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Digital Technologies and Their Use for the Development of Cultural Heritage in Europe and Romania: Advantages and Disadvantages

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ABSTRACT

The Internet and the digital applications are now part of our daily lives. Digital technologies have become essential to work, to learn, to socialize, to be able to access various products and services (for business, for entertainment, for cultural tourism, for education, for health, etc.). The evolution of new technologies has generated significant changes in all fields, which has led to an increasing awareness of the importance of the role that technological progress has in today's economy. Similarly, technological developments have opened up new possibilities for the digitization of cultural heritage, especially for the purpose of its conservation, restoration, research, but also for the purpose of expanding the online access and for its reuse by tourists. In response to the current digital challenge, this article aims to debate the issue of the use of digital technologies in cultural tourism (at European and national level), by presenting and analyzing some recent statistics in this field. At the same time, the ways in which digital tools can contribute or not to the development of cultural heritage will be researched, in order to identify the advantages and disadvantages that may arise from the online exposure of cultural resources. In this way, the data presented will capture both the positive characteristics, but will highlight, at the same time, the existing vulnerabilities and risks,

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in order to be able to evaluate the consequences of technological progress in the field of cultural tourism.

1. Introduction

At European level, the digitisation of the cultural heritage has always been a concern whose main focus was to optimise the benefits of information technologies, so that would generate economic growth, would lead to job creation and improve the people's quality of life. The digitisation and preservation of Europe's cultural resources (including various prints, books, magazines, journals, newspapers, photographs, museum exhibits, documents in archives, sound files and audiovisual materials, monuments, and archaeological sites) are actions that have been consistently supported and advised in the recent years by the European Parliament and the European Council.

Currently, the public is accessing digitized material at an unprecedented scale, in the context of the emergence of new digital devices and techniques. The cultural production has also faced important changes over recent years due to the emergence of new technologies, as well as to the new digital cultural consumption behaviours of the tourists in their role as consumers.

The fast-paced evolution of technology that has also been manifested in the field of cultural tourism has motivated us to elaborate this paper, in which we aim, apart from doing an analysis of statistics on the use of technologies at both European and national level, to identify the main advantages and disadvantages of using digital media in the field of cultural tourism.

2. Literature Review

In order to clarify the meaning of the concepts that will be used throughout the paper and to give them theoretical relevance, we will briefly list and characterize some of the terms that will be used in this paper and that we have found mentioned in most of the documents that we reviewed, namely:

▪ digitalisation – represents the set of technical means, tools, and procedures that make it possible to use data that are in a digital format (Ceobanu et al., 2022, p. 9). Rus (2020, p. 132) noted the differences between “digitisation” and “digitalisation”, explaining that “digitisation” refers to the internal optimization of processes (databases, work automation, reduction of operating costs), while “digitalisation” means the strategy or process that goes beyond the simple implementation of technology and that is aimed at achieving a deeper, substantive change of the core of the entire activity and its evolution over time. Khan, quoted by Crăciun (2016, p. 44)

argued that digitalisation refers to the process of change started with digitisation in different fields of activity, specifying also that the two terms ("digitisation" and "digitalisation") are used interchangeably in different studies/documents;

▪ digital preservation – term referring to a specific set of activities that need to be undertaken to ensure that digital objects can be located, made available, used, and understood in the future (European Commission, 2021);

▪ Information and Communication Technology (ICT) – term referring to all the equipment necessary to receive, process and communicate / send information;

▪ virtual – The online Cambridge Dictionary (2023) provides an explanation for this term that is close to the scope of this paper (in the context of digital technologies), namely: "created by computer technology and appearing to exist but not existing in the physical world".

3. Methodology

The Internet has become a key element in people's daily lives, due to the advantages it brings along: allowing users to send e-mails, to make transactions, to share one's content in the online environment, the fact that it is relatively easily accessible, etc. In order to analyse the magnitude of this phenomenon, our research will discuss its implications from a general level to a specific one. Therefore, we will address the issue at European level, while also inlaying remarks on the national context in the general outlook.

In this regard, we have at our disposal Eurostat statistics, which carry out surveys annually in the Member States of the European Union, collecting and then analysing data and information on the use of Information and Communication Technologies (ICT), the Internet, and the e-skills related to households and individuals.

