

Information technologies and E-commerce in education in the sphere of tourism and hospitality

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Abstract. The country's economy can be focused on the development of primary industries or innovation, the growth of which is based on the development of knowledge-intensive industries using information technology. The large-scale development of Internet technologies has made it possible to develop a model of network management of the economy. This also applies to the business of companies in the field of tourism and service. The widespread use of information technology will improve the competitiveness of companies and reach a new level of development. The article identified a range of issues for management in the organization of tourism and hospitality for the effective use of Internet technologies and e-commerce. The article deals with the use of software tools for analyzing incoming information, multimedia content and infrastructural public networks HTML, JavaScript, WWW, information-distributed infrastructure EDI, E-mail, HTTP, architecture of the e-commerce system, the scheme of automated formation of the educational process. The professional competencies of students of secondary vocational education, higher education and the system of additional professional training in the field of tourism and service should include knowledge, skills and abilities in organizing e-commerce using modern information technologies. The article considers the stages of using Internet technologies and e-commerce technologies, approaches to organizing these processes in tourist organizations and hotels. Continuous education in the field of e-commerce using information technology will allow developing the modern tourism and hospitality market at a high information level, improve the information literacy of sales specialists and managers of tourist organizations and hotels.

1 Introduction

The modern education system in tourism and hospitality is being formed in response to the rapid development of technologies and the increasing demand for the quality of services. Open education is based on such principles as [1-3]:

- free development of individuality with an emphasis on independent work and self-development, motivation, hard work;

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- the use of information technologies in the learning process;
- free choice of programs and terms of study;
- free choice of educational institution;
- individual approach to the formation of the training schedule;
- flexibility, i.e. the possibility of distance learning and in a convenient mode;
- reflexivity – the ability to realize, comprehend the past and self-knowledge, comprehend one's own actions;
- economic efficiency for the student and for the university.

The common goals of educational organizations and the tourism industry is to provide the industry with such specialists who are able to promote the services of the tourism business in the field of tourism and hospitality in a highly effective way – to arouse interest in the destination and the product offered, whether it is a tour or hotel services. Since business development and sales managers are the driving force in promoting tourism and hospitality, the demand and sale of tourist products and travel services of individual destinations and companies that are part of it depends on their high-quality educational training [4-8].

The rapid development of the Internet and its spread around the world affects the growth in the number of online shoppers [8]. In 2020, more than two billion people purchased goods or services online, and during the same year, online retail sales worldwide exceeded \$4.2 trillion. Forecast from 2021 to 2025 shows growth to \$7.385 trillion (Figure 1.)

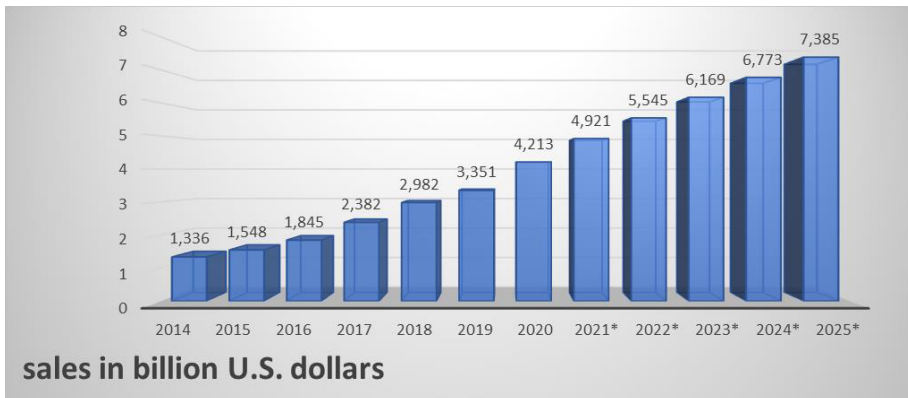


Fig. 1. Worldwide e-commerce retail sales 2014 to 2025, in billions of dollars.

Source of Figure 1: built from data Statista “Retail e-commerce sales worldwide from 2014 to 2025”

At the same time, in 2020, the share of e-commerce in global retail sales amounted to 18% (Figure 2.). It should be noted that if until 2020 this share increased within 1-2% annually, then in 2020 the change was more than 4%.

