; or, in other words, the transfer to machines and technologies of some cognitive properties allowing them to evaluate concrete situations and to make a decision followed by a concrete action as a result of that decision.

*Artificial Intelligence* is a redefinition of the human-machine or human-technology relationship. A wide range of products and services are defined as “intelligent” because they are designed and made with a certain computer and/or robotic component allowing them to perform a series of repetitive, semi-automatic activities in response to a series of stimuli or commands or allowing them to carry out collaborative activities. Thus, there are, in the category of intelligent technologies, semi-automatic vehicles; infrastructures with sensors allowing the adjustment of temperature, light, remote control of some household appliances; collaboration platforms enabling remote interaction (e-learning, smart office, etc.), remote healthcare, online economy and commerce, numerous online technologies and architectures used in various fields of activity. (Hildebrandt (Mireille) 2020)

Smart technologies do not have the same levels of performance and interaction. They are differentiated by the competencies they have included and by the level of manifestation of these competencies and capabilities. Thus, intelligent technologies should exhibit at least one of the following characteristics (Floridi and Sanders 2004):

- Act autonomously;
- Perceive changes in the environment and determine an appropriate response to them (e.g., the thermostat);
- Endure or have a stable behaviour for a prolonged period of time;
- Adapt their behaviours to cope with new circumstances.

Three levels of manifestation of intelligent technologies can be identified:

- The first level is that of systems based on logic, of technologies or systems with a predictable and explainable behaviour, determined by stimuli, logical algorithms such as a specific cause determines only a specific effect (e.g., the thermostat);
- The second level is that of systems based on machine learning, systems that have the ability to perceive their environment of existence, to take data from it and, in accordance with the changes in the environment, also model their behaviour. Such systems recognize certain behavioural patterns and react accordingly to their request or stimuli (e.g., e-learning, facial recognition technology, machine translation, as well as personal digital assistants such as Siri or Alexa, etc.);
- The third level is that of multiagent systems in which several agents interact on a common platform, each pursuing its own goals and interests but the interaction is based on the possibilities offered by the common interaction space with all its associated applications. Multiple intelligent agents or technologies can meet in a common system or platform. Such a multi-agent system can be closed (i.e., it does not interact with the environment or other systems) or open (i.e., it interacts with the environment or other systems) (Hildebrandt (Mireille) 2020) (e.g., *Ambient Intelligence*, *Internet of Things*, cloud robotics, smart cities, connected cars or networks of smart energy).

**Digital Security, Cyber Security or Cybersecurity** refers to a wide range of technical, administrative, and social issues that should be considered to ensure the protection of networked information systems and platforms. Cybersecurity is much more than encryption, firewalls, anti-virus software, and similar technical security tools. Cybersecurity is a collection of tools, policies, security concepts, safeguards, guidelines, risk management approaches, actions, training, best practices, assurances, and technologies that can be used to protect institutions' cyber environment and assets, organizations, and users. These goods would include connected computing devices, i.e., ICT infrastructure with all applications, services, and all data and information transmitted and/or stored in the cyber environment. ('X.1205 : Overview of cybersecurity' 2025)

The importance of cyber security has increased as so many government, business and everyday activities around the world have moved online. The publication of a digital content in the web space, either in open and free access, or in restricted access according to different criteria, has a series of effects on all actors and factors involved. As we have shown before, there are implications on the published documentary and informational resources, on the personal data of the authors, creators and users, on the data of the responsible institutional structures, on the providers of Internet products and services, and on the IT systems and applications.

When talking about the security of information systems, one has in mind a complex of concrete principles and activities that consider systems as a whole including all their component elements and all types of managed digital content. Thus, an IT system should be protected from illicit access, ensure controlled user access or, in other words, one should know at any time who has access to the resources managed by it (digital resources and applications), any possible changes should be authorized, and unauthorized persons should not be allowed access. Securing IT systems expresses the technical aspect of defining accessibility.

The consequences of a vulnerable computer system would be the blocking of access or its temporary impossibility, unauthorized modification of digital content, data loss, decreased performance in use, computer fraud. Nowadays, institutions and organizations, whether public or private, attach great importance to securing their presence in the digital space and, therefore, spend considerable amounts of money. As a large part of the world economy has moved to the digital environment, it is understandable to worry about ensuring the security of this environment that has also become an economic and communication environment. (Carin 2017)

## 2. Activities in Society Integrated Through Specific Applications or The Concrete Form of Manifestation of *Digital Society*<sup>2</sup>

Concepts such as e-Governance, e-Administration, e-Learning, e-Science, e-Health, e-Politics, e-Inclusion, e-Business, e-Health, e-Culture, etc. have entered the common language of each of us (they even managed to impose themselves at the level of the Romanian language in their original form). Practically, there is no field of social or economic life that is not transposed, to a greater or lesser extent, into digital format and renamed accordingly by adding e- or E- in front of the name of these fields or social activities to show their existence and electronic or digital format.