In Romania, the National Institute of Statistics also produces various press releases and an annual survey on the population's access to ICT resources. The main objective of this survey is to provide information on the population's access to different communication technologies, as well as Internet access through any type of device (personal computers, laptops, tablets, including mobile phones or smartphones). At the same time, this survey aims to highlight the degree of Internet use, the frequency, and the purposes of using information technology, the scale at which the public authorities' websites are accessed by users, the intensity of online commerce, the number of household devices connected to the Internet and the coverage of green information and communication technology (National Institute of Statistics, 2022a).

In the current paper, we will analyse and briefly present these statistics, but also the information featured in the Digital Economy and Society Index (DESI) Scoreboard for Romania, prepared by the European Commission (European Commission, 2022).

At the same time, in order to identify the main types of (positive and negative) impacts of online exposure of the public to the cultural heritage, we consulted various studies, publications, and papers on the use of digital technologies in the field of cultural tourism in Europe and Romania, in order to provide a contextual framework for our research and to be able to highlight later the main findings.

4. Results and Discussion

4.1. Statistics of the use for digital technologies at European level and in Romania

According to Eurostat, in 2022, 90% of people aged 16-74 in the European Union used the Internet in the last three months of the year (Eurostat, 2022a)[3]. In 2022, the share of households in the European Union that had Internet access increased to 93%, compared to 72%, in 2011. Moreover, 68% of people living in the European Union ordered or bought goods or services via the Internet for their own use in 2022 (compared to only 54%, in 2017).

In Romania, in 2022 there was an increase by 13% compared to 2017, in terms of households[4] that are connected to the Internet, according to Eurostat (Fig. 1). The countries reporting the highest share of households that are connected to the Internet were the Netherlands, Luxembourg, and Finland (98%). Spain (96%) and Denmark (95%) were also among the European Union Member States with high rates of Internet access in households. At the opposite end, Greece (85%), Croatia (86%) and Bulgaria (87%) featured the lowest rates of household Internet access.

[3] The information reported was obtained through an annual survey on ICT usage in households and by individuals; the results refer to the last three months prior to the conducting of the survey.

[4] In statistical terms, a "household" means the group of two or more persons who usually live together, generally having family ties, and who take on chores jointly (do the housekeeping), participating, in whole or in part, in the generation of income and in spending it (according to the National Institute of Statistics).

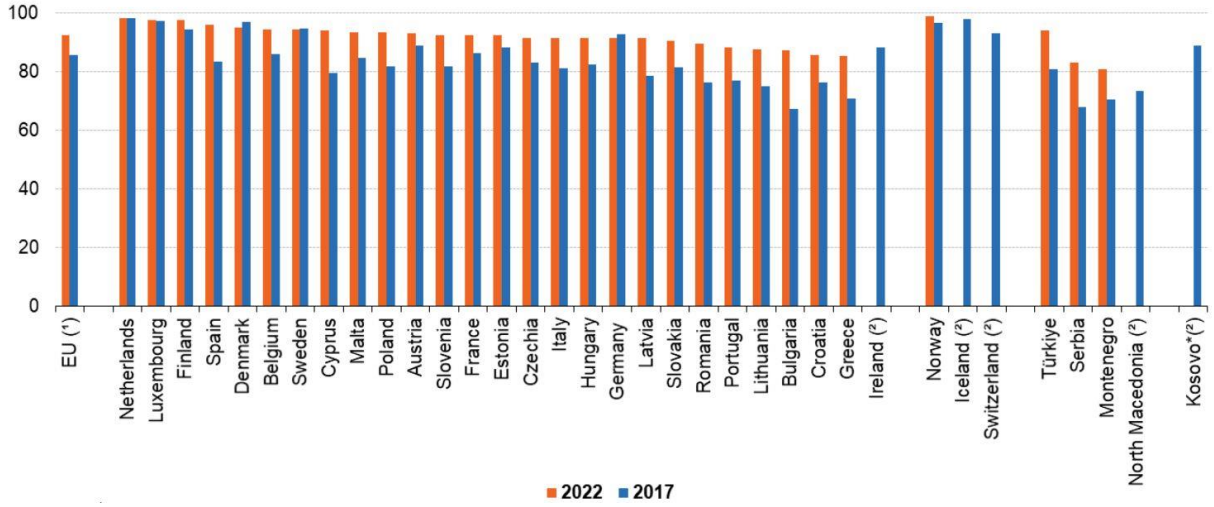

Fig. 1. Internet access in households in European Union countries - comparison between 2022 and 2017, % of all households

