

## THE INFLUENCE OF INFORMATION TECHNOLOGIES ON THE PROFESSIONAL DEVELOPMENT OF THE RESEARCH AND TEACHING STAFF

Antonina Kozakevych<sup>1</sup>, Viktoriia Nykonchuk<sup>2</sup>, Svitlana Pashkevych<sup>3</sup>

<sup>1</sup>Ph.D. (Economics), Associate Professor, Rivne Regional Institute of Postgraduate Pedagogical Education, Rivne, Ukraine, e-mail: kas-59@ukr.net, ORCID: <https://orcid.org/0000-0002-6181-1574>

<sup>2</sup>Ph.D. (Economics), Associate Professor, Department of Transport Technologies and technical service, National University of Water and Environmental Engineering, Rivne, Ukraine, e-mail: v.m.nykonchuk@nuwm.edu.ua, ORCID: <https://orcid.org/0000-0001-7515-6016>

<sup>3</sup>Senior Lecturer, Department of Transport Technologies and technical service, National University of Water and Environmental Engineering, Rivne, Ukraine, e-mail: s.m.pashkevych@nuwm.edu.ua, ORCID: <https://orcid.org/0000-0001-7667-8932>

### Citation:

Kozakevych, A., Nykonchuk, V., & Pashkevych, S. (2023). THE INFLUENCE OF INFORMATION TECHNOLOGIES ON THE PROFESSIONAL DEVELOPMENT OF THE RESEARCH AND TEACHING STAFF. *Economics, Finance and Management Review*, (4), 94–107. <https://doi.org/10.36690/2674-5208-2023-4-94-107>

Received: November 28, 2023

Approved: December 25, 2023

Published: December 30, 2023



This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution \(CC BY-NC 4.0\) license](https://creativecommons.org/licenses/by-nc/4.0/)



**Abstract.** The article defines that the general processes of globalization, which have covered almost all spheres of human activity, stimulate the rapid development of an open information society. The modern educator is objectively forced to be more mobile, informed, critical and creative, and therefore more motivated to self-study and self-development. The purpose of the article is to study the prospects for the use of information technologies for the professional development of educators, the formation of the components of information technologies and the need for their use in improving educators' professional level, namely the use of modern information technologies in professional activities and self-education of teachers and the use of information technologies in the professional growth of the research and teaching staff. The research has proved that the effectiveness of the use of information technology in the professional development of educators depends on the success of solving problems of a methodological nature related to the information content and way of using automated learning systems. The article has examined the influence of the use of information technology on the nature of scientific and cognitive activities of educators, intensification of their independent work with various electronic devices. The research has shown that the use of information technologies is the most effective tool for developing skills and abilities necessary for professional development. The article has also determined the influence of information technologies on the fundamental character of knowledge, diverse and thorough study of the subject area, formation of knowledge necessary for a reasonable explanation of the cause and effect relationships of the studied processes and phenomena, and knowledge of the laws of nature. The research has defined that the direct application of information technologies in the field of education will allow educators to form communication skills and communication culture, will help and teach to search for information and process it using various computer technologies.

**Keywords:** professional development; research and teaching staff; information technologies.

**JEL Classification:** A 29, B 41, M 53

**Formulas:** 0; **fig.:** 1; **tabl. 0;** **bibl.:** 23

**Introduction.** The general processes of globalization, which have covered almost all areas of human activity (economics, culture, education, administration and many others), stimulate the rapid development of an open information society, which leads to changes in the structure and content of all social institutions and rapid development of education. The professional activities of educators intensively develop under the influence of new forms of education; there are changes in the legal framework and target requirements for teachers, which requires from the pedagogical community to use all available methods to improve their professional level.

At present, it is impossible to imagine the learning process without the use of innovative information technologies for educational purposes. Information and communication technologies are increasingly penetrating various areas of educational activities. The informatization of the society, the need to make changes in the training of educators, and dissemination of modern computer technologies and software in educational institutions facilitate this process.

With the help of informatization, the educational environment becomes informational and educational at the same time. The information model of learning includes supplying educational institutions with the necessary equipment, training teachers how to use it skillfully, creating the necessary electronic resources, using information and information-acting learning patterns, upgrading the methodological support of the educational process, improving information culture and information and communication competence of all participants of the education process.

The modern society, in which information is increasingly becoming a socially significant resource (together with material, energy, financial and other resources), needs highly qualified professionals who are fluent in information and communication technologies and use them effectively in their professional activities. In addition to professional and special knowledge, the work in the field of education requires advanced knowledge and skills of using information and communication technologies. To ensure the effective and efficient operation of universities, it is necessary to implement information technologies in the educational process, because the penetration of the Internet into all spheres of social life is a consequence of the rapid emergence and development of a global “information society”, which changes the usual way of life of people, forms and methods of study, work and communication. The Internet tools (its services) provide specialists with the opportunity to effectively organize the work, as well as to form electronic archives and databases in the interactive mode, to establish professional communications and joint projects with partners from different regions. The information technologies in the field of education is a kind of mechanism that ensures the whole process of effective and efficient work. After all, because of the information technologies, the educational process acquires a new meaning. It becomes more productive and more coordinated.

Today, there is a problem of effective provision of the educational sphere with information technologies. Some higher education institutions in Ukraine do not seek to update the learning process, and others do not have adequate funding. This, in turn, slows down and distorts the learning process. The most significant problem in the use

of information technologies in the education is the ignorance or inability of employees to use the latest technology at work. This, in turn, slows down the educational process and the work cycle of a university. The problem is even deeper when students know more than an educator, because young people are more progressive in the modern society, and some educators do not seek to develop. All this leads to misunderstandings and conflicts within the educational process.

Thus, there is a problem of professional self-improvement of educators in the rapid development of information technologies, which is due to the insufficient development of theory and practice of informatization of education in Ukraine and the contradictions between the society's requirements for high qualification and insufficient readiness of teachers to use information technologies. Therefore, specially organized professional self-development of educators on improving the ICT skills is one of the ways to increase their own rating of professional activity, which makes this self-development relevant and appropriate.

**Literature Review.** The analysis of the scientific research shows that the issues of informatization of education are among the current problems of pedagogical theory and practice and priority areas of professional education. In particular, the works of B. Gershunskyi, R. Gurevych, M. Zhaldak, Yu. Mashbyts, I. Robert and others determine directions and ways of informatization of education.

Theoretical principles and methodology of using information technologies in the educational process were characterized by N. Anisimova, N. Apatova, I. Zakharova, I. Ibrahimov, O. Meniailenko and others. O. Bashmakov, V. Hura and others proposed tools and methods for the development of educational software and information technologies. The psychological and pedagogical aspects of the use of information technologies were characterized by Yu. Zhuk, P. Obratsov, V. Marigodov, Z. Seidametova, A. Undorezova and others. The problems of using educational information technologies in higher education in modern Ukraine were studied by L. Gryzun, V. Krasnopolskyi, G. Monastyrna, D. Taushan, S. Fedorova and others.

The works of V. Varenko, Yu. Yukhymenko, L. Filipova and others, which deal with the use of the latest information technologies in the training of specialists, are of special significance for the study of this problem. The works of O. Kyrylenko, G. Malyk, M. Tsyvin proposed a mechanism for using information monitoring in the system of training. The research pieces of Ya. Filipov, O. Kobelev, O. Sladkova, O. Chubukova investigated the application of Internet technologies in the education system.

However, despite the breadth and thoroughness of the scientific research, the analysis of the literature shows that the topic is relevant in modern education. Given the fact that the number of new technologies is growing every year, the problem of using information technology in the professional development of higher education teachers remains unresolved.

**Aims.** The purpose of the article is to study the prospects for the use of information technologies for the professional development of educators, the formation of the components of information technologies and the need for their use in

improving educators' professional level, namely the use of modern information technologies in professional activities and self-education of teachers and the use of information technologies in the professional growth of the research and teaching staff.

**Methodology.** Informatization of education in Ukraine is one of the priority reform areas. In a broad sense, it is a set of social and pedagogical transformations associated with the saturation of educational systems with information products, tools and technology. In a narrow sense, it is the introduction of information devices, as well as information products and pedagogical techniques based on microprocessor technology, in the educational institutions.

One of the most important components of the informatization of higher education institutions is the informatization of the educational process, which is the creation, implementation and development of computer-oriented educational environment based on information systems, networks, resources and technologies. Its main purpose is to prepare a specialist for life and work in the information society, a comprehensive restructuring of the pedagogical process, and improving of its quality and efficiency.

The informatization of higher education includes:

- prompt updating of educational information in connection with the development of science, technology, culture;
- obtaining information about the effectiveness of the pedagogical process, which will allow to quickly make the necessary adjustments.