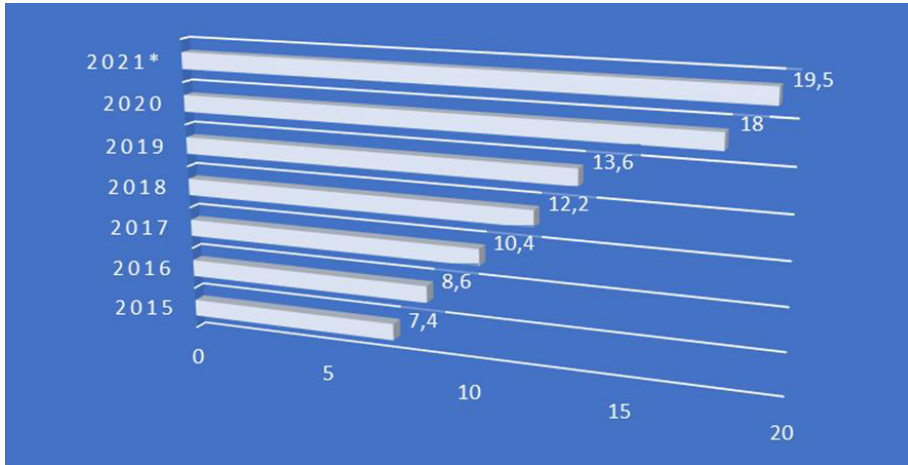


Fig. 2. Share of e-commerce in global retail sales from 2015 to 2021.

2 Main part

Enterprises of a certain type are involved in the field of e-commerce. First of all, e-commerce requires electronic enterprises. Within the framework of this work, it is assumed that the main business processes of the enterprise are automated (finance and accounting, sales and marketing, production, supply and procurement, quality management).

Unfortunately, the level of automation of Russian enterprises cannot be called high. Studies have shown that the level of automation of business processes in Russia is mainly carried out by creating websites as an electronic store for sales of tourist and hotel services, accounting is automated, but the promotion of electronic stores of enterprises is not carried out at a sufficient level. An established scheme of interrelated work of all elements of an enterprise's business most often becomes the basis for the introduction of e-commerce.

Nevertheless, in 2020 in Russia, the share of online sales in the total retail trade turnover amounted to 3.9%, having almost doubled in 1 year (Figure 3.). The growth trend continued in 2021.



Fig. 3. The share of sales via the Internet in the total volume of retail trade turnover, in %.

Taking into account the existing scientific, technical and human potential, it can be argued that the future of the Russian economy lies in the wide use of the latest achievements of scientific and technological progress, innovative technologies based on the scientific knowledge of entrepreneurs in various business areas. The use of information technologies in the practical activities of private and small entrepreneurs allows them to achieve competitive advantages, get additional profit. The widespread use of the Internet as the main means of exchanging commercial information has led to the active development of e-commerce in all areas of business activity. Therefore, it is important to provide continuous education of specialists in the field of tourism and hospitality to the basics of e-commerce within the framework of vocational education (SPO and HSE) and advanced level in the higher school, as well as modern innovations in the field of e-commerce under additional professional education programs [9-12].

The conducted study of e-commerce in the field of tourism and service allowed us to reflect the following trends:

1. As a rule, travel companies and hotels go through several stages of using Internet technologies. At the first stage, the network is used as a marketing tool; at the second, the Internet becomes a business tool, connecting the business processes of the company, its suppliers and consumers. The principles of e-commerce in the field of tourism and hotel business are beginning to be used in the economic activities of enterprises at all stages of production (starting from pre-sale and after-sale support for tourists, and ending with the direct provision of tourist and hotel services). So, for example, hotels to support tourists at the booking stage and at the time of service at the hotel introduce their own electronic resources in the form of a hotel application with a booking system, communication in the form of chats (question-answer), information about additional services at the hotel, notifications about ordered services, constant support for tourists.

2. The market of network services in the field of tourism and hospitality is actively developing. The development of the Internet and e-commerce is one of the most important conditions for increasing the competitiveness of tourist and hotel enterprises. The dynamics of the growth in the number of domains registered in the name of private tourist entrepreneurs and organizations suggests that this situation is realized by the tourist and hotel business. The use of e-commerce principles is a mandatory attribute of the business strategy of those companies that want to take a worthy place in the tourist and guest market. Also, the growth in the number of regular Internet users allows us to conduct an active policy of promoting tourist and hotel services on the electronic market. The use of e-commerce in the activities of tourist enterprises allows them to reach a new level of attracting and servicing their customers, increase the efficiency of doing business through the introduction of modern business methods that allow entrepreneurs to reduce their own costs. For example, travel agents actively use the possibility of remote communication with a tourist, the implementation of electronic document management when concluding a transaction with a tourist, which reduces the cost of renting large offices in the centre of megacities, postal shipments, etc.