Source: Eurostat (2022b)

According to the National Institute of Statistics (2022b, p. 1), out of the total households in Romania, 82.1% had home Internet access in 2022, this figure featuring an increase by 1.3% compared to the previous year. The share of persons aged 16-74 who had used the Internet at least once was of 89.7% in 2022, featuring an increase by 1.1% from the figure obtained in the previous year. Among the current Internet users, 69.2% used the Internet several times a day in 2022, and 21.1% once a day or almost every day.

In Romania, according to the National Institute of Statistics, there have been increases in the number of Internet users from one year to the other. Thus, in 2022, the share of people aged 16-74 who had used the Internet at least once has reached approximately 13 million people.

The information collected by the National Institute of Statistics (2022b, p. 2) showed that, in Romania, the share of people using the Internet decreased with age. Thus, the share of people aged 16-34 who used the Internet was of 98.1%, while those aged between 55 and 74 reached 73.3%.

If we look at the Internet access statistics broken down by the residence areas of households, the urban areas in European Union countries registered a higher Internet access in households (94%), compared to rural areas (90%), according to Eurostat. Malta was the only Member State of the European Union where most households connected to the Internet came from rural areas. The urban areas of Belgium, Slovenia and Estonia registered highest household internet access compared with rural areas. In Finland, Luxembourg, Netherlands and Norway the difference was around 1 or 2 percentage points between the urban and rural areas.

For countries such as Greece and Portugal, the gap between cities and rural areas in household internet access reached 14% for each country. In Romania, the difference between urban areas (88.6%) and rural areas (73.7%) in terms of Internet access reached 14.9 percentage points in 2022.

The Eurostat survey also collected information about the purpose for which respondents used the Internet. Thus, in 2022, the share of persons in the European Union countries who took on an online course was of 16%. In the Netherlands and Finland, more than 30% of people aged 16-74 took on an online course in 2022. At the opposite end, the share of people who participated in an online course was of only 3% in Romania, and 8% in Poland and Bulgaria.

Moreover, when it came to the purpose for which respondents used the Internet in 2022, the Eurostat survey revealed that 52% of the citizens in European Union countries used it to perform health-related searches (relative to injuries, diseases, nutrition, health improvement, etc.). In Finland, the proportion of searches focusing on health-related matters reached 81% (the highest rate in the European Union). High percentages, exceeding 70%, were recorded in the Netherlands (78%), Cyprus (73%), and Denmark (71%). The citizens who least used the Internet for health-related searches were those in Romania (29%) and Germany (37%).

The share of people in the European Union countries aged 16-74 and who ordered or bought goods or services via the Internet for their own use was of 68% in 2022, which represents an increase by 14% compared to 2017. The share of people who ordered or bought goods and services via the Internet (for their own use) was the lowest in Romania (30%) and Bulgaria (23%). The countries where the Internet was most used for such activities in 2022 were Denmark and the Netherlands (with 88% of the total online purchases each). However, the largest increase in the percentage of people who ordered or bought goods or services over the Internet in 2022 compared to 2017 was observed in Hungary (+31%) and in Romania (+30%).

In Romania, in 2018 (the most recent year for which such information is available), only 12% of persons who used the Internet for various cultural and educational activities visited museums, libraries or other specialized sites, while 17% searched for information about cultural events and products. However, these figures are expected to increase in the medium and long term, as the public's digital skills level rises and the cultural consumption increases. The higher the number of visits to the websites of public cultural institutions, the greater the potential for increasing the number of physical visits (Ceobanu et al., 2022, p. 16).

Therefore, the information posted by the National Institute of Statistics confirmed that Romania has relatively good results in terms of internet connectivity.

The same resulted from the DESI Scoreboard for Romania, according to which Romania ranks on the 15th place in terms of Internet access out of the 27 countries of the European Union. However, even though the degree of connectivity to the Internet was a fair one, according to the Report for Romania published by the European Commission[5] in 2022[6], our country's performance in integrating digital technologies and digital public services is poor, compared to those of the other Member States of the European Union (Fig. 2).