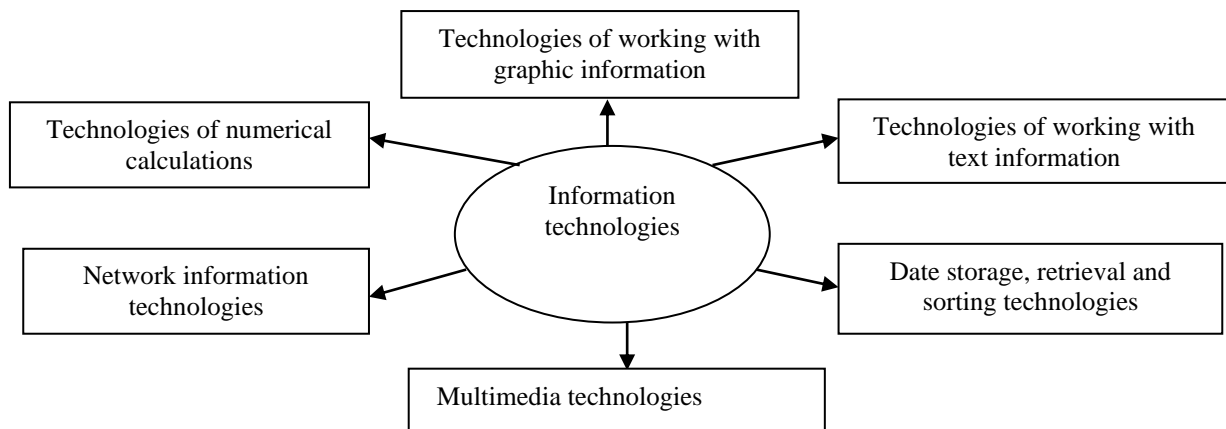
All this contributes to the improvement of the information culture of the research and teaching staff, development of creative potential; improvement of education management; increase in the efficiency of scientific research.

The informatization of education in Ukraine is one of the most important mechanisms that affects the main directions of educational system modernization. The modernization of pedagogical education puts forward new requirements for the professional activity of educators, which are the use of new pedagogical and socio-pedagogical techniques, the use of educational materials in the electronic form, the formation of new guidelines for educational standards, etc. Modern information technologies, which open new perspectives for improving the efficiency of the educational process, play an important role in this process.

Information technologies are technologies that provide and support information processes, i.e. the processes of search, collection, transmission, storage, accumulation, duplication of information and procedures for accessing it [6]. Information technologies promote interaction between people in all areas of their activities, in education in particular. The advantages of information technologies include:

- individual pace of study, convenient time and place, saving time for commuting, independent planning of time, schedule, and even of a list of subjects;
- a possibility to create an individual learning trajectory, choice of educational resources, possibility of multiple return to the content, bank of electronic lessons, useful links;

- learning with a variety of equipment (tablet, laptop, mobile phone), the availability of scanned textbooks, electronic manuals;
- development of electronic educational resources under the control of scientists;
- flexible time and forms of consultation;
- a possibility of automated control, evaluation, and diagnostics of the received knowledge;
- development of skills of independent work, involvement of all interested persons, transparency in education;
- use of leading educational technologies, experience in free international projects and programs, the opportunity to unite with students and teachers from different parts of Ukraine and the world (international projects, conferences);
- acquiring new skills of working with information, constant growth of ICT competence in the society, development of ICT and distance learning technologies;
- a possibility of using during a quarantine, sick leave, etc.;
- effective coordination of the activities of all members of the educational process and prompt dissemination of various messages;
- educational possibilities for people with different physical and mental abilities, with disabilities, different property and social status [9].



**Figure 1. Classification of information technologies**

However, to take advantage of the opportunities provided by the open information society, it is necessary to become a member of the information network, to have the appropriate infrastructure and modern means of communication. Network users should be aware of this area, which is new to most non-professionals.

The introduction of new information technologies in the educational process is an objective process of education development, which is accompanied by an increase in the volume of independent work of the research and teaching staff. The modern teacher is objectively forced to be more mobile, informed, critical and creative, and therefore, more motivated to self-study and self-development.

With the use of information technologies, the possibilities of organizing independent work of educators expand. Independent work with printed research and

educational literature remains an important part of independent work in general, but the basis of this work is now independent work with information databases.

The efficiency of the use of information technologies in the professional growth of the research and teaching staff depends on the success of solving problems of a methodological nature related to the information content, which affects the nature of their educational and cognitive activities and enhances independent work with various electronic teaching aids. The use of information technologies is the most effective tool for developing skills and abilities required for professional training. It also causes a reduction in volume and at the same time complicates the activities of an educator.

The informatization of professional growth greatly contributes to solving the problems of its humanization, because it provides opportunities for significant intensifying of communication, taking into account individual inclinations and abilities, revealing the creative potential of educators, freeing an educator from the need to perform routine technical operations, providing them with different opportunities to solve cognitive and creative problems. The use of various means of information technologies can significantly increase the effectiveness of information due to its timeliness, usefulness, appropriate dosage and availability.

Information technologies play an important role for fundamental knowledge, diverse and thorough study of the subject area, formation of knowledge necessary for a reasonable explanation of the cause and effect relationships of the studied processes and phenomena, and knowledge of the laws of nature

The direct use of information technologies in the professional development of the research and teaching staff is associated with the development of new educational programs, use of the Internet technologies, creation of electronic libraries, reference and information systems, management systems in education, automation and information support of educational documents, use of specialized databases and knowledge, and distance learning.

Information technologies have many advantages because they do not have any geographical or political boundaries. Moreover, they are mass and at the same time individual; that is, everyone acquires the necessary knowledge at own rate. These technologies have a purely motivational basis, i.e. they are effective for people interested in acquiring knowledge as a “commodity” in order to further implement it in a professional career [10].

The use of appropriate technical information tools makes it possible to combine and coordinate all the elements of the professional development of an educator. The accumulated experience of using network resources in various fields of education has shown that this type of information technologies allows effective organizing of joint research projects within one or more universities, research and training centers in both a particular region and different countries. This approach ensures a real research, creative, practical, independent activity of educators using a variety of tools and forms of independent, cognitive and practical creative work. This approach also makes it possible to provide prompt counseling during advanced teacher training. It allows quick sharing of information, ideas, plans on issues and topics of interest,

broadening horizons and raising the general cultural level. Information technologies allow developing among teachers communicative skills, culture of communication, involving in the process of joint search, discussions and comparison of various opinions; help and teach information retrieval and processing with the help of various computer technologies.

The experimental research on this issue was conducted in accordance with the legal framework of Ukraine, which defines the basic principles of organization and use of information technologies in the professional development of educators and requirements for higher education and postgraduate education, research institutions, which give educational services for training and retraining specialists.

The purpose of the research was to develop and implement methodological approaches and materials for the development of skills of information and media literacy among the research and teaching staff of educational institutions.

To achieve this goal, the research used the following methods: questionnaires to identify the readiness of educators for professional self-improvement; observation of the participation of the research and teaching staff in multilevel trainings; selective interviews on the methodological support and introduction of information and media literacy in the educational process; analysis of the research results and prognosis of further study of the problem. The research is based on the integrative approach in education, because in the process of exchanging pedagogical experience, there was an effective professional self-improvement and development pedagogical cooperation skills.

The results of long-term and selective observations gave grounds to claim the lack of the use of the ICT system in the organization of professional development of educators. According to the analysis of the questionnaire results, educators have an insufficient level of readiness for professional self-improvement. Thus, the indicators with the minimal value are “professional and informational communication with students by means of the “Forum” element” – 3%, “creation of a thematic “Forum” for conducting an online seminar” – 3%. The best indicators are “conducting individual and group consultations by means of the “Chat” element – 15%, “archiving and accounting of learning outcomes (tasks for independent work, calculations, tests, course projects)” – 11%. This is due to the fact that educators chat in social networks. Some teachers also download and save reports on student learning outcomes in Moodle. However, in general, this is a small number of enthusiastic teachers.

There are several reasons for this: teachers do not have experience in using network communication tools for consultations and training sessions and do not consider it appropriate to use the elements of games to control the educational and cognitive activities of students; there is no proper systematic technical support of equipment and provision of its components; low level of technical competence of teachers; the lack of a training system for educators on the use of ICT in the educational process and, accordingly, the fear of teachers to use it.

Another method used in this research is the observation of the participation of the research and teaching staff in multi-level training using ICT. The results of the

observations made it possible to state that only some seminars and master classes deal with this issue.

Conducting sample interviews with teachers on methodological support and implementation of information and media literacy in the educational process contributed to the development of info-media literacy and its introduction into the educational process at all stages of training of future and already operating educators. The course of the research provided support and training of the teaching staff of higher educational institutions of the pedagogical sphere. It involved conducting educational classes, seminars and trainings on info-media literacy for 40 research and teaching fellows. The research participants underwent an internal assessment of their ability to expand job capacity opportunities. This helped to develop a special program of cooperation and identify the need for additional support and training of the research and teaching staff.

The results of the experimental stage of the research prove that the research and teaching staff are familiar with modern ICT, partially use them, but need methodological assistance and technical support for the use of ICT in their professional activities.

**Results.** The formation of professional competence of an educator occurs in the following logical sequence. The first stage focuses on the formation of the key competence in the context of future professional activity. The second stage of training focuses on professional tasks and ways to solve them, which develops the basic competence. The third stage is the level of formation of special competence. Basic competence should reflect a modern understanding of the main tasks of professional activity, as well as key ways to solve them. Special competence involves the development of basic and key competence according to the specifics of professional pedagogical activity.

The key competence includes an information competence, which is the universal ability to work with different sources of information and ensure professional and social mobility. The preservation of universal skills, which are part of information competence, varies according to human characteristics and depends on the circular validity of vital tasks. The improvement of this competence is associated, first, with the expansion of sources of information, and second, with the expansion of skills in their use. The information competence of an educator is characterized by the ability to search, analyze and use information for building a professional career. In this case, a career is understood not only as a career advancement, but also as a process of the realization of person's abilities at work.

The information competence allows implementing effective information exchange, which is provided by the formation of a number of information skills:

- assessment of the usefulness and truthfulness of the obtained information;
- selection of personally important information, search for necessary information;
- communication and language skills;
- information and psychological self-defense.



