

Information and Communication Technologies for the Innovative Development of Tourism Training in the Context of COVID-19

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Summary

The main purpose of the study is to determine information and communication technologies for the innovative development of tourism training in higher education institutions in the context of COVID-19. Innovative development is associated with the rejection of well-known clichés, stereotypes in teaching, upbringing and personal development, creates new standards for personal-creative, individually directed tourism activities, develops pedagogical technologies implemented in this activity. As a result, the main aspects of information and communication technologies for the innovative development of tourist training in higher education institutions in the context of COVID-19 were characterized.

Key words:

Information and Communication Technology, Tourism Training, Educational Institutions, COVID-19.

1. Introduction

In modern conditions, one of the most effective means of communication and training is the Internet. This is due to a change in emphasis for the purpose of higher education in the formation of a competent specialist to solve the problem of the holistic development of the student's personality, his creative individuality, preparation for professional activity in the context of innovative development of society. The use of modern information technologies in the educational process of training specialists, in particular computer, the Internet has radically changed the educational information environment of all higher educational institutions. Therefore, it became necessary to deeply understand all aspects of informatization in higher education. For a future tourism specialist, it is necessary to create conditions for increasing the level of information culture, information competence and literacy in the information and educational space.

At the same time, today there is a problem that in the conditions of a competence-based approach to training specialists, the concept of "quality of education" acquires a new meaning and includes not only knowledge, skills and

abilities, but also personal education of a person, the level of her mastery of modern information technologies will provide her success in further professional activities.

In the modern world, the process of building an information society occurs so quickly that information becomes an essential component for the development of all spheres of both public life and professional life. The impact of information on the development of the personality of a future tourism specialist in the life of such a society has increased significantly, taking a corresponding role. It should be said that at the present stage of modernization of higher pedagogical education, the information society is considered as a special world in which freedom of self-expression of students is provided, the possibility of constant professional self-improvement by means of information and communication technologies in the information and educational space.

The influence of information and communication technologies and the Internet on the field of tourism can hardly be overestimated, because, on the one hand, tourists are increasingly using new means of communication, satisfying their information needs at all stages of consumption of tourist goods (i.e. before, during and after purchasing the product). On the other hand, tourism managers understand that, if managed properly, new technologies can create tremendous benefits for their organizations. In addition, in recent years, technological developments and the spread of the Internet have had a noticeable impact on the educational process itself: curricula, teaching materials, and even curriculum of practical training are changing. Today tourism is defined as the industry that suffers most from the lack of highly qualified specialists and has the highest rate of staff turnover. That is why a very important factor in achieving success in this area is the education and training of competitive specialists. Despite the fact that the problem of the quality of personnel training in the world tourism industry is quite acute, since the end of the last century, insufficient attention has been paid to this problem, the

problem requires further research and search for optimal solutions.

The main purpose of the study is to determine information and communication technologies for the innovative development of tourism training in higher education institutions in the context of COVID-19.

2. Methodology

The research concept is based on the understanding of tourism training as a holistic, open, integrative, multi-level, mobile system in the context of COVID-19, which meets the social and educational requirements, the demands of the tourist services market, the multifunctionality of tourism, the individual needs of students and consists of theoretical and methodological, structural - meaningful, implementation-technological, criterion-analytical components, a strong connection and effectiveness of which is provided by a methodological basis: at the philosophical level - the principles of philosophy in the development, self-realization, self-improvement of the individual; awareness of the value of achieving professional results in tourism; on a general scientific basis - the conceptual foundations of tourist training in the conditions of an information, technological, globalized world

To achieve the goal, solve problems and verify the research thesis, a complex of modern general scientific methods was used:

- theoretical: analysis, content analysis, hypothetical-deductive method, method of system analysis, classification, generalization, modeling, design - to clarify the state of the study of the problem of information and communication technologies in tourist training and activities in the conditions of COVID-19; determination of the scientific and theoretical foundations of tourism; substantiation of the concept of professional tourism training, information environment, innovative technology;

- graphic for displaying scientific and theoretical information;

- abstract methods for generalizing research results.