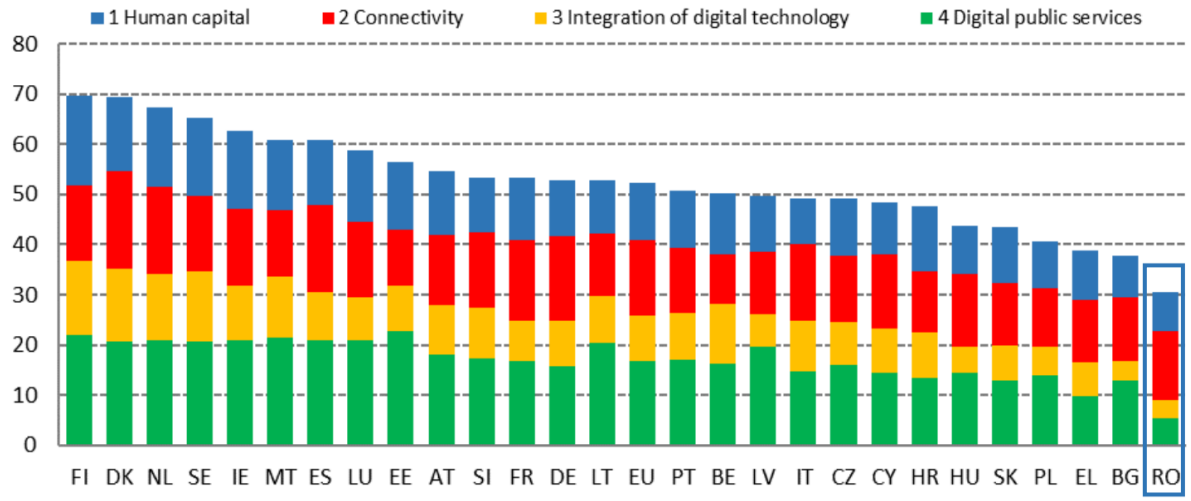

Fig. 2. Ranking of countries in the European Union in terms of the Digital Economy and Society Index (DESI) – 2022

Source: European Commission (2022)

As can be seen in Fig. 2, Romania ranked last in the European Union in terms of digital competitiveness expressed by the Digital Economy and Society Index (DESI) in 2022, as its relative annual growth was inferior to that in other countries. The leading countries in this area (of digital competitiveness) were Finland, Denmark, the Netherlands, and Sweden.

Romania also lags compared with other countries (it scored the 27th) in terms of several indicators related to the human capital, with a very low level of basic digital skills, compared to the EU average.

According to the results of the DESI Scoreboard, Romania is facing a lack of basic digital skills among the population, registering results well below the European

[5] The European Commission has monitored the Member States' digital progress annually (since 2014) via the Digital Economy and Society Index (DESI) Scoreboard. Each year, the DESI Scoreboard include country profiles that support Member States in identifying areas for priority action, as well as thematic chapters that provide a Europe-wide analysis in terms of crucial digital areas.

[6] The DESI Scoreboard 2022 is mainly based on 2021 data and tracks progress in the digital field in the Member States of the European Union.

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Union average in terms of basic digital skills (28% compared to 54%) and digital skills above elementary level (9% compared to 26%). 41% of people in Romania have basic skills in digital content creation, ranking below the EU average (which is 66%).

We can thus conclude that people who have access to the Internet and to the digital technologies do not automatically develop the digital skills they need (both in their professional and personal lives). This happens while the world becomes increasingly digitalised, and a certain level of digital skills is needed to attend professional and private matters.

It is also important to evoke the fact that in 2020, in its Communication entitled "Shaping Europe's Digital Future", the European Commission highlighted that more than 90% of jobs in Europe require at least basic digital skills (European Commission, 2020). Moreover, on the labour market, the increasing digitalisation has led to an increase in demand for digital skills in recent years and is expected to continue to grow in the future (European Court of Auditors, 2021, p. 12). Consequently, having basic digital skills is becoming increasingly important for employees and they are already in high demand in many professions today. Adults who lack these basic skills will face problems both at work and in their private lives. This is an issue mainly in case of older adults who have a lower level of education and for the unemployed persons (European Court of Auditors, 2021, p. 42).

