

# Digitalization of Modern Society: The Bulgarian Case

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**Abstract**— Digitalization is an integral part of society and there is no doubt that modern society is in the midst of digitalization. In all areas of social life there is a wide range of different practices that are subject to digital change. The Internet and social media platforms have changed the way we receive information and experience entertainment, communicate. The objectives of this paper are to show specific dimensions of the advent of digitization and the various technologies in the Bulgarian society. The empirical basis of this article is based on results obtained from an online survey conducted in March 2021 with people of different ages, occupations and education. The survey questionnaire included topics that directly relate to the digitalization of society, the use of various digital devices and the Internet, participation in online education and attitudes towards it.

**Keywords**—digitalization, modern society, digital competence, digital skills, Bulgaria.

## I. INTRODUCTION

Digitalization is an integral part of society. Every process, phenomenon, community and relationship is related to digitalization and information technology. The life of a modern person is a long series of active penetration of digital devices in our way of life, in our professional responsibilities and activities, in our free time and personal contacts. This strong digital saturation today is constantly recognized and modern person is clearly aware of his dependence on information technology, without which it would be difficult to do the job, to contact people and institutions that reflect different levels of social interaction, and to organize free time and entertainment. From this point of view, it is necessary to show the different forms of symbiosis between society and digitalization, as well as to emphasize the possible manifestations of this symbiosis.

The objectives of this paper are to show specific dimensions of the advent of digitization and the various technologies in the Bulgarian society and in particular:

- What digital devices do individuals have and how do they use them?
- How they get involved in the Internet and what is their participation in the various social networks?

- At what level are the digital skills and digital literacy of the Bulgarian population?
- What is the technological level of different online activities?

The main research questions are related to the performance of high-tech level of Bulgarian online environment and focus on the main features of digital communication, which is a new characteristic of professional and everyday life.

## II. LITERATURE REVIEW

The idea of technology is to share information. Technologies make people's lives and work easy, as well as the communication and educational process innovative and diverse.

The progress of technologies dates back to the 1970s. During this time great changes are taking place on a global scale, when power - economic and political - is regrouping; capital markets are mobilizing, new media such as the Internet are booming. The telecommunications - in the face of the Internet and mobile phones are becoming an important part of everyday life. It is also during this period that multiculturalism and cultural diversity unfold, and this requires communication and the opportunity to connect between more people. The whole structure of society, of the social actors, of the processes in it, related to the family, production, labor markets are changing. The postmodern era in its entirety and versatility is based on technology, knowledge and innovation. The percentage of active users has increased over the years to 97%. New technologies have the ability to create sustainable perceptions of ease of access for consumers, as well as increase confidence in social connectivity. In its historical development, the mass media has undergone a series of changes, but today the intensity that new variants of digital technology tools are emerging is unprecedented in terms of improving the ability to communicate, receive and create content. The media in the digital age have a huge impact on communication and information exchange, as well as on business, politics, education, art and more.

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Their popularity is becoming unprecedented in modern society. Blogs, forums, social networks and websites are increasingly captivating modern man. We live in a society where online presence is considered a mandatory form of communication. The presence on the Internet is a necessity, because every user is already part of a huge online social community. The virtual communication has long become an irreplaceable and unique assistant in everyday life, in a major tool for information, communication, business and advertising. Internet technologies and the new digital environment motivate users to create their own social media profiles, blog, communicate in forums and publish various content. The interactivity and constant updating of information, causes a strong response among audiences, helps to establish the influence and role of individuals who are established by digitalization. New possibilities and technical progress change all spheres of public life and cause fundamental changes in the society of the 21st century. It can be said that digital technologies create a new formatting, a new infrastructure in communication, a qualitatively different media way of life. The digital media are technologically created communication environments in which users themselves publish information and communicate with each other. The publications can take many forms: text, images, audio and video in comparison with television, radio and the press, on social media, users are actively involved in a two-way process of mutual sharing and information. People can not only read, watch or listen, but also share, comment and discuss. Online platforms make communication much easier when it comes to long distances. The same goes for searching for information. The Internet is completely changing the life of the average person.