The information competence presupposes that a person uses universal means of informatization and information technology in solving tasks to achieve the goals of own activities. However, an educator uses the means of informatization and information technology in professional activities only based on universal skills. The ability to use informatization tools and information technologies is manifested in all pedagogical abilities. This means that for the solution of professional pedagogical tasks an educator needs to involve these tools and technologies based on the basic and special competence. Therefore, the preparation of teachers for the use of informatization and information technologies in professional activities cannot be carried out only for the formation of the key information competence. It should be connected with the formation of basic and special competence.

The formation of professional competence takes place in three stages. Therefore, the preparation for the use of informatization and information technology should also take place in three stages, in accordance with the logic of the formation of key, basic and special competence. At each stage of training, an educator develops the ability to use information tools and information technologies, which relate to the operational, tactical and strategic level of regulation of pedagogical activities. With this in mind, we have identified the criteria for the development of abilities.

At the stage related to the formation of key competence and operational level of regulation of professional activity, an educator: has an idea about the informatization of education; is familiar with the principles of building algorithms and with basic structures of algorithms; is able to use universal software tools for technology implementation; is able to create text and graphic documents, simple information systems; is able to model simple objects, processes, systems with the help of spreadsheets; is able to use information languages to generate queries to databases and create reports; understands the essence and meaning of pedagogical information; has an idea of the impact of computer science on pedagogy and psychology; is familiar with the use of computers as a pedagogical technical tool; has an idea of the nature of pedagogical activities in terms of the use of informatization and information technology; is able to use software for inter-computer communication; is able to search and receive pedagogical information from electronic resources; understands the importance of information competence for successful professional pedagogical activity.

At the stage associated with the formation of basic competence and tactical level of regulation of professional activity, an educator: knows new pedagogical technologies, their features within the application of informatization and information technology; knows the general ways of constructing the goals, content, methods and forms of pedagogical process in the conditions of informatization of education; knows and is able to use in training technical means and information and civil technologies; is able to create an automated teacher's workplace; is able to analyze and synthesize audiovisual educational information, upload it into the computer; is able to develop and apply electronic didactic and pedagogical software; is able to use professionally oriented software tools for technology implementation; is able to form

a system of teaching aids; is able to use informatization tools and information technologies in management and psychological and pedagogical research.

At the stage of the formation of special competence and strategic level of regulation of professional activity, an educator: knows how to pre-prepare pedagogical information using informatization tools; understands the essence of information modeling in professional activities; is able to choose and form the goals of pedagogical activity in the conditions of informatization of education; is able to plan and implement pedagogical tasks; is able to organize, systematize and structure pedagogical data and knowledge, using the means of informatization; is able to construct information models of pedagogical objects, phenomena, systems; can analyze information models of pedagogical systems and interpret the obtained results; is able to predict the use of informatization tools and information technologies in pedagogical activity; is ready to master new means of informatization and information technologies, designing their application in pedagogical activity.

Thus, the preparation of teachers for the use of informatization and information technologies allows the formation of the key, basic and special professional competence. Professional competence is manifested in the ability of an educator to fulfill organizational, constructive and communicative tasks of pedagogical activity. The development of pedagogical abilities consistently brings an educator to the operational, tactical and strategic levels of regulation of professional activity. Abilities to use informatization tools and information technologies in solving problems of professional activity should also be manifested at different levels of regulation, and their development should take place in accordance with the logic of competence formation.

At the stage of the experiment, our tasks were to develop and introduce into the educational process of professional development of the research and teaching staff of educational institutions the use of information and communication technologies; development of thematic courses in order to increase the methodological and practical levels of professional competence of teachers to the practical application of methods and techniques of media education and information literacy in the educational process.

The result of the research has become a developed and introduced into the educational process of training thematic course “Media education and information media literacy”, which takes into account the specifics of professional activity and development of teachers in educational institutions in the conditions of reform and society’s demand for improving the quality of educational services, main directions of state policy in the field of education, educational standards, requirements for the competence of educators.

More than 200 representatives of the research and teaching staff took part in the thematic course. The implementation of the thematic course “Media education and information media literacy” provided the following results of professional development: knowledge of the main aspects of the implementation of technologies of media education and information media literacy; awareness of strategies for the formation of skills of information literacy among students; gaining skills in designing

a modern lesson and integrating elements of media literacy into the educational process; ability to operate with information critically evaluating it; knowledge of methods and techniques of teamwork, decision making, developing a reasoned position.

In addition, the research allowed developing thematic courses “The use of information and communication and digital technologies in the educational process (basic level)” and “The use of information and communication and digital technologies in the educational process (advanced level)”.

The purpose of these thematic courses was to form among teachers basic and advanced knowledge, skills and abilities in ICT and information culture; effective use of modern information and communication technologies in professional activities, introduction of modern electronic educational materials into the educational process and organization of effective access to them on the Internet.

The implementation of the set purpose provided the research and teaching staff with: understanding of a technique of construction of the educational process with the use of modern information and communication technologies; knowledge of methods and techniques of teamwork and joint networking of participants in the educational process; ability to use online tools for creating educational materials on the subject and other documents; ability to model a personal information environment; ability to develop skills of safe work on the Internet and use of network means of data exchange. More than 350 research and teaching staff representatives took part in the thematic courses.

The courses included interactive lectures, thematic discussions, practical classes (seminars, workshops, trainings, master classes, etc.), and testing (organizational and instructional lesson, conference on exchange of experience). The volume of each thematic course was 30 academic hours (1 ECTS credit).

The knowledge gained during the advanced training helped the research and teaching staff to use in their activities methods and strategies for organizing the educational process focused on the successful solution of various life problems and situations.

During the conversation with the participants of the seminars, it was found that the proposed ICT tools are not new for teachers and they constantly use them in professional activities and in everyday life. However, most of them had difficulties working with them, and not all of them understood the possibilities of their use in educational process. Based on the materials of these master classes, 50 exercises for the development of information literacy skills, sets of materials for mixed learning, sets of educational games “365° on the scale of media literacy”, and cases of educational materials were prepared.

**Discussion.** The methods of active learning with the use of information network technologies increase the interest of educators in acquiring new knowledge and their practical application, promote the search for their own approaches to solving non-standard problems, development of intellectual and creative abilities, teach to navigate in the information space, and contribute to information culture in general.

The positive experience in the use of information technologies in designing and educational activities proves the feasibility of its use in improving the pedagogical skills of the research and teaching staff, promotes the acquisition of new knowledge, skills and abilities, helps in further professional activities, and promotes continuity of education. The rapid development of information technologies and the possibility of remote access to information resources for educational purposes characterizes the new generation educational environment, which will be free, mobile, diverse and accessible for use by all participants of the educational process.

The use of modern information technologies provides all members of the society with equal opportunities to receive educational services regardless of place of residence, time, and social status, which provides equal access to new knowledge. The formula “from education for the whole life – to lifelong education” as a general cultural necessity of modernity is becoming more and more relevant. This direction of education reform determines the development of teaching techniques and management, as there is an update of the content of education and the content of the activities of all subjects of the educational process.

Therefore, the requirements of the modern life and the development of the information society in Ukraine dictate their rules, which must be taken into account in order to effectively use the means of information technologies in the modern educational environment in general and in improving the skills of educators in particular.

However, the analysis of the results of the survey, which had to identify the readiness of teachers for professional self-improvement, showed an insufficient level of formation of this readiness. To this end, within the system of postgraduate teacher training, we have developed interdisciplinary courses “Media education and information media literacy”, “The use of information and communication and digital technologies in the educational process (basic level)” and “The use of information and communication and digital technologies in the educational process (advanced level)”.

On the other hand, the analysis of the survey also showed positive results in the formation of educators’ readiness for professional self-improvement (distance learning courses, automated tests, game complexes, multimedia glossary). The research shows that the readiness for professional self-improvement of teachers can be increased if higher education institutions develop and implement appropriate educational and methodological support.

**Conclusions.** The formation of a proper information and educational environment requires:

- creation of subject-oriented learning and information environments that will allow the use of multimedia, electronic textbooks, etc.;
- mastering the use of communication means (computer network, telephone, television, satellite communication for information exchange);
- learning the rules and skills of navigation in the information space by all participants in the educational process;

- retraining of educators at permanent courses on studying and use of information and network technologies in the educational and pedagogical process;
- active development of distance education, support systems for training people with special needs;
- creation of centers of information and scientific-methodological support of the use of information-network technologies in the educational process;
- creation of websites of educational institutions for the organization of a system of support for collective and individual communication, group interaction of participants in the educational process, in particular the creation of educational environments for collective interaction and online communication tools in teaching subjects;
- creation of modern electronic learning materials and organization of effective access to them via the Internet (open educational resources, textbooks and courses, thematic digital archives of information and methodological resources on educational subjects).

The conducted research does not cover all aspects of the problem under study. The study of the role and practical significance of information technologies in the conditions of a foreign language environment and taking into account the specifics of the subject preparation of educators for distance learning need further research.