This topic was also covered in the research of Ceobanu (2021, p. 77), who argued that young people's level of digital literacy is higher than that of the older age groups, in a similar fashion to the one in which the Internet access for persons in the urban areas reaches higher values than the access that the persons in the rural areas. The author also showed that, with the COVID-19 pandemic, the pace at which people had to learn to use the Internet, a PC, or other technological and digital systems and devices has increased more than ever. For some categories of persons, this has been easier to achieve, but there are social categories for whom this period of hyper-virtualization of life has created a totally opposite effect.

Digital competences were also considered important by most of the respondents who took part in a study conducted by the National Institute for Cultural Research and Training, INCFC, in 2020 (pp. 38-39), arguing that digital skills matter mainly because the digital space/environment can be useful in all actions related to the cultural heritage (promotion, capitalization, exploitation and interpretation).

In the same study conducted by INCFC (2020), (p. 43), it is noted that digital skills/competences are considered important by cultural experts, because learning and experimenting with new techniques are beneficial activities in the cultural field,

and the digitization and the use of ICT tools facilitate the access of a larger audience to these resources.

Returning to the results presented in the DESI ranking in 2022, they also revealed some positive aspects for our country, which show that Romania maintains its leading positions in terms of the proportion of women working in ICT in the total workforce (ranking second) and in terms of the number of ICT graduates (ranking 4th).

Romania registered results well below the European Union average also in terms of all indicators that characterized digital public services, which is still a great challenge for our country. For example, the DESI scoreboard showed that, in 2022 , in Romania, the availability of digital public services for citizens reached a score of only 44 (compared to the average value in the European Union of 75), while that of digital public service for businesses only reached 42 (compared to the average value in the European Union of 82).

4.2. Advantages and disadvantages of using digital technologies in the field of cultural heritage

In this section, we aim to discover what is the impact of the online exposure to the cultural tourism heritage, by presenting the advantages and disadvantages of using digital technologies. This is because today, more than ever, the cultural heritage and tourism represent two closely linked sectors, characterised by a virtual dimension, that serves as a basis for the creation of this new "digital experience". It has been shown – throughout time – that linking tourism with heritage and culture is an approach that can do more for local economies than when they are promoted separately. For example, in Romania, in the National Recovery and Resilience Plan, the cultural field was treated and approached alongside tourism (these two areas together forming Pillar IV, component C11 – "Tourism and Culture", with an allocated budget of 449.01 million Euros for the period 2022-2026).

4.2.1. Advantages

All over the world, the integration of digitization solutions within the tourism and cultural sectors has led to an increase in the number of tourists visiting a country's destinations, but it has also had a positive impact on the image of the destination, by facilitating and enhancing the access to tourist and cultural information.

Statistics have shown that more and more people are now turning to cyberspace to see new places and find information related to them for organizing

cross-border business meetings, for leisure and for communication purposes (Maiorescu et al., 2016, p. 303). The last decade has witnessed an increase in the number of digital projects taking place at different institutional levels and through different technological tools (Obadă, 2021, p. 221). All these aspects have led to the tourism's increasing dependence on modern technological means (Cooper, quoted in Maiorescu et al., 2016, p. 304).

In addition, the COVID-19 pandemic has fundamentally changed peoples' lives, leading to an increased interest in communicating via the Internet, as all areas – from work to leisure – have been affected by the pandemic (National Institute of Statistics, 2022, p. 14). In this new context, Beaunoyer et al., quoted in Matei (2020, p. 44), noted that digital technologies have been a driver of economic and social activities, as well as a support for leisure and social interactions.

The European Commission stated that, once translated into an electronic format, the cultural heritage can become a resource for a wide spectrum of electronic products and services, in a sector such as tourism. This advantage of digitizing the heritage items was also highlighted by Obadă (2021, p. 219), who claimed that digitization will stimulate the production of cultural goods in the first place.

Ernst and Young, quoted by INCFC (2016, p. 21), stated that the cultural and creative sectors represent the most important source of revenue of the digital economy, in a value chain where very few goods/services can be patented and where intellectual property rights are difficult to protect.

