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## CONTENTS

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<b>Anton Atno Parluhutan Sinaga</b>	
Poverty perspectives and reduction strategies in Indonesia	1
<b>Besik Bolkvadze</b>	
On the issue of determining the size of the public sector of the economy	10
<b>Mariia Bahorka, Tetiana Ustik, Liudmila Kvasova</b>	
The place of marketing activities in the crisis management system	15
<b>Vasyl Baldynyuk</b>	
Features of innovation management at modern enterprises	21
<b>Tetiana Zakharova</b>	
The importance of information technology for forecasting the activities of the enterprise in the tourism business	28
<b>Nataliia Zlenko, Crückeberg Johannes</b>	
Formation of a new educational paradigm of socio-cultural development of Ukraine in the new historical discourse	34
<b>Ruslana Lopatiuk</b>	
Improving the methods of personnel management of the restaurant chain	42
<b>Tetiana Mulyk, Yaroslavna Mulyk</b>	
Exports of Ukrainian agricultural products to the European Union: analytical assessment, problems and prospects	49
<b>Vitaliy Omelyanenko, Maksym Vernydub, Oleh Nosachenko</b>	
Innovative projects for the revitalization of old industrial areas	58
<b>Liudmila Perminova</b>	
Science diplomacy in the context of socio-cultural development of education	64
<b>Oleksii Shpanel-Yukhta</b>	
Peculiarities of digitalization of financial services among countries by income groups: conclusions for Ukraine	73

# THE IMPORTANCE OF INFORMATION TECHNOLOGY FOR FORECASTING THE ACTIVITIES OF THE ENTERPRISE IN THE TOURISM BUSINESS

Tetiana Zakharova<sup>1</sup>

**Abstract.** *The aim* of the article is to study the importance of information technologies for forecasting business activity in the tourism business. The analysis of the processes taking place in the industry shows a discrepancy between the level of application of information technologies in the activities of domestic business entities in the sphere of tourism development and their implementation in tourist developed countries of the world. Specific features of the creation and implementation of tourism services (a large number of participants and a significant geographical reference, a balanced system of relations between the subjects of the tourism market, territorial differentiation of the tourist product, remoteness of the place of sale of tourist services from the place of their consumption) necessitate an increase in the level of provision of the management system of modern information technology. *Methodology.* The following methods were used to study this topic: descriptive, idealization, statistical, field research. Much of the data in this study was obtained through observations of both tourism businesses and consumers of tourism services. *Results.* The need to forecast the results of the enterprise is due to a significant degree of uncertainty and a large number of risks, because the economic environment, both external and internal, is characterized by high dynamics and changes. Forecast indicators are an important component of the management process of the enterprise and its divisions in the context of identifying opportunities and threats, the level of solvency of the enterprise. *Practical implications.* Activity in the field of information technology is based on a number of features, which are based on the innovation policy of the enterprise in the tourism business: the dynamism of information technology; novelty of products or services provided or produced. This leads to the growth of the information services market, implementation and use of the most modern products in the field of information technology. All this provides a strategic advantage of the company in the market. *Value/originality.* It is proved that the modern work of the enterprise is impossible without the analysis of future forecasts and development programs that will contribute to the achievement of the expected and desired state of affairs. The development and implementation of forecasting methodology has become an objective requirement for enterprises in any field of activity.

**Key words:** forecasting, information systems, information technologies, tourism business, efficiency.

**JEL Classification:** M30, L83, Z32

## 1. Introduction

Modern tourism business is impossible without the support of information technology, which has a significant impact on the activities of enterprises and is important for the survival and growth of the economy in a country where there is a war today. For many people, 2021 and 2022 are years they would like to leave behind. The impact of COVID-19 and the war in Ukraine has affected both businesses and consumers, and the world at large.

Of all the areas of activity in Ukraine, tourism has suffered the most. Today this industry needs changes. Instead of guessing "blindly", it is better to entrust the future to information technologies. The degree of development of information resources determines the overall level of informatization. Informatization is defined as a set of interconnected organizational, legal, political, socio-economic, scientific and technical processes aimed at creating conditions for meeting information needs through the formation and development of information systems, networks,

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resources and technologies based on the use of modern computer and communication technologies.

The main purpose of information systems and technologies in tourism business is to ensure the efficient use of information resources, such as (Voynarenko, 2017):

- development of strategic development plans of organizations;
- ensuring the competitiveness of the company's divisions, taking into account the opinion of customers and the state of competitors;
- facilitating management decision-making;
- in the process of studying the impact of investment and innovation activities.