**Author contributions.** The authors contributed equally.

**Disclosure statement.** The authors do not have any conflict of interest.

### References:

1. Abdalova, O.: The use of e-learning technologies in the educational process. *Distant and virtual education* 12, 50 - 55 (2014).
2. Varenko, V.: The use of the latest information technologies in the training of document specialists. *Bulletin of the Book chamber* 5, 1 – 2 (2011).
3. Vozniuk, O.: The concept of the teacher's personality as a model of productive professional activity. In: *Acme-achievements of scientists of Zhytomyr scientific and pedagogical school*, 107 - 134. Zhytomyr State University publishing house, Zhytomyr (2016).
4. Hurmaza, V.: Modern information technologies for training future specialists. <http://intkonf.org/gurmaza-vv-suchasni-informatsiyni-tehnologiyipidgotovki-maybutnih-fahivtsiv/>.
5. Zhaldak, M.: Pedagogical potential of computer-oriented learning systems. In: *New education technologies* 6 - 12. NMC VO, Kyiv (2004).
6. Zhuk, Yu.: System features of the educational environment as an object of informatization. *Postgraduate education in Ukraine* 2, 35-37 (2002).
7. Information technologies. [https://uk.wikipedia.org/wiki/Інформаційні\\_технології](https://uk.wikipedia.org/wiki/Інформаційні_технології)
8. Information network technologies IT. [https://dt.ua/ECONOMICS/infomatsiyn\\_merezhevi\\_tehnologiyi\\_vnautsi\\_ta\\_osviti.html](https://dt.ua/ECONOMICS/infomatsiyn_merezhevi_tehnologiyi_vnautsi_ta_osviti.html)
9. *Encyclopedia of education*. Yurincom Inter, Kyiv (2008).
10. Kyrilenko, H.: Applied aspects of the use of information monitoring in the system of training document specialists. *Library science. Documentation. Informology* 2,65 - 68 (2012).
11. The concept of introducing media education in Ukraine. Institute of Social and Political Psychology of the National Academy of Pedagogical Sciences of Ukraine. [http://www.ispp.org.ua/news\\_44.htm](http://www.ispp.org.ua/news_44.htm)
12. Melamud, V.: Features, some directions and trends in the use of information technology in modern education. *World of psychology* 2(38), 242 – 243 (2006).
13. Nikitin, E.: Life dictates conditions. *School* 3, 5 (1998).
14. Trindade, A.: Information and communication technologies and development of human resources. *Distant education* 2, 5 - 9 (2002).
15. Papernova, T.: Formation of ICT competence of a teacher in the system of continuing education. *Materials of the Internet conferences*. <https://www.Sworldcom.ua/index.php/ru/pedagogy-311/7417>
16. Stefanenko, P.: Didactic features of distance learning in higher education. *Pedagogy and psychology of professional education* 1, 22 - 32 (2004).

17. Hamburg Declaration on Adult Learning. The Fifth International Conference on Adult Education. Hamburg. <http://www.unesco.org/education/uie/confintea/declaeng.htm>
18. Filipova, Ya.: Areas of application of Internet technologies and services in the education system in the specialty "Documentation and information activities". *Library science. Documentation. Informology* 3, 48 - 51 (2011).
19. Filipova, Ya.: Professional competence of the specialists in documentary communications: educational aspect. *Bulletin of the Book chamber* 1, 25 - 28 (2009).
20. Filipova, Ya.: Promising specialty in the training of specialists in the information and documentary sphere of Ukraine. *Bulletin of the Book chamber* 10, 29 - 31 (2003).
21. Formation of ICT competence of a teacher in the system of continuing education. [https://revolution.allbest.ru/pedagogics/00884212\\_html](https://revolution.allbest.ru/pedagogics/00884212_html)
22. Shelestova, A.: Basic functions of educational documents in the system of electronic-documentary communication of a modern higher educational institution of Ukraine. *Library bulletin* 1, 43 - 51 (2011).
23. Sazonets, O., Nykonchuk, V., & Kozakevych, A. The influence of intellectual capital and innovations on the economic development of the world and national economy. *Economic Annals-XXI*, 190(5-6(2)), 23-32. doi: <https://doi.org/10.21003/ea.V190-03> (2021).

## EFFECTIVENESS OF INFORMATION SUPPORT FOR MANAGERIAL COLLABORATION AMONG HOSPITALITY INDUSTRY ENTERPRISES

Zinaida Zhyvko<sup>1</sup>, Svitlana Rodchenko<sup>2</sup>, Tetiana Holovach<sup>3</sup>

<sup>1</sup>D.Sc. in Economics, Professor, Academy of Economics and Pedagogy, Prague, Czech Republic, e-mail: professor2007@ukr.net, ORCID: <https://orcid.org/0000-0002-4045-669X>

<sup>2</sup>Ph.D. in Economics, Associate Professor, Associate Professor of Finance, Accounting and Business Security Department, O. M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine, e-mail: svrodchenko@gmail.com, ORCID: <https://orcid.org/0000-0002-8611-2796>

<sup>3</sup>Ph.D. in Philology, Associate Professor, Department of Foreign Languages and Culture of Professional Speech, Lviv State University of Internal Affairs, Lviv, Ukraine, e-mail: tetianaholovach@gmail.com, ORCID: <https://orcid.org/0000-0002-6665-4416>

### Citation:

Zhyvko, Z., Rodchenko, S., & Holovach, T. (2023). EFFECTIVENESS OF INFORMATION SUPPORT FOR MANAGERIAL COLLABORATION AMONG HOSPITALITY INDUSTRY ENTERPRISES. *Economics, Finance and Management Review*, (4), 108–123. <https://doi.org/10.36690/2674-5208-2023-4-108-123>

Received: October 18, 2023

Approved: December 25, 2023

Published: December 30, 2023



This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution \(CC BY-NC 4.0\) license](https://creativecommons.org/licenses/by-nc/4.0/)



**Abstract.** The management accounting tools that are used in management activities and the main factors that are necessary for successful management accounting are analyzed. The goal we set in preparation of our article, is to reveal the main aspects of the organization of the effectiveness of the management accounting system as a source of information support for the process of management decision-making, the identification of problems that arise in the process of formation and functioning of this system, and the advantages it provides to the hotel business enterprise. The main requirements for information in the management accounting system and their influence on the definition of the concept of "management accounting" are outlined. It was found that the definitions presented in Table 1 have in common that the main task of management accounting is to provide unbiased information necessary for making management decisions by the relevant management units of the enterprise. The content of management accounting and methods of its implementation are presented schematically. The organization of information support of the hotel business is considered in the example of hotel "A" and the information equipment of hotel "A" is studied, in particular 14 personal computers that are combined into one network. The efficiency indicators of the information service of the hotel business are analyzed and it is determined that the highest consumer satisfaction with information support corresponds to the service providing telecommunication services, security service, and engineering service, and in turn, indexing the degree of consumer satisfaction with the information base will allow formalizing the organizational work of the hotel based on needs and expectations, and this will make it possible to select strategic alternatives to improve the quality of the hotel enterprise. The effectiveness of information support of managerial collaboration among hospitality industry enterprises has been analyzed, measures have been developed to intensify the management activities of Hotel "A" based on the use of information systems and technology. It was proved that they are effective and can be implemented in the activities of the hotel business.

**Keywords:** management accounting; hospitality industry; management information; information support; effectiveness of the management accounting system; management decision-making; information support system; managerial collaboration; housekeeping; security service.

**JEL Classification:** M 11, L 83

**Formulas:** 0; **fig.:** 3; **tabl.** 3; **bibl.:** 28

**Introduction.** Management accounting has long ceased to be something new for both scientists and practitioners. Its main tools are used daily in their activities by heads of enterprises and individual structural units' managers.

The need for management accounting at domestic enterprises is determined by the following facts:

- 1) the presence of different forms of ownership, which leads to the emergence of different groups and levels of management information users;
- 2) intensifying competition in the domestic and foreign sales markets of domestic products, which requires timely information about their market conditions;
- 3) the integration of the Ukrainian economy into the world economy, which inevitably leads to a reorientation of both practice and theory of accounting knowledge.

The management accounting system is based on an information system that uses input information and relevant processes to obtain results that meet precisely defined management goals.

Information base is used by all management functions, including planning, control, and evaluation functions to make management decisions.

**Literature Review.** The effectiveness of information support for managerial collaboration in the hospitality industry has gained increasing attention in recent years.

Scholars (Lee et al., 2021) discuss the integration of digital technologies, such as cloud-based platforms and collaborative tools, to enhance managerial collaboration in the hospitality industry. The study explores how these technologies influence communication and decision-making processes.

An examination of supply chain collaboration in the hospitality sector reveals the significance of information sharing. Johnson and Smith (2022) analyze how effective information sharing contributes to collaborative decision-making and supply chain optimization.

The impact of social media on collaborative marketing strategies is explored by Chen and Wang (2020). The study investigates how information disseminated through social platforms contributes to collaborative marketing efforts among hospitality enterprises.

Utilizing big data analytics for operational collaboration is the focus of research by Kim and Chang (2023). The study evaluates the effectiveness of leveraging large datasets to optimize operational processes and decision-making in the hospitality sector.

The potential risks and concerns related to information security in collaborative environments are discussed by Wang and Li (2021). The study emphasizes the need for robust cybersecurity measures to facilitate secure information sharing among hospitality enterprises.

Exploring the role of employee training in enhancing collaborative performance, Smith et al. (2022) investigate how well-informed and trained staff contribute to effective collaboration within hospitality enterprises.



Cross-cultural collaboration challenges in multinational hospitality enterprises are addressed by Garcia and Kim (2020). The study examines how cultural differences impact the flow of information and collaborative efforts in a globalized hospitality industry.

Investigating the link between strategic alliances and collaborative innovation, Wang et al. (2021) examine how information exchange within strategic partnerships contributes to innovation within the hospitality sector.

