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DIGITALISATION AS A TOOL OF TOURISM RECOVERY IN EUROPEAN UNION IN POST-COVID-19

Abstract. The article discusses the significance and trends of digitalisation in tourism. Phases of digital technologies development in tourism and factors influencing the uptake of digitalisation in tourism are presented. It was found that Europe is the world's leading tourism destination with 51 % of international tourists arrivals and 39 % of global international tourism receipts in 2019. However, the negative impact of the COVID-19 pandemic on tourism caused 69 % declines international tourist arrivals in Europe in 2020. This is due to the fact that since the beginning of the pandemic travel restrictions have been implemented and the external borders of the European Union have been closed. The negative impact of the COVID-19 pandemic was studied and it was found that the share of tourism contribution to GDP in European member decreased in 2020. Countries where tourism contributed the highest share to GDP in 2020 were Croatia (10,2 %), Greece (8,7 %) and Portugal (8,1%). It has been proven that digital technologies and data play important role in combating the pandemic Covid-19 and tourism recovery. Main tools of digitalisation in tourism that help to make travel safe and healthy are digital COVID certificate, mobile applications and web sites that propose information about epidemiological situation, restrictions and requirements for travellers. Digital Economy and Society Index (DESI) of European Union countries are analysed. According to DESI the most advanced countries of European Union in 2018 were Denmark (70), Finland (68), Netherlands (68) and Sweden (65), while Croatia (35), Poland (36), Slovakia (39), Bulgaria (40) and Greece (40) have the lowest scores on the index. Recommendations for tourism recovery in post-COVID-19 are proposed. Main directions of tourism recovery should be: collaboration between destination management organisations and tourism enterprises, promotion of sustainable and inclusive tourism development, implementation of innovation and digital technologies in the process of tourism services consumption.

Keywords: digitalisation in tourism, digital technologies, European Union member countries, Digital Economy and Society Index, digital COVID certificate.

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ДІДЖИТАЛІЗАЦІЯ ЯК ІНСТРУМЕНТ ВІДНОВЛЕННЯ ТУРИЗМУ В ЄВРОПЕЙСЬКОМУ СОЮЗІ В ПЕРІОД ПОСТCOVID-19

Анотація. Розглянуто значення і тенденції діджиталізації в туризмі. Висвітлено етапи розвитку цифрових технологій у туризмі та фактори, що впливають на процес діджиталізації в туризмі. Виявлено, що Європа є лідируючою туристичною дестинацією у світі, на яку припадало 51 % міжнародних туристичних прибуттів і 39 % світових надходжень від міжнародного туризму 2019 року. Однак негативний вплив пандемії COVID-19 на туризм спричинило скорочення міжнародних туристичних прибутків до Європи на 69 % 2020 року. Це пов'язано з тим, що з початку пандемії були запроваджені обмеження на поїздки і зовнішні кордони Європейського Союзу були закриті. Досліджено негативні наслідки пандемії COVID-19 і виявлено, що частка туризму у ВВП країн — членів ЄС 2020 року значно зменшилась. Країнами з найбільшою часткою туризму у ВВП були Хорватія (10,2 %), Греція (8,7 %) і Португалія (8,1 %). Доведено, що цифрові технології та бази даних відіграють важливу роль у боротьбі з пандемією COVID-19 та у відновленні туризму. Виявлено, що основними інструментами діджиталізації в туризмі, які допомагають зробити подорожі безпечними і здоровими, є цифровий сертифікат COVID, мобільні додатки та вебсайти, що містять інформацію про епідеміологічну ситуацію, обмеження та вимоги до мандрівників. Проаналізовано Індекс цифрової економіки та суспільства країн Європейського Союзу, згідно з яким найбільш передовими країнами Європейського Союзу щодо діджиталізації 2018 року були Данія (70), Фінляндія (68), Нідерланди (68) і Швеція (65), тоді як Хорватія (35), Польща (36), Словаччина (39), Болгарія (40) та Греція (40) мали найнижчі значення цього показника. Запропоновано рекомендації щодо відновлення туризму в період після COVID-19. Основними напрямками відновлення туризму мають бути: співпраця між організаціями управління дестинаціями і туристичними підприємствами, сприяння сталому та інклюзивному розвитку туризму, упровадження інноваційних і цифрових технологій у процес споживання туристичних послуг.