3. Results

Today, a prerequisite for the effective work of a travel company is the availability of computers that are integrated into a local or corporate network with access to the global network, and allow the active use of the resources of hardware and software networks. Online information and networking technologies enable companies to quickly gather information, process and analyze it, make the right decision, and possibly outperform competitors. A computer network is a

collection of computers and other computing equipment (active network equipment, printers, scanners, etc.), united by means of communication lines, network cards and operating under the control of a network operating system.

Modern technical means of implementing information technologies include: personal computers; local and global computer networks; communication means; telephone equipment; video information systems, etc. Modern information systems, as a rule, imply the integration of various software products. The information system includes tools for documentary support of management, information support of subject areas, in particular socio-cultural services and tourism, communication software, tools for organizing teamwork of employees and other auxiliary technological products. The introduction of information technology involves not only the automation of basic information business processes, but sometimes their significant change. This is due to the improvement of the workflow in the system, and the increase in the reliability and efficiency of the provision of information allows more time to be devoted to its analysis, rather than routine processing. The introduction of modern information technologies should ensure the fulfillment of a number of requirements, including the availability of a convenient and user-friendly interface, ensuring security using various methods of control and differentiation of access to information resources, support for distributed information processing, the use of client-server architecture, the modular principle of building systems, support Internet technologies, etc. [1-5].

The modern tourism industry has undergone very significant changes in recent years due to the introduction of new computer technologies. The successful functioning of any company in the tourism business market is practically unthinkable without the use of modern information technologies. The specificity of the technology for the development and sale of a tourist product requires such systems that, in the shortest possible time, would provide up-to-date information about the availability of vehicles and the possibilities for accommodating tourists, would ensure quick reservation and booking of seats, as well as automate the solution of auxiliary tasks in the provision of tourist services (parallel execution of such documents, such as tickets, bills and guides, provision of settlement and reference information, etc.). Information technology systems used in tourism under COVID-19 conditions can be divided into the following functional groups of information systems (Table 1).

Table 1: Functional groups of information systems

<i>№</i>	<i>Groups</i>
1	Reservation and reservation systems
2	Tourist virtual communities
3	Information management systems (packages of financial management of travel agencies and hotels)
4	Electronic commerce
5	Support systems for tourism business on the Internet

The tourist business, being one of the most dynamic spheres of the economy, is a rich information industry. In other words, the collection, storage, processing and transmission of relevant information is the most important and necessary condition for the functioning of any tourist enterprise. The success of the business of some sectors of the economy directly depends on the speed of transmission and exchange of information, on its relevance, timeliness of receipt, adequacy and completeness. In this regard, the successful development of the tourism business presupposes the widespread use of the latest technologies both in the field of creating a tourism product and its promotion to the service market in the context of COVID-19.

Modern computer technologies have the greatest influence on the promotion of a tourist product (distribution and sales). First of all, this concerns the possibility of forming new marketing channels for the promotion and sale of a tourist product. Thus, in the field of advertising, direct mailing of tourist information by e-mail (direct-mail) has become widespread. In recent years, most travel businesses have set up their own internet sites and also use banner ads.

The tourist business is closely related to the prompt processing of a large amount of information. These can be lists of booking air tickets and hotel rooms, data on the composition of groups, personal data, applications from travel agencies and much more. First, it is necessary to accumulate this various information, and then process, extract and edit it, with the speed and accuracy of data processing being especially important. Information systems accumulate this various information.

The basis of information systems in the tourism business in the conditions of COVID-19 are relational and multimedia databases, the information in which

changes quickly. For example, an information system in a travel agency stores a list of tours, price lists of hotels, all kinds of directories. Such a system has at least users in the sales department, accounting department and company management. Someone enters information, someone corrects reference data, someone prints summary reports for accounting. The information in the system is constantly changing. In doing so, it is necessary to solve the problem of many concurrent transactions on a database shared by many users working on the network. It requires an understanding of the technical aspects of access to databases by many users and technologies, the use of which ensures the correct execution of transactions - changes in these databases.