This literature review provides a comprehensive overview of the effectiveness of information support for managerial collaboration among hospitality industry enterprises, covering themes such as digital technologies, supply chain collaboration, social media, big data analytics, information security, employee training, cross-cultural challenges, e-learning platforms, strategic alliances, and sustainable practices. The referenced articles contribute valuable insights to the evolving landscape of collaborative management in the hospitality sector.

Special attention should be paid to the fact that the management accounting system goes beyond accounting and includes elements of planning, control, analysis, and evaluation. It is this fact that caused some disagreements in determining its essence and meaning, principles, and functions among leading domestic and foreign scientists.

**Aims.** The purpose of the article is to reveal the main aspects of organizing the effectiveness of the management accounting system as a source of information support for making management decisions, to highlight the problems that arise in the process of forming and functioning of this system, and the advantages it provides to the hotel business enterprise.

The object of this research is the process of development, implementation, and improvement of management accounting at a hotel enterprise.

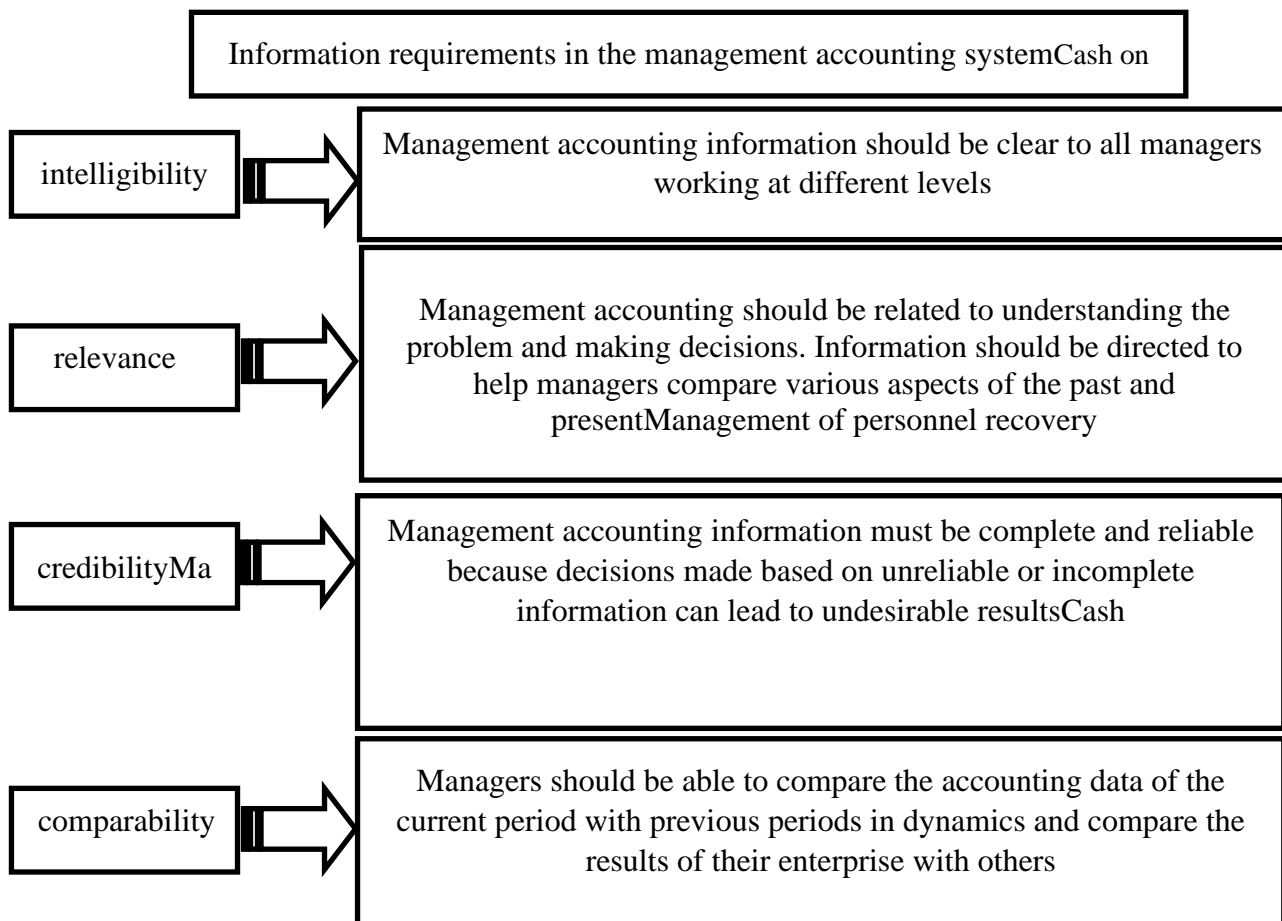
The subject of the study is the theoretical and methodological principles and practical aspects of the organization of effective management accounting in the management system at hospitality industry enterprises.

**Methodology.** The theoretical and methodological basis of the research are the fundamental provisions of economic theory and scientific works of domestic and foreign scientists who were engaged in management accounting at enterprises in the hotel business.

**Results.** Management accounting, like any accounting that is part of a complex accounting system of a business entity, is intended to provide certain information. The requirements that such information must satisfy are illustrated in Fig. 1.

Management accounting information created and prepared for use by management within the enterprise is subject to other requirements that differ from information intended for external users.

The list of such requirements affects the definition of the concept of “management accounting”. Some definitions of management accounting are given in Table 1.



**Figure 1. Information requirements in the management accounting system**

Source: systematized by the authors

In Ukraine, the essence of management accounting is legally defined by the Law of Ukraine “On Accounting and Financial Reporting in Ukraine” dated 16.07.1999 No. 996-XIV: internal (management) accounting is a system of processing and preparing information about the enterprise's activities for internal users in the process of managing its activities [9].

As can be seen from the above, there are many different systems of information and analytical support for management decision-making. The choice of a specific system depends on the needs and goals of the enterprise, its size and branch affiliation, the availability of resources, and competencies for its implementation and operation. However, in any case, such a system must be reliable, secure, available, flexible, and scalable. Furthermore, it should provide unbiased information necessary for making management decisions based on facts [10; 11].

Providing unbiased information necessary for management decisions is an important function of information and analytical systems.

These systems provide collection, processing, storage, and analysis of data related to various aspects of the company's activities and provide useful information for managers at different management levels.

**Table 1. Definitions of management accounting given in the works of domestic and foreign scientists**

N	Definition	Author, source of information
1	Management accounting is understood as the process of identifying, measuring, accumulating, analysing, preparing, interpreting, and transmitting information that is used by the management unit for planning, evaluation, and control within the enterprise.	Butynets F.F. [1, p. 229]
2	Management accounting is the process of identifying, measuring, accumulating, analysing, preparing, interpreting, and communicating information used by management to plan, evaluate, and control within an organization and to ensure appropriate, accountable use of resources.	Holov S.F., Yefimenko V.I. [2, p. 246]
3	An economic system related to the preparation and provision of an information management system during implementation investment, operational and financial activities, which allows to develop and comprehensively adopt the most effective operational, tactical, and strategic decisions at various levels of enterprise management is called management accounting.	Napadovska L.V. [3, p. 95]
4	Management accounting is a subsystem of control, built on the principles of accounting, but taking into account the specifics of a particular enterprise, the main task of which is to provide the management apparatus of the enterprise with relevant, timely, and complete information that serves to make management decisions, is used during planning, control, and analysis of the financial and economic processes of the enterprise.	Pankov V.A., Yeletskih S.Ya., Mykhailychenko N.M. [4, p. 312]
5	Management accounting is the provision of information to individuals in the organization itself, based on which they make more informed decisions and increase the efficiency and productivity of current operations.	Pisarenko T.M., Bukalo N.A. [5, p. 137]
6	Management accounting is an independent subsystem of accounting with its subject, method, and tasks, which is closely related to the management system and is aimed at reducing production costs and increasing company profits.	Pushkar M.S. [6, p. 124]
7	Management accounting is a branch of knowledge and a field of activity related to the formation and use of economic information for management within a business entity	Sadovska I.B. [7, p. 259]
8	Internal economic accounting (the so-called managerial accounting, production controlling) is not independent accounting. This is a continuation, or more precisely, a further deepening, detailing of the data of accounting and financial accounting in terms of expenses and income of activities, when all the effectiveness of the acquisition of resources, their processing, technological and organizational solutions, motivation, etc. is revealed.	V. V. Sopko [8, c. 483]

Source: systematized by the authors

Information and analytical systems can have different structures, functionality, and purpose, depending on the specifics of the enterprise and its goals. Some of the most common types of such systems are:

- Enterprise Resource Planning (ERP) systems are comprehensive software that integrates all major business processes of an enterprise, such as finance, logistics, production, procurement, sales, and customer service. ERP allows one to automate and optimize the work of the enterprise, improve control and coordination between departments and functions, reduce costs and errors, and improve the quality of products and services. ERP also provides managers with access to up-to-date and reliable information about the state of the enterprise and its resources, which

facilitates the adoption of effective management decisions. Examples of ERP systems are SAP, Oracle, Microsoft Dynamics, etc.