Ключові слова: діджиталізація в туризмі, цифрові технології, країни — члени Європейського Союзу, Індекс цифрової економіки та суспільства, цифровий сертифікат COVID.

Формул: 0; рис.: 4; табл.: 2; бібл.: 14.

Introduction. Europe is the world's leading tourism destination with 744 million international tourists arrivals (51 %) and 39 % of global international tourism receipts (578 USD billion) in 2019. Tourism is a key contributor to the economy of many European regions and cities. The world's top 10 countries tourism earners include Spain (80 USD billion), France (64 USD billion), United Kingdom (53 USD billion), Italy (50 USD billion) and Germany (42 USD billion). The negative impact of the COVID-19 pandemic on tourism caused 69 % declines of international tourist arrivals in Europe in 2020 [1]. Since the beginning of the pandemic European Union's external borders have been closed and travel restrictions have been implemented. A lot of EU's countries opened its external borders to vaccinated travellers from non-EU countries in summer 2021. Tourists need information about safety and health conditions in the place they intend to travel. Digital technologies and data play important role in combating the pandemic COVID-19 and tourism recovery. Mobile applications and web sites give easy access to real-time information on the situation on borders and travel restrictions, quarantine and testing requirements for travellers, public health and safety measures, travel advice, digital COVID certificate. Tourism businesses and governments can also use digital technologies for planning and managing tourists flow.

Analysis of research and the problem statement. Ukrainian scientifics as A. Mazaraki, M. Boyko, M. Bosovska, N. Vedmid, A. Okhrimenko [2], H. Mykhaylichenko, S. Kravtsov, Y. Zabaldina [3] paid attention to tourism development. Scientific works of such authors as V. Kyfyak [4], T. Marusei [5], T. Zubko [6] reveal the main theoretical and practical aspects of digitalization in tourism. V. Kyfyak [4] defines the advantages of digitalisation in the development of tourism destination on the basis of analysis of tourism centers in Western Ukraine. T. Marusei [5] describes necessity of using the Internet technologies for development of tourism at the present

stage. T. Zubko [6] analyses practical aspects of digital communications in the field of tourism marketing. However, this problem needs further investigation, especially in the light of current trends in post-COVID-19.

The aim of this paper is to analyse the present state of tourism development in European Union member countries and trends of its digitalisation in COVID-19 pandemic conditions.

The theoretical and methodological bases of study were the works of domestic and foreign scientists in the field of tourism digitalisation, statistical information of United Nations World Tourism Organization (UNWTO) and World Travel & Tourism Council (WTTC). The study used such scientific methods: analysis, synthesis, comparison.

Research results. World's economy is rapidly becoming digital. The Internet and digital technologies become more integrated across all sectors of economy and society. The Digital Single Market Strategy for Europe [7] was adopted by European Commission on 6 May 2015. This document provides key directions for the digital transformation of the European economy, unlocking the full potential of European single market and supporting the free movement of goods and services across European Union internal borders. The digital single market strategy is based on three pillars: better access for consumers and businesses to online goods and services across Europe; creating the right conditions for digital networks and services to flourish; maximising the growth potential of European Digital Economy [7].

According to the Digital Economy and Society Index — DESI [8] the most advanced countries of European Union in 2018 were Denmark (70), Finland (68), Netherlands (68) and Sweden (65), while Croatia (35), Poland (36), Slovakia (39), Bulgaria (40) and Greece (40) have the lowest scores on the index (*Table 1*).

Table 1

Digital Economy and Society Index of EU's countries in 2015—2018

Country	Years			
	2015	2016	2017	2018
Austria	49	49	52	52
Belgium	44	48	50	49
Bulgaria	36	37	42	40
Croatia	40	46	42	35
Cyprus	42	43	47	47
Czech Republic	41	39	45	47
Denmark	61	65	65	70
Estonia	55	56	54	57
Finland	63	64	65	68
France	48	51	50	57
Germany	50	50	52	58
Greece	38	40	41	40
Hungary	38	42	45	41
Ireland	49	49	51	60
Italy	34	39	38	38
Latvia	41	42	44	41
Lithuania	41	40	42	44
Luxembourg	57	62	65	62
Malta	49	50	51	48
Netherlands	55	59	64	68
Poland	31	35	34	36
Portugal	41	38	44	41
Romania	33	35	42	42
Slovakia	36	37	41	39
Slovenia	42	43	45	47
Spain	44	50	47	47
Sweden	58	59	63	65

Source. [8].