The European Commission Recommendation of 27 October 2011 on the digitisation and online accessibility of cultural materials and digital preservation states that one of the advantages of using new technologies will be ensuring the access to cultural materials: the digitisation is an important means of guaranteeing an improved access to the cultural materials and a way of making better use of them (European Commission, 2011). This way, European heritage will gain a clear profile on the Internet and the digitisation of the materials in the European cultural institutions will help them to continue to fulfil their mission of providing access to the European heritage and ensure its preservation in the digital environment.

Digitisation is an important means to an improved access to the cultural materials and a way of making better use of them. Digital technologies offer new opportunities to preserve the cultural heritage and to facilitate the access to this heritage for all categories of audience. Museums and cultural organisations adopting these technologies can offer visitors innovative experiences, allowing the remote public access to various exhibitions and to view cultural materials that are not physically on display.

Natale, quoted in Ciurea (2014, p. 73), stated that the use of digital technologies in virtual exhibitions represents a great opportunity for disadvantaged people, who have low financial means, or for the elderly people, who are faced with physical impairments, giving them the opportunity to overcome mobility barriers or time restrictions that make it harder to visit physical exhibitions.

Digital technologies, such as AR and VR (augmented reality and virtual reality), are particularly attractive to the general public who is not interested in the cultural heritage or aware of it, as they help transpose elements of the intangible or tangible cultural heritage into the interest area of the new generation, that is obsessed with modern technologies, as stated by Obadă (2021, p. 220). This is how technology alone will be sufficient to attract the audience's curiosity, to lower accessibility barriers, and will provide more opportunities for disseminating the heritage through multiple channels, thus reaching more recipients. This was also underlined by Roja (2019, p. 15), who pointed out that digitalisation seems to have removed all barriers and crossed all boundaries of time and space.

Pop and Alexa (2016, p. 29) also highlighted the advantages offered using virtual reality technologies, as the authors proclaimed that they offer a vivid, pleasant, realistic experience, and they are very useful when one wants to visualize and simulate certain environments, buildings or objects that no longer exist or that cannot be easily visited.

Muchitsch and Kradischnig, quoted in Straus et al. (2022, p. 10), identified the main positive (direct and indirect) effects of the development of cultural heritage digitalization activities, which are schematically highlighted in Fig. 3.

Fig. 3. Effects of the development of the digitisation of the cultural heritage
Source: Authors' adaptation from Straus et al. (2022)

Marty, quoted in Voloc (2019, p. 104), claimed that – in the case of museums – the digital material and resources provided to the public do not replace a physical visit, but are frequently used by visitors to complement it. The same idea was

supported by Ross and Terra (quoted in Voloc, 2019, p. 104), who claimed that a physical visit to a museum is mainly a form of leisure, while the online visit to the museum is undertaken for documentation proposes and for obtaining detailed information on the collections featured there. As a matter of fact, most authors have argued – in the publications that we reviewed – that a digital replica of an exhibit cannot replace the feelings one experiences on occasion of a cultural visit.

Discussing the same topic, without advocating in favour of virtual cultural experiences to the detriment of physical ones (because the consumption experience in a virtual space cannot replace an on-site consumption), Ceobanu et al. (2022, p. 12) underlined that the virtual access to cultural products can contribute to reducing the level of social inequalities (in rural areas, for example, where the cultural infrastructure is quite poor) and even to increasing an individual's level of culture. The authors also mentioned that the same atgument applies to rare cultural goods, which are never made available in visiting spaces, museums, or libraries, in whose case the virtual area becomes a space where the audience can encounter these rare goods.

4.2.2. Disadvantages

In any area where there is progress, there are also gaps and unwanted effects. The new technologies have also created various risks and issues. We will try to identify them and to bring attention to them in this section.

Nowadays, digital technologies used for broadcasting information (including those of a tourist and cultural nature) are extremely accessible. Therefore, one of the difficulties related to the process of sharing digitized materials in the online environment is related to copyright issues, because only works belonging to the public domain can be accessed without heed to legal restrictions (Pop, 2012, p. 367).

On the same subject, Pop, quoted in Cocieru (2014, p. 365), specified that – from a legal standpoint – it is necessary to clarify who owns the copyright of the material intended for digitization and what are the legal limitations of its use after its digitization.

Cocieru (2014, p. 362) claims that the disadvantages of digitization technologies lie more with the need for a proper preservation of the digitized material in the long term, even though this does not mean that this process should be abandoned.