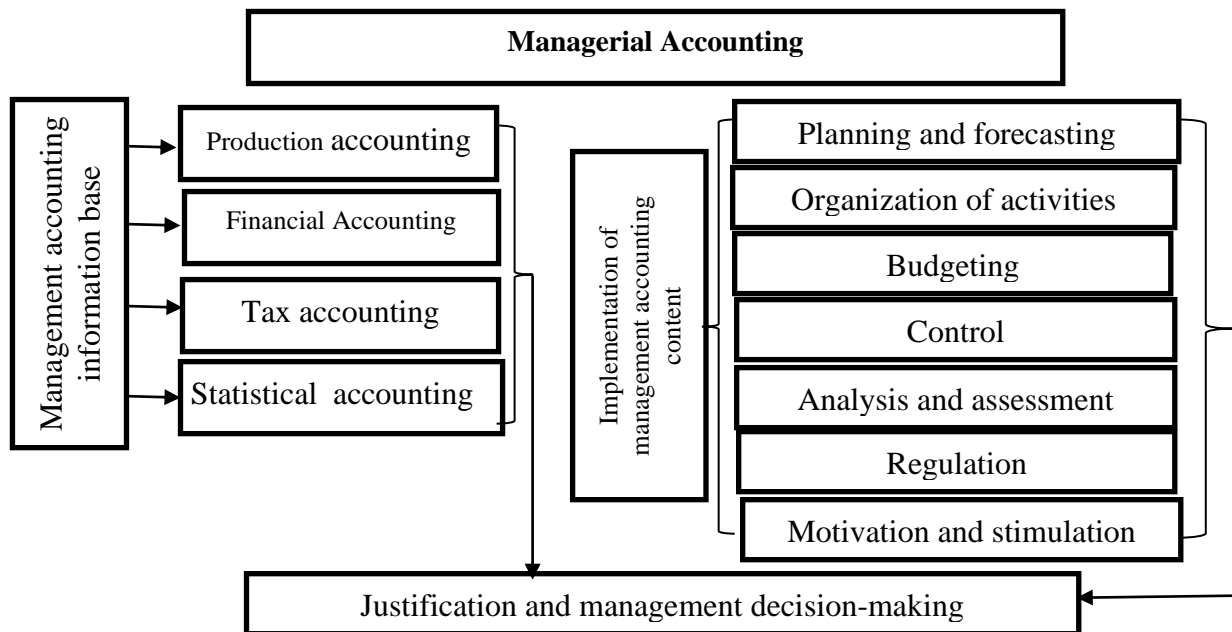
- Decision support systems (DSS) are interactive computer systems that help managers solve complex and unstructured problems. DSS combine data from internal and external sources, analytical models and methods, intuitive and graphic user interface. DSS allow managers to analyze situation, and simulation scenarios, evaluate alternatives, and predict consequences. DSS also facilitate communication and cooperation between participants in the decision-making process. Examples of DSS are Excel Solver, Tableau, Power BI, etc.

- Business analytics (BA) systems are a collection methods and tools that allow obtaining, processing, analysing, and visualizing large volumes of data generated by the enterprise and its environment. BA is used to identify regularities, trends, anomalies, dependencies, and cause-and-effect connections in the data. BA helps managers get value insights that improve understanding situation, identification of opportunities and risks, and promotion of productivity and competitiveness. BA also promotes automation and optimization of business processes and adaptation to changes in market conditions. Examples of BA systems are IBM Cognos, SAS, QlikView, etc.

- Artificial intelligence (AI) systems are computer systems capable of imitating human abilities, such as learning, thinking, perception, language, creativity, etc. AI uses advanced algorithms and models such as machine learning, neural networks, expert systems, natural language processing, computer vision, etc. AI allows enterprises to solve complex and innovative tasks, improve the quality and speed of decision-making, and increase productivity and innovation. AI also helps to personalize and improve interactions with customers and partners. Examples of AI systems are Google Assistant, Siri, Alexa, Cortana, etc.

Common to these statements is that the main task of management accounting is to provide unbiased information necessary for making management decisions by the relevant management units of the enterprise. The content of management accounting is revealed in Fig. 2.

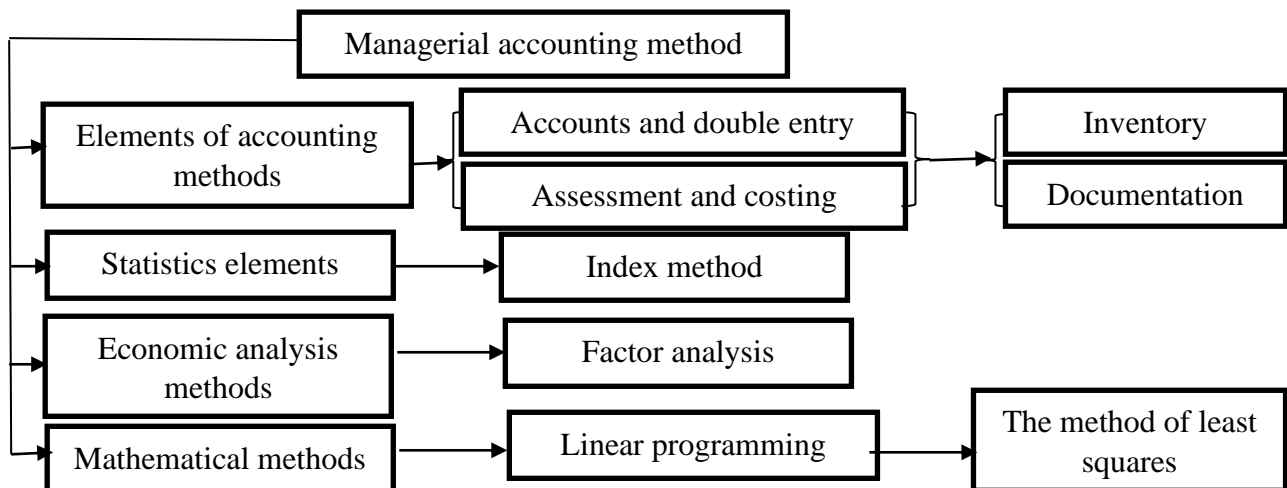
Sometimes the concepts of management accounting and controlling are equated. This is not quite so. There are many common features between them, but there are also differences. Management accounting and controlling are different but related concepts. Management accounting is the process of providing the company's management with information that helps in planning, evaluating, and controlling the organization's activities. Controlling is a management function that analyzes, monitors, and corrects the implementation of the company's strategic and tactical goals. Controlling uses data from management accounting but also includes other aspects such as market analysis, forecasting, risk management, etc. Controllers not only control the implementation of plans but also participate in their formation and adjustment.



**Figure 2. Implementation scheme of management accounting content [5]**

Source: systematized by the authors

Thus, it can be said that it is managerial accounting is the information basis of controlling, and control is one of its functions. That is, management accounting is an integrated system of various economic disciplines, and the method of management accounting contains (Fig. 3):



**Figure 3. Managerial accounting method**

Source: systematized by the authors

Considering the fact that managerial accounting in the narrow sense is a component of the entire accounting system and is related to financial accounting, it must comply with uniform accounting principles, in particular: continuity of enterprise activity; a single monetary unit; completeness and analyticity of information; periodicity, etc.

The main goals of managerial accounting are to provide information that helps the management of the enterprise in achieving the strategic goal, planning, control, evaluation, and optimization of the organization's activities. Managerial accounting information can relate to such aspects as the cost of products (works, services), expenses of structural units and the enterprise as a whole, results of economic activity in various directions, elements of internal pricing, forecasts for the future, settlements with counterparties, etc. Managerial accounting information is formed and provided taking into account the needs of managers of a particular enterprise and is not limited by any standards or rules.

The means of communication at the current stage of the development of society play a significant role in ensuring effective management in the field of hospitality industry. Thanks to communications, hotels can attract the attention of potential customers, improve the quality of service, maintain contact with existing guests, and form a positive image and competitive advantages. Among the modern means of communication for hotels, the following can be distinguished:

- Online booking and web platforms that allow users to quickly and conveniently book a room via the Internet. This contributes to the increase in sales and ensures the availability of services 24/7 [12].
- SEO for hotels helps to improve the visibility of the hotel website in search engines and attract more organic traffic. To do this, it is important to use appropriate keywords and optimize the content [12].
- Social networks and interaction with guests allow you to post up-to-date information about the hotel, special offers, and photos. They also help to conduct a dialogue with clients, answer their questions, and receive their feedback [12].
- Email and newsletters allow one to send personalized letters with information about the reservation, special offers, and updates. Such mailings help maintain contact with customers and stimulate their return [12].
- Messengers and online chats that allow guests to quickly ask questions about service, reservations, or other issues. They also help solve guests' questions in real time [12].
- Contextual advertising for hotels helps to attract the attention of potential guests. Advertisements may appear on pages related to travel, tourism, and hotel services. This helps to attract the target audience and increase the number of transitions to the hotel website [13].

As is evident, modern means of communication for hotels are very diverse and effective. They help hotels adapt to changing market conditions, take into account the needs and wishes of customers, and improve their competitiveness, and profitability.

With the correct organization of the production process at the enterprise, the use of information systems and technology for the transmission of information ultimately significantly increases the economic efficiency of the operation of hotel enterprises.

For research, we have chosen the organization of information support for the hotel business on the example of the hotel "A". In particular, it should be noted that hotel "A" uses a whole range of information equipment, 14 personal computers are

installed, which are connected to one network. Moreover, the following is used for information support of the activities of hotel “A” (Table 2).