The Digital Economy and Society Index is comprised of 24 indicators and 5 dimensions:

1. Connectivity — the deployment of broadband infrastructure and its quality;

2. Human Capital — the skills needed to take advantage of the possibilities offered by a digital society;
3. Citizen Use of Internet — the variety of activities performed by citizens already online;
4. Integration of Digital Technology — the digitalisation of businesses and development of the online sales channel;
5. Digital Public Services — the digitalisation of public services, focusing on eGovernment [6].

Digitalisation is one of 4 categories of European Capital of Smart Tourism initiative [9] together with sustainability, accessibility, cultural heritage and creativity. This initiative of European Commission aims to promote smart tourism in the European Union, network and strengthen destinations, facilitate the exchange of best practices. Gothenburg and Málaga won competition and held the titles of European Capitals of Smart Tourism in 2020.

Tourism was one of the first sectors of economy that become a digital pioneer thanks to the digitalisation of main business processes such as online booking of flight and hotel. Digitalisation in tourism be identified in 3 main phases: sales and marketing (1990—2000); digital business ecosystems (2000-2010); integration of systems (from 2010).

In the last decade of 20th century Internet was used as a marketing tool. Websites and web-based reservation systems began to facilitate business transactions in tourism. In 21st century Internet became main source of information for travelers and virtual marketplace where tourism products and services could be compared and purchased online (*Fig. 1*).

Phase 1. 1990—2000 <i>Sales and marketing</i>	Phase 2. 2000—2010 <i>Digital business ecosystems</i>	Phase 3. 2010 onwards <i>Integration of systems</i>
Electronic cash registers Financial software Mobile phones Email Intranet Internet banking Office software Video conferencing Websites Destination (city) cards	Smart phones Computer graphics software Property management systems Computerised ticketing systems Computerised stock control systems Online booking systems Customer reservation systems Email marketing Customer relationship systems	Augmented reality Virtual reality Mobile Apps Cloud computing and online data storage Wearable technologies Social media Google analytics Review websites Collaborative online environments Web 2.0 Chatbots and instant advice Peer production, e.g. platform collaborative economy; commons collaborative economy

Fig. 1. Phases of digital technologies development in tourism

Source. [10].

A lot of factors influence the uptake of digital technologies in tourism. They include social, political, legal, environmental, technological, economic and other factors (*Fig. 2*). These factors play important role in different destinations and in different sub-sectors of tourism, giving rise to the processes of digitalisation.

In 2019 tourism was one of the world’s largest sectors, accounting for 10,4% of global Gross domestic product — GDP (USD 9,2 trillion), 10,6% of all jobs (334 million), and was responsible for creating 1 in 4 of all new jobs across the world. Moreover, international visitor spending amounted to USD 1,7 trillion in 2019 (6,8% of total exports, 27,4% of global services exports). As a result of COVID-19 and the ongoing restrictions to international mobility, tourism sector suffered losses of almost USD 4,5 trillion, with its global contribution to GDP declining by 49,1% compared to 2019 to reach only USD 4,7 trillion in 2020; relative to a 3,7% GDP decline of the global economy. Domestic visitor spending decreased by 45%, whilst international visitor spending fell by an unprecedented 69,4%. In 2020, 62 million jobs were lost, leaving just 272 million employed across the sector globally. This 18,5% decrease was felt across the entire tourism ecosystem, with Small and Medium Sized Enterprises (SMEs), which make up 80% all global businesses in the sector, being particularly affected [12].