According to Phocuswright's, mobile OTA bookings will increase. By 2022, more than a third of OTA orders in Europe will be placed through mobile websites and apps. However, table bookings are predicted to remain unchanged for the next few years (Figure 4).

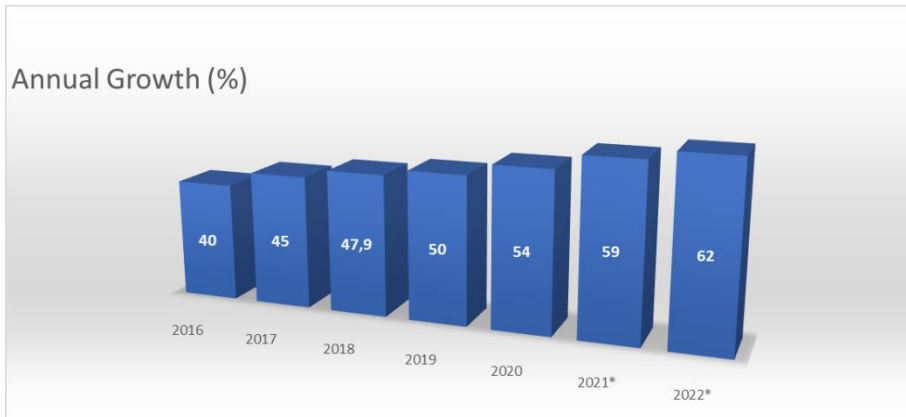


Fig. 4. Growth of mobile OTA bookings 2016-2022.

According to the Criteo Summer Travel Report 2018, OTAs capture the majority of mobile bookings globally. A whopping 39% of OTA bookings are made on a smartphone compared to just 10% of travel agency bookings.

The organizational and economic aspects of the activity of the enterprise in the field of tourism and hospitality are characterized by new requirements for the organization of activities - the main business processes of the tourist enterprise must be automated. Thus, the processes of transaction processing, warehouse activities, analysis of the company's activities, support of relations with customers are impossible without automated processing of large amounts of information. Modern software systems allow companies with different income levels to use the latest achievements in the field of information technologies. Enterprises of various forms of ownership, different sizes and spheres of activity are involved in the field of e-commerce. In hotels, automated systems for accounting for reservations, hotel loading, assessing the status of rooms (cleaned, check-in, busy, check-out, booked), settlements with a guest, accounting for hotel inventory, and so on are actively used. The professional requirements for hotel staff who are able to work with these automated systems are also changing. Optimization of the organizational structure and the formation of a staff of professionals in the e-commerce of tourism and hospitality enterprises ultimately lead to an improvement in the management function of the company, to the building of new relationships between the client and the tourist enterprise or hotel.

The economic effect of the use of e-commerce by tourism and hotel businesses is characterized by an increase in sales of travel services, a reduction in the time for processing transactions and a reduction in possible errors during their conclusion. It is enough for a tourist to choose an aggregate hotel and a room for a certain date at a certain rate and make a reservation in a couple of clicks, make an advance payment. A number of modern hotels offer tourists to pre-register electronically on the day of arrival, saving time for registration at the hotel. There is a significant reduction in transaction costs, which in turn increases the profit of the hotel or travel agency.

The use of information technologies and e-commerce as the highest manifestation of these technologies in the hotel and tourism business generates specific risks. This is the risk of mismatch of technology and time, the risk of insecurity of information systems, the risk of financial transactions. With the increase in the qualification of service personnel, the risk of personnel leakage increases. Due to the constant changes in the technical and technological base of e-commerce, the value of variable costs tends to increase, since there is a constant need to update the technical component and train personnel of the appropriate skill level.

Building a business plan for the development of an enterprise based on the principles of e-commerce is a strategic task of a large number of entrepreneurs in the field of tourism and

business. Knowledge of the strategy and tactics of the company's behavior in these conditions is the main task of the top management of a travel agency or hotel. Decision-making should be based not only on the advice of third-party specialists, but also on your own knowledge of the principles of e-commerce. The development of e-commerce requires the availability of specialists with appropriate qualifications and education. The developed training programs will ensure a decent level of qualification of the management staff of tourist enterprises and hotels. Obtaining additional education will allow them to make the right decisions about the need to involve a travel agency or a hotel company in the field of e-commerce.