Manuel Castells is one of the most prominent social thinkers and theorists of modern times, a recognized authority in the understanding of the information society and the author of the theory of network society. "In modern society, the distribution of power depends on the ability to control not only information but also communication between people." According to Castells, the Internet is the tool of democracy. To disseminate information, to hold open discussions..."- this is the way of the network society [1]. Digital media as a new and modern communication environment have a unique feature: media content to be created and supplemented by users themselves This makes it possible to create an independent flow of information that is qualitatively different from the official flow of established media.

People inform each other independently and coordinate their actions via the Internet, including by creating protest movements against outdated social structures and formations. In this way, digital technologies create a new collective identity of society. Thus, two polar processes take place simultaneously: on the one hand, the individualization of the media and the creation in the space of messages that are unique, based on experience, observations, thinking, contacts of the individual. On the other hand, these individual messages that have appeared on the Internet become the basis for the formation of a collective identity and can act slowly and gradually or explosively, but inevitably become carriers of something new and change the status quo. In recent years, there are many examples of how protest movements and moods are initiated on social networks, how information and messages other than the officially established ones are promoted, how society is receiving a new and hitherto unsuspected wave of awareness.

In this regard, the Internet is not just another link in the communication process, but represents, focuses and encompasses the entire communication, becoming both an environment and a means of communication. Communication on the Internet is multifaceted, and the main principles are equality of participants, compactness and quick access to sources of information. All other media exist separately from the user of information and seem external to him. In this way, the web becomes a place where everyone enters voluntarily, becomes part of multifaceted communication, and the Internet is the most powerful and global source of information for humanity. The media are characterized by great popularity and comprehensiveness in modern societies. They also have a wide variety of applications that the Internet has in different areas of people's social everyday life. The relief of the media landscape changes qualitatively with the advent and development of the Internet. For the first time, a two-way communication environment is being formed, which provides an opportunity to implement media practices based on individualized and equal communication.

The information in the new media is aimed at:

- to share contacts;
- to maintain common interests (news, music, videos, photos, hyperlinks to articles, etc.);
- to present author's content (images, music, videos, articles, etc.);

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– to share personal information. According to D. Boyd online social media could be defined as: "web-based services that allow people to: 1) build their public or public-private profile within a limited system; 2) create a list of other users to share with 3) view the list of connections created by other users in the system." [2]. New media on the Internet have influenced the formation of public opinion [3,4]. In some of these posts, hidden behind the apparent distance of the screen, people share and write things they would not say or do in real life. In this way, the audience returns as an active party in public communication [5]. The media on the Internet are becoming an important environment for the formation of social capital, because thanks to them new contacts are created, existing relationships between colleagues, friends, like-minded people are strengthened, both for information exchange and for solving everyday problems, including receiving of advice or proposing a solution by experts, i.e. people gather in networks to communicate informally [6], but in many cases they have ideas that go beyond informal communication. For their part, social media allows expression in a new environment [7]. The function of the new media is that thanks to them people with common interests gather and ideas are popularized; thus uniting people of different ages, occupations, values and being an alternative to more traditional ways of communication, the Internet becomes a powerful tool for shaping public opinion.

An important stress is the meaning of Internet networks in public communication; and this presupposes the existence of mutual trust between the people involved in such communication. As the analyses show, the number of people in the network is important, but the way and quality of communication and maintaining relationships are much more important. Social media is increasingly becoming a platform where political ideas, goals, positions are developed, which leads to more and more engaged users. The new multimedia environment, including - audio-visual products, multimedia databases, information resources and infrastructures and it turns the network as a constructive virtual environment and part of everyday life. Hypertext allows you to create multiple links - links between different documents, images or technology formats. As the network grows, the degree of interconnectedness between sites increases to such an extent that by going through multiple links, users sometimes come across newer and more unsuspected information at the beginning of a search.

On the other hand, until today, the Internet is gradually perceived as a mass phenomenon through which the world society overcomes the limitations of physical reality, builds global information, communication and technological connections, forms new social models of interaction or further develops existing ones. From its beginning until today, the Internet is gradually perceived as a mass phenomenon through which the world society overcomes the limitations of physical reality, builds global information, communication and technological connections, forms new social models of interaction or develops existing ones. Among its peculiarities are the emergence of new forms of communication such as network communication, human-computer communication and computer-computer communication, also: increased social contacts; the emergence of virtual societies; enhanced interactivity; provoking a sense of kinship and empathy. The recently created European Index of Digital Entry into the Economy and Society uses the European Framework (DigComp) to compile an indicator that provides country-specific information on citizens' digital competences. The European framework is also used to plan and develop educational and training proposals in curriculum reviews, in the development of adult learning courses and in the design of professional development programs for teachers. It is used to determine the level of digital competences needed for different areas.