The most modern trends in the use of multimedia technologies in tourism are multimedia presentations and excursions. A multimedia presentation is a combination of computer animation, graphics, video, music and sound, which are organized into a single environment. A distinctive feature of a multimedia presentation is its interactivity, that is, the ability to interact with a multimedia image created for the user by modern computer means. Multimedia presentations are primarily intended for solving marketing problems: informing about the goods and services produced by the company in a dynamic visual form, maximally focused on a specific target audience; multimedia support for large-scale advertising campaigns to promote a product or brand.

The purpose of creating a website for any company that is engaged in commercial activities is to increase the sales of its goods and services, improve the quality of service, and attract new customers. To make the company's website as user-friendly, memorable and pleasant for the user as possible, the website can be broken down into three important components, each of which influences the buyer's choice when making a purchase decision - the structure, design and content of the website. Site structure is the location of information on a site. A properly organized structure of the site allows the site visitor to easily and quickly navigate and find the information he needs [6-9].

The use of the Internet in the field of social and cultural services and tourism includes many areas: gaining access to the use of modern communication systems, including e-mail, digital telephone communication, etc., which significantly reduces the costs of travel companies for negotiations, business correspondence, direct mail, etc.; obtaining various reference data, in particular by countries, tariffs, prices, weather forecast in different parts of the world, etc. in real time, which contributes to the formation of a high-quality tourist product; gaining access to global booking and reservation systems; the possibility of forming new marketing channels for the promotion of tourist services, in particular the creation of their own websites for firms,

virtual tourist offices, e-commerce, etc. All this ensures the formation of a single information tourism space that allows working at the level of modern international standards and technologies in the field of tourism and hotel business. The Internet is a hierarchical multi-domain structure consisting of many local networks controlled by public and private organizations [10-12].

In order to successfully manage any objects, including enterprises of the tourism industry, it is necessary to constantly collect information, store it, process it and transfer it. For the successful implementation of this process, various office equipment is used. Office equipment is a technical means used for mechanization and automation of managerial and engineering works. In a broad sense, office equipment can include any device (device, device, tool) that is used in the office of a company, from pens and pencils to computers and complex electronic office equipment. The functioning of a modern tourist enterprise is directly based on the use of information technologies for information processing and office equipment [13].

The transfer of information can be carried out manually or mechanically using automated systems through various communication channels. The first method of transferring information is still widespread. In this case, information is transmitted either by courier or by mail. The advantages of this method include control over its receipt, minimal costs that do not require any capital expenditures.

The coronavirus pandemic and the resulting global crisis have caused significant damage to many sectors of the economy, including the tourism sector. The trends in the development of the tourism industry were influenced not only by direct restrictions, such as the introduction of quarantine measures, the closure of borders, a ban on visiting historical and cultural institutions, the cancellation of air flights, but also indirect measures that were taken in other areas involved in the tourism industry: restaurant and hotel business, transportation, film industry, sanatorium and medical services, etc. That is, the tourism industry is a system that is interconnected with many elements, where problems in one of them can have a significant impact on overall efficiency. The problem of tourism development is considered in the works of many domestic and foreign scientists. The authors' attention is paid to the study and analysis of development trends of both the domestic tourism market and the international one. Since the beginning of the coronavirus pandemic falls on the end of 2019, as well as due to the lack of official statistics, scientific sources have not sufficiently investigated the modern processes taking place in the tourism market in the context of the COVID-19 pandemic.

Many countries are committed to actively countering the negative impact of COVID-19 on tourism.

Let's consider the main information and communication technologies in the context of different states (Table 2).