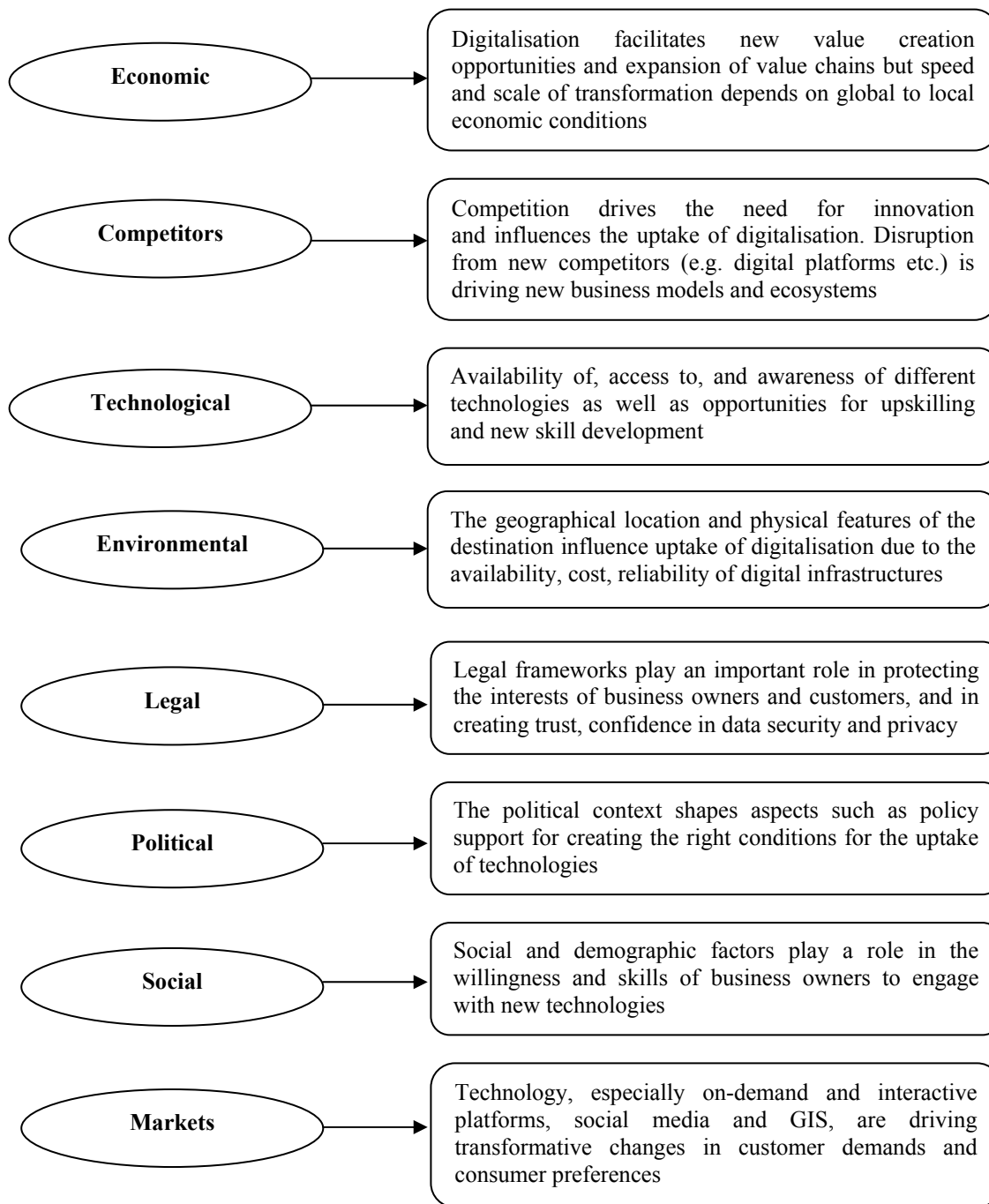


Fig. 2. Factors influencing the uptake of digitalisation in tourism

Source. [11].

Tourism was the third largest economic activity in European Union that played important role and represented around 10% of EU’s Gross domestic product (GDP) in 2019. Tourism GDP declined by 51,4% in Europe in 2020 due to ongoing mobility restrictions linked to COVID-19 (Table 2). While domestic spending declined by 48,4%, international spending fell at a sharper rate of 63,8%. The fall in international receipts, however, was below the average global decline of 69,4% — driven in part by some intra-European travel. As a result, Europe remained the top region globally in terms of international visitor receipts [12].

Table 2

Negative economic impact of COVID-19 on tourism in 2020

Region	2019		2020			
	Contribution of tourism to GDP, %	Contribution of tourism to employment, %	GDP change		Change in jobs	
			%	USD billion	%	jobs million
Asia Pacific	9,9	10	-53,7	-1645	-18,4	-34,1
Europe	9,5	10,1	-51,4	-1126	-9,3	-3,6
North America	8,8	11	-42,2	-910	-27,9	-7,1
Middle East	8,9	8,9	-51,1	-138	-17,4	-1,2
Latin America	8,1	8	-41,1	-110	-23,4	-4
Africa	6,9	6,5	-49,2	-83	-29,3	-7,2
Caribbean	14,1	15,4	-58	-34	-24,7	-0,7

Source. [12].