In modern societies, in all areas of economics, professional life, everyday life, digitalization has become an integral part of relationships and the implementation of various activities. The introduction of digitalization is associated with qualitative changes in the structure and organization of activities and work activities. Most of the information used by the modern person is based on the Internet. If a decade ago the print media was still a key source of information, today there are very few people who buy newspapers for information. People go online for all sorts of reasons: political events in a national or global context, the weather forecast, the TV program, the program of theatres and cinemas, the opening hours of various shops, searching for job advertisements and on any other occasion we turn to the Internet and we are looking for a reference or detailed information about things. Thus, the world wide web is becoming the most important starting point for social existence. Digitalization first restructures business and the development of economic processes in which large databases are worked on and the "Internet of Things" is created.

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In Industry 4.0. it started working with cloud technologies and reduced human labour, replacing it with machines. The whole set of repetitive and routine operations is computerized. Industry 4.0. is aimed at the implementation and control of industrial processes that are robotic and artificial intelligence is becoming an important part of them. Digitalization is becoming a crucial aspect of trade and services. The catalog trade, which is uploaded on various sites, allows a choice of clothes, equipment, household goods, work, books; the delivery is made to the customer's home. This, in fact, reduces the strength of the various shops and malls, which had become a central place, combining all kinds of services. The transformation of digitalization into an essential aspect of modern life, as well as the definition of modern man as a digital man, has brought to the fore the topic of online security. Digital security means the creation of various protections to ensure the privacy of people, their personal data, shared information, copyright, and to provide protection against various viruses that can damage uploaded or existing information, as on the web, and in the computer itself. All these topics were raised in the discussion on "The Rise of the Network Society" [1]. Meanwhile, according to Castells, there is a line between technological innovation and social change. With the growth of information and communication technologies, there is a dynamic flow of information between different institutions. This creates both opportunities and challenges, which are expressed in the deepening of inequalities. People have different levels of technological literacy depending on their age, profession and location and their skills in working with digital devices and using the Internet. In this regard, it can be said that digital skills are becoming a significant part of people's key competencies. They become an indicator of the development of society and the level of competence of the population. In the context of social transformations, there is also a readiness to accept new challenges. There is also a requirement for the necessary minimum of digital skills that everyone should have in their full participation in society. The widespread use of information and communication technologies provides people with access to a large amount of information, which requires skills for access, management and integration. In recent years, information and communication technologies have aroused interest in discussing what skills people need to have in the knowledge society [8]. This discussion is mainly related to the existing policies at both European and national level, which are related to the expectations for qualification of the personnel on the labor market.

New technologies are considered as options and approaches to the solution [9]. Digital skills are related to the concept that describes the skills related to the knowledge and mastery of digital technologies and the application of digital skills in professional and social life. There are similar meanings in the use of other terms in recent years, such as computer skills, information and technology skills, media and information skills [10,11]. On the one hand, the terms are narrower, e.g. "Internet skills" or "computer skills" [12]. In other cases, more general terms such as "21st Century Literacy" are used, where the emphasis is on social skills that are developed through knowledge of digital technologies [13]. The existence and use of all these concepts reflect the rapid development of technology, as well as the different areas of interest related to their application in all areas of professional, economic and cultural life [14]. With the development of digital technologies, teaching and library research have also developed [15].

### III. RESULTS AND CONCLUSION

The empirical basis of this article is based on results obtained from an online survey conducted in March 2021 with people of different ages, occupations and education. The survey questionnaire included topics that directly relate to the digitalization of society, the use of various digital devices and the Internet, participation in online education and attitudes towards it.