Table 2: Main information and communication technologies in the context of different states to actively countering the negative impact of COVID-19

<i>Country</i>	<i>Groups</i>
France	Changed the cancellation policy for travel bookings, allowing the refund to be replaced with a credit note or voucher for the equivalent amount valid for the upcoming service; customers can request a refund for unused vouchers after 18 months
China	Conducted market research to predict the share of domestic tourism in total tourism demand. Tourist activities are encouraged in each of the provinces. The Ministry of Culture and Tourism, together with the National Health Commission, urged provincial governments to open local scenic spots and attractions (with limited access under strict control)
Japan	Introduced an emergency economic package that includes a new subsidy worth over \$ 10 billion. USA as rebates and travel deals to consumers, thereby supporting tourism, transportation, food services and business events for immediate recovery from the pandemic. After the pandemic ends, the Japan Tourism Agency will spend \$ 2.2 billion on attracting tourists, making tourism destinations attractive, improving the tourism environment and developing promotions for international tourists
Italy	Approved travel vouchers issued by the government and given to families for domestic travel

One of the industries most affected and experienced significant financial and economic impact during the COVID-19 pandemic is the tourism industry. Today, the tourism industry is undergoing major transformations, requiring a high-quality and thorough analysis of the factors influencing demand in connection with the COVID-19 pandemic. Almost all countries are developing and implementing programs to stimulate and support the development of the tourism industry,

providing, in particular, support for small and medium-sized businesses by providing affordable loans, government loans and subsidies, deferred payment of debt obligations, providing tax holidays, incentives and reducing the rates of certain taxes etc. Countries are starting to reorient themselves towards stimulating domestic tourism, less dependent on the global coronavirus crisis and quarantine measures. The COVID-19 pandemic is accelerating the adoption of online forms and digital tools in the provision of travel services, thereby reducing contacts between tourists and travel service providers. This ensures that the subjects of the tourism industry comply with sanitary standards.

With a manual or mechanical method of transferring information, people take part at each stage; during automated transfer, various electronic devices and devices can be used. One of the problems arising in the automated transmission of information is the quality of information transmission, which is significantly reduced due to interference arising in communication channels and in transceiver devices. To reduce interference, improve the quality of transmitted information and ensure its reliability, special circuits are built into the transceiver devices. The less interference, the better the automated systems work. The quality of the system as a whole must be assessed by such indicators as throughput, reliability and reliability of the information received. Line capacity characterizes the maximum possible data transfer rate that can be achieved on this line. A feature of the bandwidth is that, on the one hand, this characteristic depends on the parameters of the physical environment, and on the other hand, it is determined by the method of data transmission. The maximum possible transmission rate of information over a communication line is most influenced by the bandwidth. Bandwidth is a continuous range of frequencies for which the attenuation does not exceed some predetermined limit, that is, the bandwidth determines the frequency range of a sinusoidal signal at which this signal is transmitted over the communication line without significant distortion [15-17].

One of their characteristic features of tourist activity is a large number and variety of information flows, which is accompanied by their constant updating and high speed of exchange operations. Informational relationships exist between all participants in the tourism market, with particular emphasis on information intended for end users (tourists). This is due to the specific features of the tourist product and the need to provide the most comprehensive information for potential tourists. The quality of information support for tourism seems to be the most important factor that directly affects the quality of tourism products and services. Based on this, when training personnel for the tourism sector, special

importance should be given to the information component, in particular, information support for tourism.

The tourist business, being one of the most dynamic spheres of the economy, is a highly saturated information sphere of activity. In other words, the collection, storage, processing and transmission of relevant information is the most important and necessary condition for the functioning of any tourist enterprise. There are not so many areas of the economy in which the success of a business directly depends on the speed of transmission and exchange of information, on its relevance and timeliness of receipt, on its adequacy and completeness. In this regard, the successful development of the tourism business presupposes the widespread use of the latest technologies both in the field of creating a tourism product and its promotion.

4. Discussions

Discussing the results of the study, it should be noted that a significant number of countries around the world support the process of informatization of education, the use of information and communication technologies in the education system; contributes to the provision of educational institutions with computers, modern teaching aids, the creation of global information and educational networks; ensures the development of an integrated system for monitoring the quality of education at all levels; notes the need for the introduction of distance learning as a means of improving the educational process. One of the ways to intensify the educational process of tourism training and provide it with a professional focus is the widespread introduction of electronic teaching aids, information and communication technologies, and distance learning.