The importance and effectiveness of the use of information technologies and information resources to improve the efficiency of the tourism business enterprise has been repeatedly emphasized in professional sources. The research of the essence of forecasting and modern technologies, which can be used to develop enterprise development strategies, is devoted to the work of the following scientists: V. Vernadskyi, I. Blagun, N. Viner, V. Vitlinskyi, P. Hryhoruk, V. V. Glushkov, Z. Partiko, S. Lazareva, O. Lyashenko, O. Chernyak, G. Pocheptsova, E. Toffler, K. Shanon, B. Evelson, D. Vesset, P. Luna, F. Kotler, L. Fleischner, M. Porter, and others.

## 2. The impact of the economic crisis on consumer behavior

Studies of the behavior of Ukrainian consumers by domestic scientists are carried out fragmentarily.

In this regard, there remain unresolved topical issues of the influence of consumer sentiment on the perception of innovations in the tourism business, taking into account the factors of influence of the economic crisis, as well as their interpretation in terms of possible consequences for the tourism market and society as a whole. These problems are of particular relevance in the context of, firstly, economic and political crisis, and secondly, in the context of modern European integration processes of Ukraine, which, in particular, are associated with the adaptation of Ukrainian consumption culture to the European level.

## 3. Differences in consumer behavior between age groups

At different stages of creating and promoting a tourism product, information technologies influence tourism.

Modern information technologies create a single information space. Its physical basis is laid in integrated computer networks and communication systems. This unity makes it possible to support and coordinate not only technological processes, but also business activities of any modern organization or enterprise. This approach involves technical, organizational and methodological integration of the main areas of management activities, such as: production, organizational, marketing, financial, accounting, personnel and project. Information products can be located in different databases. In the future, each individual organization regulates

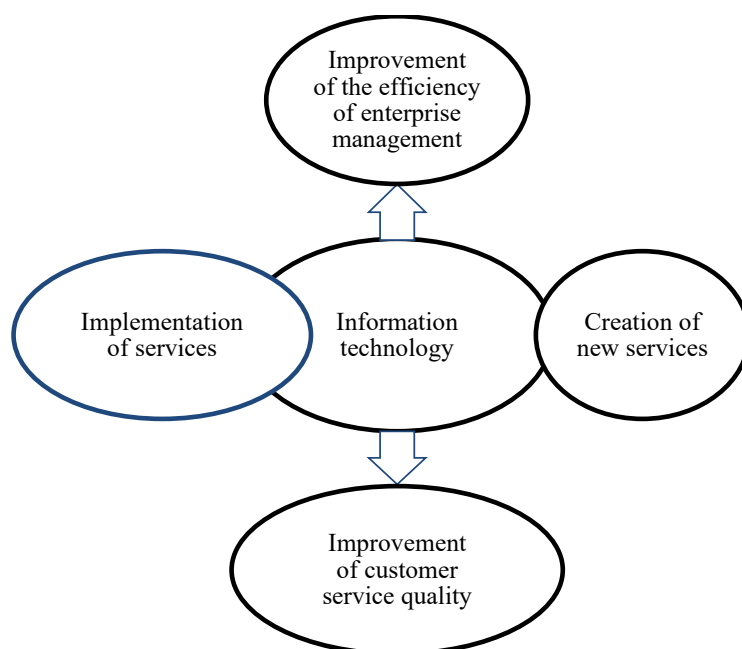


Figure 1. The main directions of the use of information technology in tourism

Source: compiled by the author based on (2018, 2019, 2022)

access to certain information products depending on its own goals. Thanks to information technologies, operational coordination of actions is ensured through the use of modern means of communication and software products (Yaremko, 2021).

Modern information systems are able to assess the competitive environment, taking into account all important macroeconomic and microeconomic factors for the enterprise. It is also possible to analyze the information gap in the tourism industry, to identify current and future needs of clients and customers. With the help of information products, an enterprise can receive information about the state of the market, evaluate it and make forecasts about competition in the industry (Semenenko, 2019).

The stability of the financial condition of the enterprise is ensured by the profit that remains after the payment of taxes and other mandatory payments. Forecasting for enterprises is a tool that ensures viability and successful functioning. Thanks to forecasting, the management of enterprises can navigate the economic environment and choose such options in the strategic perspective that could lead the company to success and rapid growth (Kovtun, 2018).