E-Government is the term used to define the Internet digital context through which government information and services are provided to citizens. e-Governance considers the technological, administrative, or relational aspects with citizens through specific applications -World Bank definition; United Nations definition; Global Business Dialogue on Electronic Commerce, (AOEMA report); Working Group on e-government in the Developing World cited in (Palvia 2007). A distinction should be made between electronic administration (e-Administration) and electronic Government itself. Electronic administration is the use by state agencies and structures, whether parliamentary, executive, or judicial, of ICT to communicate with individuals and legal entities to fulfil their specific duties. In other words, electronic administration (e-Administration) highlights the interaction, through computer technologies, of the state authorities with all interested factors. Electronic governance (e-Governance) defines a much wider context in which institutions, citizens, groups and collectives, social economic processes that interact in the direction of democratizing social decisions and supporting society as a whole are involved. If e-administration considers the public sector,

e-governance considers both the public and private sectors, as well as civil society, aiming at citizen participation in political debate and decision-making as a major objective.

E-Administration is a component of electronic governance alongside other categories of activities transposed into the electronic environment (e-Business, e-Health, e-Culture, e-Learning, etc.) to which is added the participatory component represented by e-Democracy.

There are multiple forms of manifestation of *Digital Society* and the interdependencies between different administrative, political, social, and economic activities or fields in the digital environment: governance and administration in the digital environment (E-Government, E-Administration, E-Inclusion, E-Health, E-Justice); the economy in the digital environment (E-Business, E-commerce, E-Marketing, E-Banking, E-Transport); education and science in the digital environment (E-Learning; E-Science, E-Infdoc); culture, media, entertainment in the digital environment (E-Culture; E-Media; E-Entertainment).

Because *Digital Society* integrates, in digital format, all aspects and fields of social and economic life and allows communication and interaction in the digital space, it assimilates, integrates, and allows the manipulation of huge amounts of data and information. Therefore, it is essential to give importance to digital information management including the digital preservation, conservation and archiving component.

The digital society is also defined by all these new concepts used to describe new models of organization, communication and social interaction that are based on digital technologies.

<sup>2</sup>Chapter 4 of TÎRZIMAN, Elena. *Societatea digitală*. București; Editura ProUniversitaria, 2023 extends the perspectives exposed here.

### 3. Man in the *Digital Society*

ICT challenges are also found in all aspects of the daily life of each of us. The increasing use of ICT in a multitude of forms and fields of activity has consequences for the rights of individuals. It is necessary that human rights with all related principles and regulations be recognized in the digital environment and be promoted and protected in the digital environment to the same extent as in real life. The challenges of the digital environment regarding the respect of the rights and freedoms of individuals are varied regarding the confidentiality of personal data and their potential misuse, the right to privacy, freedom of expression and association, etc. In the EU *Online Bill of Rights*, the European Commission states that “All EU citizens should be able to access and share any information and should be able to use, through electronic communications networks, any applications and services they want. In this context, the fundamental rights and freedoms of natural persons, guaranteed by *the Charter of Fundamental Rights of the European Union and the European Convention for the Protection of Human Rights and Fundamental Freedoms*, as well as the general principles of EU legislation, should be respected.” (European Commission 2012)

Rules and norms of the digital society that relate to the individual, to any person who accesses the networks and interacts in different forms and with different motivations, have provisions related to digital rights, copyright in the digital environment, consumer rights, transparency, protection of personal data, freedom of expression, free access to information, the delimitation of the public-private relationship in the digital environment and any other aspect that concerns man and his life which, in the current context, also has a large digital component.

The principles promoted by the EU regarding the *Digital Society* are: (European Commission 2012)

- A secure and reliable online space;
- Digital skills and education for all;
- Protection and sustainability – access to digital systems and technologies that respect the individual rights of citizens and that are in agreement with the environment;
- Access to citizen-centred public and administrative services;
- Ethical principles for the collection and processing of citizens’ personal data;
- Protecting and establishing the rights and competences of children in the digital space;
- Access to digital health services.

The main rights in the digital environment are (European Commission 2012)

- Freedom of expression (freedom of information and freedom of expression including free, transparent access to diverse, authentic, and reliable information);
- Freedom to carry out online activities (business, cultural, educational, recreational, social, and political activities);
- Consumer rights;
- Protection of personal and private data;
- Protection of intellectual property of people in the online space;
- Protection of human reputation in the digital environment.

The concepts and characteristics of the *Digital Society* presented above represent only those concepts and characteristics that we consider to be basic in defining and describing this new phrase, this new type of social manifestation. Many other concepts can derive from these main concepts and describe particular or specific aspects of some activities or forms and ways of communication and interaction in the digital space.

## Notes

This work is part of E. TÎRZIMAN, *Societatea digitală [Digital Society]*, București: Editura ProUniversitaria, 2023. ISBN: 978-606-26-1642-7

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