Due to the negative impact of COVID-19 pandemic share of tourism contribution to GDP in European member decreased in 2020. Countries where tourism contributed the highest share to GDP in 2020 were Croatia (10,2%), Greece (8,7%) and Portugal (8,1%).

Economies of these countries largely depended on travel and tourism industry (Fig. 3).

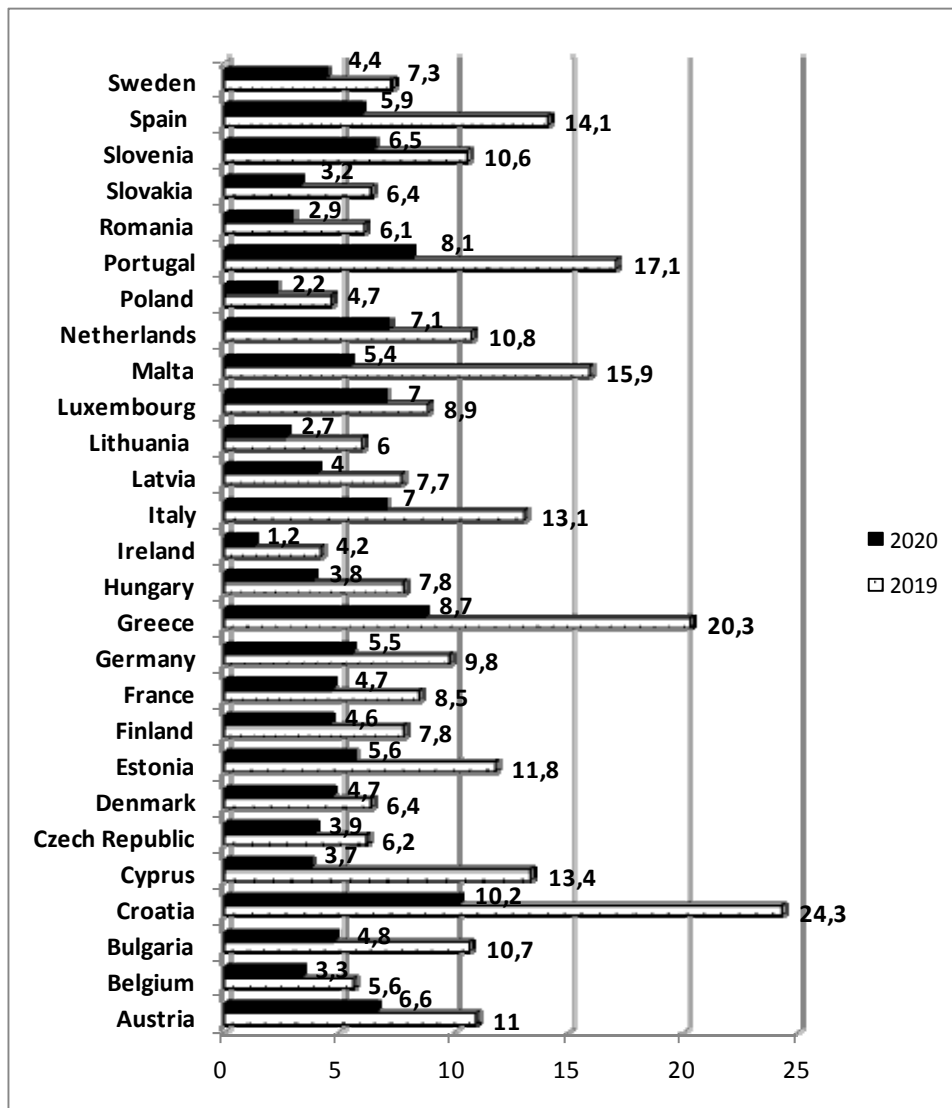


Fig. 3. Share of tourism total contribution to GDP in European Union member countries in 2019 and 2020, %

Source. [13].