**Table 2. Information equipment of Hotel “A”**

Name	List of means
Equipment	<ul style="list-style-type: none"> <li>- 206 Fanvil H3 telephones;</li> <li>- 8 Canon PIXMA i6520 printers;</li> <li>- 2 Panasonic faxes kx-ft 982;</li> <li>- mini PBX;</li> <li>- the hotel has 6 telephone lines;</li> <li>- a video surveillance system operates on the territory and in the middle of the hotel to ensure the safety of hotel guests;</li> <li>- a Siemens fire alarm system was installed;</li> <li>- the hotel is connected to satellite television channels;</li> <li>- the hotel is connected to the Internet, and free Wi-Fi is available on the territory of the hotel</li> </ul>
Software products	<ul style="list-style-type: none"> <li>- Windows 7 and its applications;</li> <li>- Microsoft Office 2003 (Word, Excel, Access, Outlook);</li> <li>- Avast Antivirus;</li> <li>- Adobe graphics editor Photoshop;</li> <li>- electronic translators;</li> <li>- Outlook Express mail program;</li> <li>- Google browser chrome;</li> </ul>

*Source: systematized by the authors*

This level of information technology use is acceptable for a hotel of this class. The maintenance of the equipment and software is handled by the system administrator, who is in the hotel's staff. Telephone communication and Internet access are provided by the Kyivstar company.

The hotel's automated management system (AMS), complexes of security, life support, and computerization systems are integrated into the hotel's single information field. Consider the chain of flows of basic information in hotel “A”: submitting a reservation request; searching for a number upon request and its reservation; guest arrival, identification, and registration; clear service upon request; control over guest payments; warning about the time of eviction; eviction procedure or extension of stay. This is not a complete list, but it gives an idea of the main functions of the system. The ORAK Hotel R5 system is used for the automation of management in the hotel. The main capabilities of this system include:

- Integration with various internal and external data sources, such as registers, databases, banking systems, electronic signatures, etc.

- Automation and optimization of the service payment process, flexible pricing policy, in addition to the general price list, special prices can be set for corporate clients, travel agencies, reducing costs and errors, improving the quality and speed of service.

- Ensuring the security and confidentiality of personal data, using modern methods of encryption and authentication.

- Providing a convenient and flexible user interface that allows you to choose different login methods booking with the possibility of booking different accommodation conditions within one booking.
- Facilitating communication and cooperation between participants in the decision-making process, providing access to up-to-date and reliable information about the state of affairs and resources.

The main capabilities of this system include: 1) accounting of hotel room stock; 2) reservation; 3) flexible pricing policy; 4) housekeeping; 5) security service.

1) accounting of hotel room stock. Visual display of all information about the current state of the hotel's room stock in the main working window of the program: the status of each room, the number of occupied rooms, the number of reserved rooms, rooms that will be vacated, and free rooms, the number of guests currently staying in the hotel, revenue received per shift.

2) reservation. Creating a reservation due to the universal booking tool for individual and collective orders allows one to book different rooms with different accommodation conditions (check-in and check-out dates, tariff, meal plan) within each reservation. All information about the guest's stay is stored in the database. At any time, you can get information about the guest's previous visit to the hotel.

3) flexible pricing policy. In addition to the general price list, it is possible to set special prices for different types of customers (travel agencies, regular customers, corporate customers). Setting special prices can be based on a discount or specially developed price lists.

4) housekeeping – assigning responsible maids to rooms. Viewing and printing the schedule for changing linen and towels, cleaning rooms after the departure of guests, and scheduled cleaning of vacant hotel rooms.

5) security service – the interface for night security is contrasting. Control of guest and staff access to hotel rooms and office premises. Controlling the debts of departing guests.

However, the ORAK Hotel R5 system has some shortcomings that make work difficult: it does not have a clear visual display of daily service planning; remote access; or staff working time accounting; there is no hint system and integration with other information systems, so it is necessary to improve the automated management system in Hotel A.

Hotel “A” has its website, which contains all information about the hotel's room stock, additional services, and special offers, there is a guest book where hotel clients can leave reviews about their stay at the hotel, and it is also possible to book rooms at the hotel.

Requests for accommodation of guests in Hotel “A” are received from travel companies, private clients, and corporate clients through the use of Internet resources (booking through the website, e-mail), phone calls, and faxes. Managers of Hotel “A” surveyed hotel customers to identify the specifics of their use of Internet technology when searching for and booking hotel rooms. 50 people who used the services of Hotel “A” were interviewed.



A customer survey was conducted according to the main parameters: hotel reservation methods; and hotel reservation on its website. Based on the conducted survey, it was concluded that it is necessary to increase the trust of hotel customers in booking rooms on the website of hotel “A”, as well as so that the hotel does not lose profits due to the participation in the sales process of intermediaries (Internet booking agencies).

Note that with indirect sales, Hotel “A” loses profit, because if the reservation is made on the hotel's website, the hotel receives the full price for the room in the hotel, taking into account minor costs for maintaining the website. However, if the client applies to book a room on the intermediary's website, then the hotel receives less money since the intermediary's percentage usually ranges from 10 to 15% of the room price. Consequently, with this type of online booking, Hotel “A” loses up to 15% of the price, since indirect sales channels were chosen. Thus, we consider it necessary to increase the efficiency of booking on the website of Hotel “A” through active promotion of the site on the Internet.

The specifics of the operation of hotel industry enterprises, as well as all intangible enterprises, require a special form of managerial interaction through the formation of a system of information and communication support. The hotel business is a highly saturated information sphere. The peculiarities of business processes in hotel enterprises provide for the structuring of operations both by technical and technological process and by the time factor, and this requires the availability of systematic and dynamic information support.

Managerial interaction is characterized by focus and intensity, which reflects the sphere of the information and communication field of hotel business enterprises. The basic criterion for the formation of a rational-parity information field is information support. In hotel business enterprises, it is determined by the number of information flows and their content saturation, which depends on information processes in the production and provision of basic and additional services.

Information support for enterprise management involves the organization of targeted arrays of information and information flows, which includes the collection, storage, processing, and transmission of information to analyze the results obtained for the preparation, justification, and adoption of management decisions [14, p. 20].

Information flows are formed from a set of modules and a core, which ensures their integration and separation of powers of employees of the hotel enterprise. The activities of accommodation establishments are accompanied by the preparation of various types of documents that form various information flows.

The basis of information support is the system of interrelations among the divisions of a hotel enterprise and the communications that arise between them, as well as the relationship with the external environment. The formation of effective information support for management interaction is impossible without the presence of information technologies, and therefore, certain costs associated with their use.

Considering that the information and communication field is formed not only through interaction in the internal environment, but it can be argued that this process is accompanied by interaction with all participants in the business process, and for

hotel industry enterprises this is: travel agents, tour operators, airline representatives, etc. Interaction with these participants in business processes is carried out through the use of automated hotel management systems. Further development of the hotel and restaurant industry is impossible without modern equipment and the latest technologies. This concerns first of all information technologies, and effective and reliable protection systems, without which it is impossible to achieve a high level of service quality [15, p.227].

Hotel systems allow one to automate all stages of guest service, starting from ticket booking, check-in, and ending with the final payment, as well as the main business processes – from the work of maids to the organization of reporting at the enterprise. In addition, they provide management of all hotel services and systems available in the room.

For the formation of proper internal information flows in the enterprises of the hotel industry, it is necessary to implement automated systems that allow rational and balanced use.

Diagnostics of the effectiveness of experience, planning, and implementation of information systems and technologies made it possible to outline the reasons for their implementation. The questionnaires of 20 enterprises of the hotel business in the city of “B” were taken as a basis. In most cases of changes in the formation of the information field (60%), forced and voluntary factors are considered as the main motivating impulse. Among the factors predicting changes in the information space, it is possible to single out: deterioration of financial and economic indicators (54%), incomplete satisfaction of consumers (15%), and dissatisfaction of employees with existing information flows (10%).

Functional and line managers of the hotel business evaluate the perception and recognition of the need for constant monitoring of the existing information interaction and the formation of the information field of the hotel enterprise based on it, defining the main barriers that can be ranked as follows:

- lack of competent specialists in modern information technologies;
- lack of awareness of the need to introduce modern information systems;
- lack of financial resources for information changes.

The hotel and restaurant business is an industry with a high level of information saturation, and its success directly depends on the speed of transmission and exchange of information, relevance, and timeliness of receipt. The development of the hotel and restaurant business involves the wide use of the latest information technologies both in the field of introducing new hotel services and in their promotion to the market [17]. Managerial interaction involves the constant use and provision of information units at different levels of management. For hotel business enterprises, it is sometimes difficult and impossible to determine the information flows of strategic and tactical levels of management. To eliminate this problem, information support must be viewed through the prism of information flows generated during the implementation of business processes in the main departments of the hotel. The level of their content, completeness, and intensity ensure rational management interaction and make it possible to determine the index of consumer

satisfaction with the information of the hotel divisions. For selected enterprises of the hotel business in the city of “B”, the data of this indicator are given in Table 3.