To a large extent, the dynamics of the development of e-commerce in the field of tourism and hospitality is influenced by the state. Economic policy and legislative activity should be aimed at creating favorable conditions for the development of e-commerce in tourism. Currently, the state is trying to adopt the necessary laws for the successful development of this sector of the economy.

State Policy and Legal Privacy Issues	General business infrastructure Security, authentication,	Information security standards
	Multimedia content and public network infrastructure HTML, JavaScript, WWW	
	Information Distributed Infrastructure (EDI), E-mail, HTTP	
	Network infrastructure Telecommunications, wireless networks,	

Fig. 5. Components of e-commerce and their protection.

Despite the rather modest, in comparison with other countries, the scale of the spread of network technologies, we can talk about quite large projects that implement a variety of systems for using the principles of e-commerce. The information opacity of Russian business in general, and e-commerce companies in particular, does not allow us to fully assess the effectiveness of the impact of e-commerce on the activities of business structures in the Russian economy. The closeness of commercial results of activity largely constrains the inflow of external capital into Russian companies. The introduction of e-commerce principles by entrepreneurs is mainly carried out on their own. The attraction of borrowed capital is carried out only by large enterprises that have experience in interacting with lenders and investors in the real sector of the economy.

It is determined that the evolution of the development of e-commerce from an information site-a business card of a travel company or a hotel to a trade information system allows an entrepreneur to choose the most effective option for the organization's presence on the Internet. Depending on the tasks to be solved, it is possible to implement the principles of e-commerce in the priority area of activity for the tourist enterprise (pre-or after-sales customer support, automation of basic business processes, Internet marketing, etc.) [13-15].

The management of the enterprise, which has set itself the goal of involving its tourist or hotel organization in the field of e-commerce, faces the following range of issues, the solution of which depends on the efficiency of the enterprise in the future:

1. Organizational matters (creation of infrastructure for the dissemination of information; organizing and tracking information; the Use of intermediaries; maintaining a flexible organizational structure; Internal restructuring - the transition from a hierarchical structure to "network".)

2. Practical issues (pilot projects; automation; planning expansion; the use of large amounts of data; Implement applications for optimizing production processes.)

3. Marketing issues (two-way communication with the consumer; collection of information about consumers; organization of network communities of interests; free dissemination of information (both within the company and outside it)).

4. Legal issues (taxation; secrecy of information received from consumers and business partners, as well as internal company information; intellectual property issues; compliance with the legality of the company's activities within the current system of state regulation of e-commerce.)

For each of the mentioned issues, we will consider the range of competencies that need to be formed within the framework of an uninterrupted educational process for managers and sales specialists of travel agencies and hotels:

1. Organizational issues. The introduction of e-commerce is not just another technological project. At the same time, a significant organizational restructuring, correlation of the company's communication and information infrastructure is usually required. Therefore, the manager should know what changes in the organizational structure are related to information and telecommunications, and the foundation of the infrastructure should be a carefully selected communication tool. This can be a familiar e-mail or a specialized database, or a special client-server application.

To improve the exchange of information, the information structure used should be open and all links of the production chain - from the manager to the director-should have access to the database and be able to use it. At the same time, it is necessary to be able to update information in an interactive mode, involving all areas of the business. The head of a travel agency or hotel should be able to organize the process of combining all the automation systems used at the travel agency into a single system.

The information obtained as a result of the introduction of new technologies must be effectively managed. In the conditions of increasing volumes of information and its free dissemination, the issues of systematization are becoming of great importance. The knowledge of the sales manager and the use of software tools for analyzing incoming information (CRM) is a key principle of implementing e-commerce.

Working with business partners on e-commerce projects requires compliance of the partners' communication tools. Such compliance is one of the principles of applying EDI-standardization of the form of data exchange between business partners and the means of their transmission. There may be a need to change the internal methods of information processing to adapt them to the EDI format. Therefore, travel agents establish a certain electronic document management system for communication with tour operators, and a modern tour manager must have the skills to work with such electronic systems.

In some cases, it is advisable to use the services of intermediaries in e-commerce (to outsource certain areas of activity), but the head of a tourist enterprise or hotel should be able to control the performance of these works, therefore, he should know the basic principles of these types of activities in e-commerce. The gradual introduction of e-commerce is a natural process of innovation.