When the COVID-19 pandemic broke out in 2020 much of the world moved online, accelerating a digital transformation that has been underway for decades. Children with at-home Internet access began attending class remotely; many employees started working from home; and numerous firms adopted digital business models to maintain operations and preserve some revenue flows. Meanwhile, mobile applications were developed to help «track and trace» the development of the pandemic; and researchers employed artificial intelligence (AI) to learn more about the virus and accelerate the search for a vaccine. Internet traffic in some countries increased by up to 60% shortly after the outbreak.

Many governments had strengthened their strategic approach to the digital transformation prior to the COVID-19 pandemic. Crisis reinforces the need for a co-ordinated, whole-of-government policy approach to digital transformation. This requires a balancing act that will not be the same for all countries, as cultural, social and economic factors influence the most suitable policy environment. The OECD Going Digital Integrated Policy Framework [14] provides a way forward (Fig. 4).

<p style="text-align: center;">Access</p> <p>With lockdowns and social distancing measures forcing many businesses and schools online, the COVID-19 crisis has reinforced the importance of communications infrastructures and services, as well as access to and robust governance of data. Addressing rural/urban divides in access to broadband and underserved socio-economic groups, upgrading networks to the next evolution of fixed and wireless broadband, and enhancing access to and the sharing of data can help spur economic and social benefits.</p>	<p style="text-align: center;">Use</p> <p>As more people and firms «go digital» following the COVID-19 crisis, governments must work to ensure that all workers are equipped with the skills necessary to succeed in the digital economy and must do more to enhance use across small- and medium-sized enterprises (SMEs). Individuals with a well-rounded skill set in terms of literacy, numeracy and problem solving in technology-rich environment can be expected to use digital tools more efficiently, carry out more sophisticated activities online and better adapt to digital transformations.</p>
<p style="text-align: center;">Innovation</p> <p>As a fundamental driver of digital transformation, digital innovation gives rise to new goods and services, creates opportunities for new business models and markets, and can drive efficiencies in the public sector and beyond. Boosting entrepreneurship, enabling further digital transformation of scientific research and incentivising investment in research and development can support a robust response to and recovery from the crisis.</p>	<p style="text-align: center;">Society</p> <p>As people spend more time online during the pandemic — whether for work, school, or social interaction — extra attention is needed to support their well-being. Governments should seize this opportunity to address the diverse range of social issues that the digital transformation raises, including questions around data-driven healthcare, disinformation and screen addiction, among many others.</p>
<p style="text-align: center;">Trust</p> <p>Given the greater reliance on digital tools following COVID-19, further attention is needed for ensuring trust in the digital environment, notably with respect to digital security, but also for privacy, data and consumer protection. Coronavirus-related scams and phishing campaigns rose as the pandemic broke out, as malicious actors took advantage of the massive switch to online activity. Most OECD countries have adopted whole-of-government digital security strategies, yet these strategies often lack an autonomous budget, evaluation tools and metrics, and are not integrated with the overall national digital plans.</p>	<p style="text-align: center;">Jobs</p> <p>The digital transformation has already begun to change organisations and markets, raising profound questions around what the future of work will look like. The outlook has grown even more uncertain amid the pandemic, which has sparked an increase in teleworking across many firms and raised doubts about the future of some jobs. As policy makers grapple with the economic fallout of the crisis, and as automation continues to spread across economies, they will need to take a fresh look at labour market structures and regulations, while working to ensure that displaced workers are not left behind.</p>
<p style="text-align: center;">Market openness</p> <p>The COVID-19 crisis has raised concerns around market consolidation, as start-ups and SMEs struggle to stay afloat, and as large technology companies exert growing influence over our digital lives. Governments need to consider the implications for business dynamics and inclusion as increasingly fewer companies mediate access to the online world.</p>	

Fig. 4. OECD Going Digital Integrated Policy Framework

Source. [14].

Oriented around seven main blocks — access, use, innovation, trust, jobs, society and market openness — the framework brings together the policies that governments must consider in order to shape a common digital future that improves lives and boosts economic growth and well-being.