For the effective functioning of the tourism business enterprise, it is necessary to implement and use an information system that can provide a set of needs arising in the enterprise in the process of its economic activity for a long period of time. Today shows that the use of information technology allows to obtain or process the necessary information in a very short time. Using modern technologies, the company gets the opportunity to increase its competitiveness.

Tourism enterprises in most cases do not have a developed information system infrastructure due to the small number of workplaces. To a large extent, a typical tourism enterprise has a small number of computers with Internet access from a local provider, sometimes served by system administrators (or without it) (Mykhalyuk, 2020). Tourism enterprises that are representatives of much larger networks have more technical equipment and have a permanent service, which is an exception for a travel agency. Large travel agencies have a much more developed information system infrastructure, both external (connected by cooperation via the Internet) and internal. This is caused by the specifics of entrepreneurial activity and is due to the fact that with small investments in the development of the information system in a short time, a significant improvement of business processes (automation of activities with travel agencies, hotels, activities with tourists) is carried out. Tourist operator, as a complex organization, uses all solutions for the information system of the corporate level.

Information and communication technologies make it possible to accelerate the circulation and exchange of information, collect the necessary data, which is the basis for decision-making and affects the effective management of small and medium-sized businesses. The media reflect the transformation of society and highlight the potential of technology.

The forecast is important for a modern enterprise, as it can be used to determine possible goals and directions of development of the object; to make a plan for the future depending on social, economic, scientific, technical and environmental factors; planned determination of future measures to implement opportunities, as well as to reduce possible threats to each of the probable options for the development of future predicted events; assessment of material costs and certain resources for the implementation of the developed measures and consequences (Coslovsky, 2019).

In order to plan the future at the enterprise, it is necessary to carry out forecast estimates, because only the forecast allows to largely realize such an important and necessary planning function as prediction, which is based on a scientific analysis of reality and predictable trends and processes in the future.

Forecasting functions include (Kovtun, 2018):

- identification of possible goals and directions of development of the forecasting object;
- assessment of various economic and scientific, social and technical, and possibly environmental consequences of the implementation of each of the options for the development of the forecast objects;
- definition of the measures that can ensure minimization of various threats for the period of implementation of the defined strategic objectives and goals of the enterprise;
- determining the need for costs and resources for the period of implementation of the planned ideas, based on the conditional limitation "time – money".

That is, forecasting is a method that uses the experience gained in the past and takes into account certain possible assumptions about the situation in the future (2022). High-quality forecasting will be the basis for making future decisions and will be the basis on which they will be implemented. The availability of forecasts allows to reasonably plan and foresee different scenarios in case of changes in certain factors affecting the implementation process.

Existing information systems provide managers of enterprises with information focused mainly on the internal environment – technology, organization of production. Information about the external environment is unsystematic. Software products for forecasting activities used in the market have created conditions for facilitating the analytical work related to the calculation of certain financial ratios.

This allows to get additional time to interpret the results of the analysis of the situation in which the company is. With the help of software and certain algorithms it is impossible to obtain information about current economic trends, certain scientific and technical developments, or about markets and competition in them, consumers and their needs, etc. There is a need to determine the basic functionality of software products used to analyze the activities of the enterprise (Dykan, 2019).

Forecasting is divided into the following categories (2022):

1. Economical:

Supply Chain – Forecasting is used in the supply chain to provide a company's customers with the right product at the right time. It is an integral part of demand management processes and sales and operations planning, which is an integral part of the processes in the MRP II algorithm.

Business planning is part of the preparation and development of business plans.

2. Political.

3. Natural: Weather forecast; Meteorology; Prediction of earthquakes.

4. Technical and technological: Technical forecasting; Technological forecasting; Transport planning.

Today on the market there are more than a dozen systems of automation of management of tourist enterprises. Presented on the market of information technology computer programs for automation of the tourism industry have different capabilities (Kovtun, 2018).

In recent years, there has been a significant impact on scientific and technological progress in the tourism industry, which applies well to the introduction of new information technology.

In the field of tourism, one of the main achievements was its computerization. The Internet network, the personal computer made it possible to create a publicly available, extremely informational bridge and, in accordance with other information technology systems, a cheaper and faster information infrastructure, accessibility and reliability contributed to the application of modern information technology in all areas of humanity, which largely ensured the growth of productivity in the service sector.