The digitalisation – which the European Parliament (2019, p. 2) considered to be the "fourth industrial revolution" – has had a strong impact on culture, in terms of stimulating its creative processes, generating business and consumption patterns,

and new ways of accessing cultural services and works. However, traditional practices have been disrupted and the most significant consequences have been felt particularly in the musical and in the audiovisual sectors (in terms of digital piracy).

Due to the multitude of sources found on the Internet, any Website in the public cultural sector is exposed to the risk of a low degree of user loyalty, according to Ceobanu et al. (2022, pp. 15-16). Maintaining the users' interest is not an easy task, given that, according to the same authors, "it is a proven fact that Websites have between 25 and 35 seconds to persuade the user that the information they are looking for is available and easy to access". Therefore, in order to ensure their success against competitors, the digital interfaces in the public cultural sector should offer "experiences", should have satisfactory aesthetics, be flexible and should be made available for use for all types of audiences.

Roja (2017, p. 5) highlighted that the ICT sector is probably the most dynamic one, globally, both in terms of number of innovations and their impact on everyday life. However, this can generate a certain disadvantage linked with the permanent progress of information technologies, because old devices end up being replaced by more efficient ones, but that cannot render the contents stored on previous devices.

Cocieru (2014, p. 362) also pointed out this disadvantage, arguing that the preserved data will be in danger of no longer being readable from older media devices on which they are stored (Cocieru, 2014, p. 51).

Other disadvantages were also identified in a study conducted by INCFC in 2020 (p. 44), which addressed the issue of the generation gap, referring to the fact that older generations (aged 50 and more) are less digitally qualified than those aged under 50. The experts interviewed for the INCFC study indicated that they should be trained in order to be able to use digital tools in an efficient and operational way. Another problem identified in this study referred to outdated mentalities and the people's refusal to see the benefits of technology and, as such, to use it in the institutions in which the respondents to the INCFC questionnaire work.

Referring to the same topic, Ceobanu (2021, p. 44) stated that the discrepancies, the segregation, and the differences between the persons who are digitally literate and those who fail to keep pace with the technological development will turn – over time – into inequalities in terms of access to the public culture.

Another undesirable effect would be an increased dependence on technology, because a technology is useful when used correctly, but it becomes harmful when misused.

5. Conclusion

The low level of digitalization, but also the relatively slow progress in this respect, have made the Romanian economy unable to take full advantage of the opportunities offered by the digital technologies. This situation is further aggravated by the very low level of digital public services made available for both citizens and businesses.

All the statistics presented above show us that at European and national level, the strategic directions and policies proposed (as recommendations) by the European Commission for the digitization of cultural heritage are not yet taken upon and are implemented only partially.

Romania's National Recovery and Resilience Plan includes measures to fully integrate the digitalisation into all dimensions captured in the Digital Economy and Society Index (DESI), namely digital skills, connectivity, business support, and digital public services. Most of these measures (reforms, investments) are managed by the Ministry of Research, Innovation and Digitalization, but other ministries and public entities are also responsible for implementing digitalization-related measures.

The cultural heritage can be "revived" via the digital technologies and the Internet. Via them, people can have new opportunities to access various cultural materials, while at the same time reaching a wider audience by harnessing new technologies. In addition, the digitization of cultural and tourist resources is also important for the smooth running of the research and innovation process in these two fields.

Because we live in a society dominated by change, new technologies and new applications are launched in a continuous and sustained way, in order to keep pace with the new "digital era", which means that old technologies will be replaced by new ones, thus raising the dilemma and the subsequent question: "which of them will be preserved over time and which will not?"

Some authors considered new technologies as a challenge and an opportunity for cultural tourism, while others considered them as de-humanization instruments. Our opinion is that we must not let digitalization take over our lives, but we can allow it to moderately enhance our experiences (not only our cultural ones, or our tourist ones, but also those we experience in our private lives). Everything must be done in moderation, in order to maintain a balance between the real and the virtual world.

At the same time, it must be highlighted that – despite all the advantages presented in this paper – the successful implementation of digitization projects in the field of cultural tourism (especially those that will be based on virtual reality

tools) is a continuous process, which, once started, requires a continuous and sustained effort in terms of allocated time and financial resources.

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