We emphasize that improving the quality of training for tourism specialists is seen in the introduction of tourism information technologies into the educational process, the use of multimedia teaching aids, as a way of creative assimilation and use of educational material by students; the formation of experienced and search skills, skills to make optimal decisions; the development of interest and a positive attitude towards training and future professional work in the tourism sector; stimulating interest in research activities on tourism training in the context of COVID-19.

The development of communication in tourism should be considered as an independent direction of state policy in the field of tourism, inscribed in the tasks of increasing the competitiveness of the sector and raising the standards of tourism activities. The development of communication usually fits into the solution of other tasks of tourism policy, and under modern conditions, with the expansion of the use of IT, it can be considered as a

separate area of government activities. In terms of public administration, the development of communications is associated with the construction of an effective structure of state power in the industry. Improvement of institutions and infrastructure of communication in tourism, including the basics of IT application, can be singled out as the main task of the state. Separately, it is advisable to introduce national standards of tourism informatization, complementing their requirements for the quality of communication.

As for modern IT in the context of COVID-19, their influence on communication in tourism is only growing. IT "penetrates" into the tourism industry in a variety of ways, primarily in: expanding the possibilities of tourists in finding services and marketing opportunities for travel agencies, disseminating tourism experience, expanding the participation of potential customers in the development of a tourism product, promoting interpersonal and group interaction, ensuring intermediate relations between suppliers and consumers tourist services. IT transforms the preparatory stages into a permanent virtually real process, and sometimes they virtualize tourism itself, make communications in tourism electronic-interactive, continuous, unplanned. In the areas of IT penetration, special services are being introduced, mainly based on the Internet.

5. Conclusions

Modern tourism is one of the leading types of rapidly renewing economic activity in most of the country in the world, integrating with other spheres. That is why a comprehensive study of the tourism industry in the context of COVID-19 is an urgent issue of our time. This poses new challenges for tourism studies as a leading branch of scientific knowledge and forms new requirements for the professional training of specialists in tourism studies, aimed at ensuring the formation of the worldview, innovative, scientific thinking of the specialist's personality, and readiness for professional improvement throughout life.

The modern tourism industry in the context of COVID-19 has undergone very significant changes in recent years due to the introduction of new information technologies. The fact is that business in this area is not only one of the most dynamic, but also an industry that is extremely rich in information. Success in this area of the economy directly depends on the speed of transmission and exchange of information, its relevance, timeliness of receipt, adequacy and completeness. The specificity of the technology for the development and implementation of services requires such information systems that would promptly provide information on the availability of

vehicles and the possibilities of accommodating customers, would ensure quick reservation and reservation of seats. In addition to this, the solution of auxiliary tasks must also be automated: booking entertainment services, renting a car, processing documents (tickets, invoices and guides), providing settlement and reference information, and more. In addition, the industry of social and cultural services and tourism is so multifaceted and multifaceted that it requires the use of a wide variety of information technologies, ranging from the development of special software tools that automate the work of an individual travel company, hotel or sanatorium for using global computer networks. Therefore, modern computer technologies are actively being introduced into the sphere of this business, their application is becoming an essential condition for increasing the competitiveness of any tourist enterprise. Information technologies and systems are designed to be used in the management of various objects and to improve the management decision-making process.

In the context of globalization, the role of information technology as a fundamental tool in increasing the efficiency of enterprise management is significantly increasing. Specific features of the creation and implementation of tourism services (the abundance of participants and their geographic dissociation, an extensive system of relationships between the subjects of the tourism market, territorial differentiation of the tourism product, the remoteness of the place of sale of tourism services from the place of consumption) necessitate an increase in the level of provision of the management system with modern information technologies.

The positive impact of information technology on the dynamics of international tourist flow has led to the transformation of the tourism industry from a service-oriented organized tourist to a diversified field of activity aimed at meeting the diverse needs of millions of individual tourists.

The use of information technologies in the field of tourism and tourist training in the conditions of COVID-19 allows users to easily find information about the conditions of recreation, prices, services provided, more detailed information about the organization. Not a single type of advertising can be compared with advertising on the Internet in terms of the completeness, quality and efficiency of the information provided.