Research of the European Commission has found some differences in the spread of digital technologies in tourism across Europe. The countries of Northern Europe have shown a greater spread of digital technologies than the countries of Eastern and Southern Europe. The same study showed that tourism SMEs lag behind large enterprises. Although basic e-marketing and e-commerce were widespread, advanced technologies such as data analytics, cloud computing and geotagging were only limited. Automation is a key trend in tourism with applications designed for the physical tourism business as well as online. Automated systems, such as chatbots, have become widespread in the industry and are designed to help people find and book tours, transportation and accommodation by asking a set of questions. OECD data show that 77% of tourism businesses that offer accommodation, food and beverage in OECD countries have a website or homepage, and 70% these enterprises use social media. The tourism sector has embraced e-commerce as online platforms and payment systems have changed the way people buy travel products. E-shoppers in the age group 25—54 most often bought travel and leisure — 57%. The results also indicate that the share of e-shoppers varies considerably across the EU: from 29% in Romania to 91% in the UK. The most innovative and high-value digital companies operating in the tourism sector are Airbnb, Skyscanner, Uber, Booking.com, HomeAway, etc. [15].

COVID-19 is proving to be a catalyst in the tourism sector's quest for innovation and the integration of new technologies. Amid stay-at-home orders, digital adoption and consumption are on the rise, with consumers now expecting contactless technologies, among others, as a basic prerequisite for a safe and seamless travel experience. Cybersecurity is only becoming more important, particularly as remote work becomes the norm and as identities are digitised. Time and time again, the disruption of tourism sector has led to a wave of innovation, followed by growth. While digitisation and innovation offers tremendous opportunity for tourism growth, which should be embraced, precautions are needed to make sure employees and local communities are not left behind.

The main difficulties in implementing digital technologies for tourism enterprises are: training on new digital technology; costs and uncertain return on benefits; insufficient knowledge to identify opportunities; insufficient technical knowledge; lack of suitable «off the shelf» products within budget. The main obstacles in implementing digital technologies for tourism enterprises are: lack of finance; current technology level is sufficient; high training costs; rapid pace of technological change; cost of high speed broadband.

Activities to support digitalisation that tourism enterprises need to undertake are: understanding benefits of digitalization; improving digital and e-marketing skills; building a network of digital businesses (e-commerce). Collaboration between destination management organisations and tourism enterprises is the key to finding solutions for the different problems that tourism enterprises are facing.

To restart and recovery of tourism in post-COVID-19 governments need to use of data and digital solutions, supporting the digital transformation of tourism service providers, boosting innovation in the practices of reservation and consumption of tourism experiences and activities, fostering tourism development and promotion in a sustainable and inclusive way.

From 1 July 2021 European Union citizens and residents will now be able to have their Digital COVID Certificates. It's a digital proof that a person has either been vaccinated against COVID-19, received a negative test result or recovered from COVID-19. EU Digital COVID certificate is on digital and/or paper format, with QR code, free of charge, in national language and English, safe and secure, valid in all EU countries. When travelling, the holder of this certificate should be exempted from free movement restrictions in Europe.

The European Union has set up a new website and a mobile app «Re-open EU» where tourists can see if travel is possible to each member state, the requirements of each destination, and

other information to answer travellers questions. The information is updated frequently and available in 24 languages. This should help tourists plan travel in Europe, while staying safe and healthy.

The main digital technologies that can help to recovery of tourism in post-COVID-19 are: online booking platforms, COVID tracker apps, automation of check-in at hotels and airports, interactive web maps, room service robot in hotels, self-bag-drops at the airports, virtual boarding queues, disinfection robots in hotels and airports, contactless technologies (sensors, facial recognition, voice-controlled, contactless payments). Augmented Reality and Virtual can be also used by tourism enterprises as digital technology to attract more customers. Virtual reality tours for tourism destinations better motivate to buy travel services than a simple photographs or videos.

Conclusions. Tourism is one of the important economic activity in Europe that represented 9,5% of EU's Gross domestic product in 2019. Due to the negative impact of the COVID-19 pandemic on international tourism and travel restrictions tourism GDP declined by 51,4% in Europe in 2020. Digital technologies play important role in tourism recovery especially after opening of external borders of European Union in the pandemic COVID-19 conditions. Main tools of digitalisation in tourism that help to make travel safe and healthy are digital COVID certificate, mobile applications and web sites that propose information about epidemiological situation, restrictions and requirements for travelers, automation (online booking and payment) and robotization (disinfection robots and room service robot) of services for tourist, contactless technologies, etc. It's important to promote and develop digital transformation of tourism service in different tourism destinations in post-COVID-19. Main directions of tourism recovery should be: collaboration between destination management organisations and tourism enterprises, promotion of sustainable and inclusive tourism development, implementation of innovation and digital technologies in the process of tourism services consumption.

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