The survey included 1018 people, divided into the various categories: according to age, the respondents are divided into five age groups: 18 - 29 years: 37.9%; 30 - 39 years: 24.6%; 40 - 49 years: 18.7%; 50 - 59 years: 8.4%; 60+ years: 10.4%. The most active age group in the sample are people under 40, who are digitally most predisposed to acquiring digital skills and people from digital culture. This is the generation of individuals who, as students or as parents of young children, are actively involved in various forms of interaction with information technology. They directly show and present their specific connection with the computer world of the "digital local" generation [1]. The other important indicator in the sample is the educational level. Depending on the level of education of the different respondents, four groups are formed. These are: persons with secondary education, which are: 1.4%; The graduates of secondary education are: 35.6%, the graduates of higher education are: 41.1% and the persons with scientific degree are 22.0%.



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From the obtained results it can be noticed that most of the respondents have higher education. The reason for this is the specific general culture and educational skills, which are a prerequisite for the development of digital skills. Although there are many examples of people who have digital skills without being accompanied by higher education. In general, digital differences reproduce existing divisions in society by age, ethnicity, profession, reinforcing and deepening them [9]. The sample included: Men: 28.7% and Women: 71.3%. In general, this distribution shows the priority of women as the most socially active part of Bulgarian society. The results presented in the paper are indicative of both the objective characteristics of different quantitative and qualitative conditions, opinions, assessments and views, which the respondents share. One of the important things in terms of digitization is the availability of digital devices that have become the main intermediary for the activity in the Internet, social networks and media. In the survey, most of the respondents possess:

- Mobile phone: 95.1% of the persons;
- Laptop: 90.2%
- Tablet: 42.9%
- Desktop computer: 39.2%
- Other: 13.9%

In addition, many respondents have more than one digital device, which is an indicator of the high degree of digitalization of the population. However, the question can be immediately raised here that although digital devices have already become cheaper, they represent a financial challenge for a large part of the Bulgarian population, given the high unemployment rate and the large share of people with incomes of the order of average salary for the country. In addition, it should be emphasized that in order for digital devices to be truly active, it is necessary to maintain an Internet service (connection), either as a plan included with the respective digital device, or as a stand-alone service purchased by the mobile operator.

In this context, it can be said that digitalization reproduces existing divisions and inequalities by taking them to the next level. Maintaining the Internet connection proves to be of great importance for the use of the achievements of digitalization. In addition, depending on the positioning of the Internet connection used, summaries can be made about the extent of its use, as well as the activity of the network users themselves.

To the question “Where do you mainly use the Internet?” the answers received are as follows:

- At work: 4.1%
- At home: 16.1%
- Everywhere (I have mobile internet): 79.8%.

It is noticed that over 2/3 of the respondents have mobile internet, which allows them to use it everywhere and to be as digital as possible, as they have access to the network at any time and in any place. In practice, these distributions are indicative of the fact that a large part of the Bulgarian population, mainly young people are connected at any time with their peers and colleagues at university or at work. What raises questions is that respondents who use the Internet at work have a relatively small share - only 4%. This means that most likely the nature of the activities performed does not require a network connection, or that there is no internet in the respective workplace. This brings us once again to the topic of the divisions that digitalization reproduces and creates, and that divisions deepen personal backwardness or become a source of progress. Therefore, when talking about digitalization, we also take into account the extent to which people can use the Internet and its possibilities.

According to the majority of respondents (69.9%) the digital skills of the Bulgarian population are at an average level. We present the digital skills themselves in a table (Table 1).

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**TABLE I**  
**TYPES OF DIGITAL SKILLS**

Digital Skills	Percentage distribution (%)
Using the Internet	99,7
Connecting to the WiFi network	98,2
Opening a new tab in the browser	95,8
Downloading applications	95,9
Installing applications	93,8
Downloading files	96,3
Uploading files	94,4
Adjusting the privacy settings	87,5
Filling out online forms	95,1
Creating Facebook pages	82,3
Working with Internet search engines	96,2
Sharing a video	95,5
Creating a video	81,0
Writing comments on social networks	94,3
Creating a blog	44,4
Creating a deposit	33,8
Creating a podcast	22,0

These digital skills can be divided into three main groups:

- Using an already created digital product: such as, Internet, Wi-Fi network, browser, applications, files, search engines, social networks. This type of digital skills possessed by almost everyone - over 95% of people say they have it.
- Creating a new digital product: like, creating a Facebook page, creating a video. These skills possessed by a smaller number of people - about 80% of the sample.
- Creating a digital product with a high degree of complexity: such as, creating a blog, deposit, podcast. This skill possessed by about 1/3 of the respondents.