The need for predicting the results of the enterprise is due to a significant degree of uncertainty and a large number of risks, since the economic environment, both external and internal, is characterized by high dynamics and changes. Predictive indicators are an important component of the management process of the enterprise and its units in the context of identifying opportunities and threats, the level of solvency of the enterprise (Varnaliy, 2019).

The best programs for forecasting in 2022 (2022):

SAP is an integrated software that provides planning and consolidation solutions for business planning. The software provides customers with specific financial forecasting or budgeting tools that provide scenario-based planning, consolidation and creation of customer collaboration tools.

Revolution R Enterprise is an analytical and statistical program for production. It is based on the use of the statistical language R.

STATISTICA is used for statistical analysis and data visualization. It provides database management as well as the development of custom applications that include a significant set of analysis procedures used for scientific research or in engineering, business, as well as specific data collection methods.

Oracle Demantra is a demand management and supply chain management software. It simplifies automated forecasting processes while displaying demand forecasts with factors such as supply constraints, customer commitments and inventory levels.

Kinaxis is an online supply chain management software. It integrates your data, processes, and people into a single software environment.

NetSuite is a powerful software package with many features. They are good and bad at the same time. Functionality provides forecasting from startups to revenues for small and medium-sized organizations, fast-growing enterprises use NetSuite to automate key processes and get real analytics on current operational and financial performance of the company.

SkuBrain is a program based on using sales history to predict future demand for a company's products and then, by analyzing current inventory levels, makes certain recommendations on how the company should purchase to be able to meet that demand, or identify a group of products that can be re-stocked.

Relex is the must-have solution for retailers. With this software, retailers can be more competitive with their own cloud-based retail planning solution. This software enables companies to plan better using accurate forecasting and replenishment inventory, efficient use of retail space and optimized workforce planning.

Infor CloudSuite is an integrated supply chain planning platform. It helps today's companies create and manage, collaborate and coordinate plans across the entire supply chain.

The importance of introducing information technology to analyze and predict the results of the enterprise is due to the rapid transformation of business, which involves the use of software products to optimize business processes, improve the efficiency of the enterprise to make the right management decisions (Dykan, 2019).

#### 4. Survey methodology

The following methods are used to study this topic: descriptive, idealization, statistical, field research.

Basically, the description, systematization of the territory and theoretical generalization of the received information are carried out. Two main stages can be distinguished – the inventory of information and its systematization. Information is collected through direct empirical observations, which were summarized by means of route observations. Classification and typology methods were used to analyze the collected information (Varnaliy, 2019).

The method of idealization consists in constructing so-called ideal models and comparing the situation. In its application, the features of some other methods and modeling, analogy, abstraction, etc. were taken into account.

Statistical data concerning the development of tourism in the international arena and in Ukraine (Melnyk, 2018) are partially published in domestic sources. This information is incomplete and provides an opportunity to analyze the development of world tourism and domestic tourism related to Ukraine. Therefore, many data in this study were obtained by observing both the enterprises of tourist business and consumers of tourist services.

#### 5. Findings

Activities in the field of information technology is based on a number of features that determine the innovation policy of the enterprise in the tourism business: the dynamism of the field of information technology; novelty of products or services provided or produced. This leads to the growth of the market of information services, the introduction and use of the most modern products in the field of information

technology. All this ensures the company's strategic advantage on the market.

Using forecasting software, we cannot claim 100% that an enterprise will have the predicted outcome. As it is necessary to understand that the enterprise is influenced by external and internal factors that can affect the forecast.

#### 6. Conclusions

Modern enterprise work is impossible without the analysis of forecasts for the future and the design of development programs that will contribute to the achievement of the expected and desired state of affairs. The relevance of tourism development has caused the need for analytical studies on the application of information technology at four main levels: mega-, macro-, meso-, micro-level. The main indicators of assessment of its application at different levels are defined. The analysis of trends in the impact of information technology on the development of tourism, the results of which are the basis for improving methodological approaches to assess the effectiveness of the use of information technology in the management of subjects of tourist activity. The development and implementation of forecasting methodology has become an objective requirement for enterprises in any field of activity. Assessment of certain prospects, taking into account objectively existing directions of development of entrepreneurship requires from managers the formation of thinking on the basis of forecasts, the use of appropriate knowledge and the acquisition of competencies, a high degree of general culture and educated staff, the ability to not only see but also understand those changes and trends in the external environment, the ability to use science-based methods of forecasting and their tools.

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