2. Practical questions. Having determined the goal, tactics and strategy of development of a tourist enterprise or hotel, they proceed to the practical stage of implementing e-commerce. Therefore, the manager should be able at this stage to choose the software on the basis of which the implementation and subsequent development of e-commerce at the tourist enterprise will be carried out. The solution to the problem is not as simple as it may seem at

first glance. The variety of ready-made programs and solutions offered on the market, developed to order, is very large, and the manager must monitor the current offer of such programs. After all, a strategically important decision on the use of a particular system for automating the business processes of an organization can be a key moment in the implementation of the principles of e-commerce.

Before starting to search for a specific software product supplier, the head of a travel company or hotel needs to clearly know the range of tasks that this product should solve and be able to calculate the approximate amounts that the travel company is ready to spend on business automation.

In order to successfully implement new technologies, the manager must undergo advanced training in the field of e-commerce. When implementing a ready-made software product, it is advisable to use the services of the developers of this product so that they configure the system for the business processes of the organization, for which it is necessary to participate in seminars of representatives of this field. You can follow the path of developing a new solution that takes into account all the features of the production organization of your travel company, but here you can not do without the special knowledge and skills of professionally trained personnel. Each of these approaches has its advantages and disadvantages [16-18].

At the initial stage of the introduction of e-commerce, the head of a tourist enterprise or hotel needs to have the skills to carry out "pilot" testing of the implemented system, which he can get as a result of an internship in the higher education system or an internship at vocational retraining courses. "Trial operation" will allow you to identify the bottlenecks of the system, check its relationship with the information systems of partners. This practice will allow you to uncover and eliminate many problems at an early stage of development, while the system has not yet become the basis of the business and some shortcomings are not difficult to fix [19-25].

It is very important for managers of tourist and hotel enterprises to be able to plan in advance the expansion of the Internet site and related data, as well as the automation of the maximum number of processes that support its operation. That is why modern e-commerce tools are based on the use of relational databases and an object-oriented approach to the dynamic creation of most of the content of the company's online representation [26-29].

Automation of the presentation of information on the Internet site makes it easier to select it individually for tourists, therefore, sales managers of tourist companies or hotels need to be able to offer relevant information and a set of offers in an interactive mode based on the analysis of preferences expressed by site users. They need to be able to extract the necessary information by observing how customers search for goods, make purchases on the Internet site, based on the characteristics of their behavior and preferences during purchases and payments, questions to the technical support service, the status of their credit accounts. Since this data is presented in digital form, it is easy to collect and analyze. The software that allows you to automate these processes can be developed by the company's own forces (at the initial stage). Subsequently, it can be replaced by a commercial software product of equal quality that has appeared on the market and meets the specified functionality criteria.

The head of a tourist enterprise or hotel should be aware of modern payment systems for goods and services used in e-commerce, and should be able to ensure their integration with the existing accounting system of the travel agency. He should be able to provide electronic business processes at the enterprise, and information communication specialists of a travel agency or hotel should be able to track inventory on the basis of an automated warehouse inventory accounting system. An automated system for receiving, storing and processing information about orders, synchronized with the accounting and warehouse programs of the enterprise, is the basis for implementing the principles of e-commerce.

3. Marketing. The Internet as a global information system has made significant adjustments to the methods and principles of the marketing services of tourist enterprises and hotels. The Internet allows you not only to organize effective feedback with the buyer and quickly study his needs, but also to flexibly change your own marketing plans and advertising projects in accordance with the changing economic situation.

Internet marketing includes a whole range of disciplines: not only banner advertising and public relations, but also methods of conducting marketing research on the Internet, in particular, the study of demand and consumer audience, methods and means of conducting effective advertising campaigns, ways to correctly position a trademark on the market, and much more. These disciplines should be included in the basic training course for sales managers for travel agencies and hotels.

3 Conclusions

Conclusion based on the conducted research on the feasibility of open continuing education in the field of e-commerce in the tourism and hospitality sector:

Firstly, all business processes of a tourist and hotel enterprise have changed from training to after-sales service of a tourist due to the active introduction of e-commerce.

Secondly, first of all, the spatial and temporal requirements of tourists for electronic information and travel booking services are changing. And hence, consequently, the requirements for the providers of these services (for their location, mobility, efficiency) also change.

Third, the requirements for the technologies used are changing. Now it is desirable that they are not just flexible, but also, as they are commonly expressed, online. For the effective organization and management of an electronic enterprise, a network structure that unites equal independent workers, providing distributed methods of planning, monitoring and regulating production, is best suited.

Fourth, the professional requirements for employees (sales specialists and managers) of tourist enterprises and hotels are changing, which can be provided through open and continuous training.

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