These distributions in terms of skills in the field of digital literacy are available to respondents of different ages, but those digital skills that require a higher degree of expertise possessed by a small number of people. In order to study digital literacy, it is important to monitor the quality of the digital skills of the respondents' parents. So we asked the question: Do your parents use the Internet?

- Half of the people answered that their parents use the Internet freely - 50.3%
- 23.2% of respondents said that only one parent uses the Internet.
- 14.3% stated that their parents do not use the Internet.

Young people have the skills to quickly navigate a website, navigate one website or another. They define themselves as having excellent digital skills: they easily find information, quickly cope with the choice of displayed results on the web. They respond that they have operational skills for using the Internet and mobile Internet. Their skills include: easy internet use, Wi-Fi network connection; downloading mobile applications, updating, downloading and uploading files; work with search engines.

In conclusion, it can be said that in Bulgarian society there is a very high percentage of people who have basic digital skills, use digital devices and have an excellent positioning on the Internet.

From all that has been said so far, it can be said that the digital literacy of the Bulgarian population has reached an average level, and 69.9% of all respondents rate the digital skills of their citizens as average. Only 11.6% of the respondents give a high grade for the digital skills of the Bulgarian.

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Most of the respondents evaluate their personal digital skills very high. Regarding the evaluation of their digital skills, most of the participants in the survey determined that they have an average level of digital skills of 61.9%. The percentage of respondents who believe that they have a high level of digital skills is high, 35.8%.

The high level of digital literary links to one high level of virtual mobility, and this is clear from the other results of the survey. To the questions “How many hours a day do you spend in Internet?” 32, 4 % of the respondents answer that they spent around 3 hours per day, 25,5% spent 10 hours per day. Only 2,8% of Bulgarians spent more than 10 hours per day in Internet.

From the data obtained, there is a correlation between the time spent on the Internet and the activity associated with this use (Table 2)

**Table 2:**  
**Using Internet for different activities**

Activities	Duration of hours	Percentage distribution (%)
For work	3 hours and more	32,4%
Education	3 hours and more	40,7%
Communication and networks	1 hour	48,9 %
Self- Education	1 hour	45,0%
Reading online newspapers and journals	1 hour	68,6%
Reading books	1 hour	52,7%
Entertainment (movies, music, computer games)	1 hour	46,4%

In addition, it can be concluded that Bulgarians spent more hours in Internet while working or studying. However, when it comes about communication, networks or entertainment they spent less time (1 hour).

#### IV. CONCLUSION

Digitalization becomes significant part of every social process - in the business, trade, services, management, education. This means that both in the professional field and in everyday life, the processes have become digital in their essence, and the modern life is a complex combination with the digital environment and its requirements. In times of social crisis, digitalization is gaining great importance, as it proves to be an important factor in maintaining the normal course of life and society. The situation with the Covid-19 pandemic, which has taken on a global dimension, is a similar crisis in which economic, educational and overall social life has passed into conditions of almost universal and complete blockage, leading to the cessation of many processes. In all these conditions, the Internet and online platforms have become an excellent environment for business, government, culture, education, and for life. From all that has been said so far, it can be concluded that digital literacy and skills need to be developed. At the same time, with the introduction of digital innovations and the improvement of the technical characteristics of the various digital devices, digital literacy is being formulated.

From the given data it can be summarized that digital skills represent an important aspect of the skills of the Bulgarian population and especially of young people. The widespread understanding of the generation of "digital natives" - born after 1980, is confirmed in Bulgarian conditions that age characteristics are the strongest factor in the formation of digital skills. In this regard, education and its digital base, as well as maintaining a high level of online learning and related educational resources and teacher training, are becoming important requirements. One of the major accents in this direction, especially among the youngest generations, is the use of the Internet and social networks not only for communication or entertainment, including online games, but also for education, training and knowledge expansion. Another key direction is the improvement of digital pedagogy and innovations in education, as well as its individualization and instructiveness in digital environment. For this reason, educational reform is needed in the direction of distance learning and the transformation of existing textbooks into online form.

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Improving the quality of life at the service of all processes in society and learning through digitalization. On the other hand, digital learning requires people to develop a critical view of information and its content, to seek information from various sources and to develop a reflection on what is happening in life and in the digital and social environment.

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