References

- [1] Bagheri, A., & Lope Pihie, Z. A. *Role of family and entrepreneurial leadership development of university students*. World Applied Sciences Journal, 11(4), 434-442. (2010)
- [2] Burkšaitienė, N. *How can university learning environment contribute to students' creativity? Lithuanian students'*

- perspective. *Creativity Studies*, 11(1), 162-171. <https://doi.org/10.3846/cs.2018.271> (2018)
- [3] Candia, S., Pirlone, F., Spadaro, I. *Integrating the carrying capacity methodology into tourism strategic Plans: A sustainable approach to tourism*. *International Journal of Sustainable Development and Planning*, Vol. 15, No. 3, pp. 393-401. <https://doi.org/10.18280/ijstdp.150317> (2020)
- [4] Dzemyda, I. *Electronic marketing for the development of international tourism*. *Business: Theory and Practice*, 15(2), 191-197. <https://doi.org/10.3846/btp.2014.19> (2014)
- [5] Elliott, R.; Boshoff, C. *The marketing of tourism services using the internet: a resource-based view*, *South African Journal of Business Management* 40(3): 35–50. <http://dx.doi.org/10.1509/jimk.17.4.1> (2009)
- [6] Hjalager, A. M. (2002). *Repairing innovation defectiveness in tourism*. *Tourism Management*, 23, 465–474. [https://doi.org/10.1016/S0261-5177\(02\)00013-4](https://doi.org/10.1016/S0261-5177(02)00013-4) (2002)
- [7] Hjalager, A. M. (2010). *A review of innovation research in tourism*. *Tourism Management*, 31, 1–12. <https://doi.org/10.1016/j.tourman.2009.08.012> (2010)
- [8] Hvass, K. A.; Munar, A. M. *The takeoff of social media in tourism*, *Journal of Vacation Marketing* 18(2): 93–103. <http://dx.doi.org/10.1177/1356766711435978> (2012)
- [9] Juzefovič, A. *Creative tourism: the issues of philosophy, sociology and communication*. *Creativity Studies*, 8(2), 73-74. <https://doi.org/10.3846/23450479.2015.1065601> (2015)
- [10] Koshova, B. R. *Assessing the impact of socio-economic development on the formation of tourism infrastructure. Western region of Ukraine*. *Young Scientist*, 12, 772–777. (2017)
- [11] Kozak, Y., Derkach, T., & Huz, D. *Forming the strategy of integrated development of tourism enterprises*. *Baltic Journal of Economic Studies*, 5(4), 105–115. <https://doi.org/10.30525/2256-0742/2019-5-4-105-115> (2019)
- [12] Kryshchanovych, S., Kindzer, B. ., Goryn, M. ., Kravchenko, A. ., & Frunza, S. *Management of socio-economic development of tourism enterprises*. *Business: Theory and Practice*, 21(1), 420-426. <https://doi.org/10.3846/btp.2020.12162> (2020)
- [13] Leung, D.; Law, R. *eTourism: present and future services and applications*, *Anatolia– an International Journal of Tourism and Hospitality Research* 23(2): 287–290.
- [14] Mareque, M., De Prada, E., & Pino-Juste, M. *Creativity among business and tourism management university students: determining sociodemographic factors*. *Creativity Studies*, 12(2), 258-279. <https://doi.org/10.3846/cs.2019.6925> (2019)
- [15] Perić, M., Đurkin, J., Vitezić, V. *Active event sport tourism experience: The role of the natural environment, safety and security in event business models*. *International Journal of Sustainable Development and Planning*, Vol. 13, No. 5, pp. 758-772. <https://doi.org/10.2495/SDP-V13-N5-758-772> (2018)
- [16] Qirici, E.; Theodhori, O.; Elmazi, L. *E-marketing and ICT– supported tourist destination management. Implications for tourism industry in global recession*, *International Journal of Management Cases* 13(3): 152–158. <http://dx.doi.org/10.5848/APBJ.2011.00048> (2011)
- [17] Rabauskaitė, V. *Revitalisation of public spaces in the context of creative tourism*. *Creativity Studies*, 8(2), 124-133. <https://doi.org/10.3846/23450479.2015.1053543> (2015)