**Table 3. Efficiency indicators of hotel business information services**

The main components of the hotel's information service	Importance to consumers of components		Quality assessment					total	average value of the quality	Consumer satisfaction index, %
	Bi	%	5	4	3	2	1			
1. Reception and accommodation service (reception service)	5.0	11.26	12	6	2	0	0	20	4.5	87.5
2. Service desk, room management	4.3	9.68	10	5	3	2	0	20	4.15	78.75
3. Reception service and settlement part	4.1	9.23	8	7	5	0	0	20	4.15	78.75
4. Telecommunication services	4.0	9.01	15	5	0	0	0	20	4.75	93.75
5. Room maintenance service	4.7	10.59	6	6	6	2	0	20	3.8	70.00
6. Security service	4.8	10.81	15	4	1	0	0	20	4.7	92.5
7. Catering service	4.9	11.04	5	9	4	2	0	20	3.85	71.25
8. Engineering and technical service	4.5	10,14	15	4	1	0	0	20	4.7	92.5
9. Administrative service	4.6	10.36	10	6	4	0	0	20	4.3	82.5
10. Additional services (hairdresser, swimming pool, solarium)	3.5	7.88	6	10	4	0	0	20	4.1	77.5
Sum (absolute value of the sum of the numbers in the column)	44.4	100.00	102	62	30	6	0	200	43.0	825.0

Source: calculated by the authors

As can be seen from the table, the service providing telecommunication services, the security service, and the engineering and technical service correspond to the highest consumer satisfaction with information provision. Indexing the degree of consumer satisfaction with the information base allows formalizing the organizational work of the hotel based on the needs and expectations of the consumer, which makes it possible to choose strategic alternatives for improving the quality of the hotel enterprise.

**Discussion.** Management accounting in the system of modern management is necessary for everyone who is engaged in entrepreneurial activity. The manager at the enterprise plays an important role, as he/she is responsible for achieving the goals set for him/her by the administration or the founders of the enterprise. The results of the manager's activity largely depend on the information he/she used for planning, control, and regulation of management activities, and even decision-making.

The main goal of implementing a management accounting system for an enterprise is to provide the company's management with the most complete information necessary for more efficient work. Managerial accounting is an integral part of modern management.

Informatization and computerization of business processes are necessary aspects of the effective operation of hotel enterprises. Therefore, we analyzed the effectiveness of information support for managerial interaction of hotel business enterprises, and developed measures to improve management accounting in Hotel "A".

**Conclusions.** Ways to improve the management accounting system in hotels can be different, depending on the specifics and goals of each hotel. However, the general areas of improvement are:

- The use of modern information technologies allows one to automate and optimize the processes of accounting, analysis, and control of costs, income, profitability and other indicators of the hotel's activity. Moreover, information technologies contribute to improving the quality of customer service, saving and protecting information, and ensuring the availability and efficiency of information for managers and employees of the hotel.

- Development and implementation of an effective budgeting system that helps to plan and forecast the financial result of the hotel, determine the optimal allocation of resources between cost and revenue centers, monitor the implementation of the budget and identify deviations, analyze the causes of variance, and introduce corrective measures.

- Application of modern cost accounting techniques that allow you to accurately calculate the cost of hotel services, taking into account all types of direct and indirect costs. As well, such techniques help to analyze the structure and dynamics of expenses, identify areas of excessive or irrational costs, and find ways to reduce or optimize them. Examples of such methods are the ABC method (Activity Based Costing), the TDABC method (Time Driven Activity Based Costing), the Kaizen technique Costing, etc. These are just some ways to improve the management system accounting in hotels. In addition, measures for the intensification of management activities of Hotel "A" based on the use of information systems and technology are proposed, they are effective and can be implemented in the activities of not only Hotel "A" but also other hotel complexes.

**Author contributions.** The authors contributed equally.

**Disclosure statement.** The authors do not have any conflict of interest.

## References:

1. Butynets' F.F., Davydyuk T.V., Kanurna Z.F., Malyuha N.M., Chyzhevs'ka L.V. Bukhhalters'kyy Upravlins'kyy oblik [Accounting and management accounting]: pidruchnyk. Vyd. 3-tye, [pererob. ta dop.]. Zhytomyr : PP «Ruta», 2005. 471 s. [in Ukrainian].
2. Holov S. F., Yefymenko V. I. Finansovyy ta upravlins'kyy oblik [Financial and management accounting]. K.: Avtoservis, 1996. 543 s. [in Ukrainian].
3. Napadovs'ka L.V. Upravlins'kyy oblik [Management accounting]: pidruchnyk Vydavnytstvo KNEU, 2010. 623 s. [in Ukrainian].
4. Pankov V.A., Yelets'kykh S.Ya., Mykhaylychenko N.M. Kontrolinh i byudzhetuuvannya finansovo-hospodars'koi diyal'nosti pidpryyemstva [Controlling and budgeting of the financial and economic activity of the enterprise]: Navch. posibnyk. K.: Tsentr uchbovoi literatury, 2007. 112 s. [in Ukrainian].
5. Pysarenko T.M., Bukalo N.M, Upravlins'kyy oblik: sutnist', zmist ta pryntsyipy vedennya [Management accounting: essence, content and principles of management]. Visnyk Khmel'nyts'koho natsional'noho universytetu 2010, № 1, T. 2 . S. 136-140. [in Ukrainian].
6. Pushkar M.S. Kreatyvnyy oblik [Creative accounting]: monohrafiya. Ternopil', 2006. 334 s. [in Ukrainian].
7. Sadovs'ka I.B. Teoriya i praktyka upravlins'koho obliku: harmonizatsiya system [Theory and practice of management accounting: harmonization of systems]. Naukovyy visnyk Natsional'noho universytetu bioresursiv i pryrodokorystuvannya Ukrayiny. K.: VTS NUBiP Ukrayiny, 2012. Vyp. 169: Ekonomika, ahrarnyy menedzhment, biznes. Ch. 2. S. 257–265. [in Ukrainian].
8. Sopko V. V. Bukhhalters'kyy oblik v upravlinni pidpryyemstvom [Accounting in enterprise management] : navch. posibn. K. : Vyd-vo KNEU, 2006. 526 s. [in Ukrainian].
9. Law of Ukraine “On Accounting and Financial Reporting in Ukraine” dated July 16, 1999 No. 996-XIV [Electronic resource]. URL: <http://zakon4.rada.gov.ua/laws/show/254k/96-bp> [in Ukrainian].
10. Zhyvko Z. B., Vol'nykh A. I., Shehyns'kyy I. I., Zhyvko Yu. M. Osnovni aspekty pokrashchennya diyal'nosti hotel'no-kurortnoho kompleksu [Basic aspects of improving the activity of the hotel and resort complex] Aktual'ni problemy rozvytku restorannoho, hotel'noho ta turystychnoho biznesu v umovakh svitovoyi intehratsiyi: dosyahnennya ta perspektyvy: tezy dop. II Mizhnarodnoyi naukovo-praktychnoyi konferentsiyi, 19–20 veresnya 2019 r. : / redkol. : O. I. Cherevko ta in. Kharkiv : KHDUKHT, 2019. [KHKHVIII] . S. 199–201. ISBN 978-966-405-486-4. . [in Ukrainian].
11. Kukhars'ka L. V., Zhyvko O. V., Alakhverdiyev R. H., Hren' R. T., Zhyvko Z. B. Napryamy vdoskonalennya diyal'nosti hotel'no-kurortnoho kompleksu [Directions for improving the activity of the hotel-resort complex]. Aktual'ni problemy rozvytku restorannoho, hotel'noho ta turystychnoho biznesu v umovakh svitovoyi intehratsiyi: dosyahnennya ta perspektyvy: tezy dop. II Mizhnarodnoyi naukovo-praktychnoyi konferentsiyi (19–20 veresnya 2019 r.) / red.kol. : O. I. Cherevko ta in. Kharkiv : KHDUKHT, 2019. [KHKHVIII] . S. 220–222. ISBN 978-966-405-486-4. [in Ukrainian].
12. Suchasni zasoby komunikatsiyi dlya hoteliv: vid onlayn-bronyuvan' do zv'yazku z hostyamy [Modern means communications for hotels : from online reservations to communication with guests]. URL: [http://journals.khnu.km.ua/vestnik/pdf/ekon/2010\\_1\\_2/pdf/136-140.pdf](http://journals.khnu.km.ua/vestnik/pdf/ekon/2010_1_2/pdf/136-140.pdf) [in Ukrainian].
13. Formuvannya marketynhovykh komunikatsiy u hotel'no-restorannomu biznesi [Formation marketing communications in the hotel and restaurant business] URL: [https://tourlib.net/statti\\_ukr/p](https://tourlib.net/statti_ukr/p) [in Ukrainian].
14. Arefyeva O. V., Koval'chuk A. M. Zabezpechennya ekonomichnoyi bezpeky pidpryyemstva cherez motyvatsiyu personalu do stratehichnykh zmin [Ensuring the economic security of the enterprise through the motivation of personnel for strategic changes]. Problemy ekonomiky, 2020. № 4. S. 126-133 [in Ukrainian].
15. Byelousova O. S., Afanasyeva O. S. Aktual'ni problemy hotel'no-restorannoho biznesu v Ukrayini v umovakh pidhotovky do Yevro 2012 [Actual problems of the hotel and restaurant business in Ukraine in preparation for Euro 2012]. Visnyk Volyns'koho instytutu ekonomiky ta menedzhmentu. №2, 2011. C. 53-60. [in Ukrainian].
16. Buty abo ne buty hotel'niy industriyi v Ukrayini [To be or not to be a hotel industry in Ukraine] [Elektronnyy resurs]. URL: <http://www.socmart.com.ua/news/ukraine/read/3693/> [in Ukrainian].
17. Chernomazyuk A.H. Innovatsiyi u sferi hotel'no-restorannoho biznesu [Innovations in the field of hotel and restaurant business]. Visnyk Khmel'nyts'koho natsional'noho universytetu. Ekonomichni nauky. №5. T.2, 2014. C.269-272. URL: [https://tourlib.net/statti\\_ukr/chernomazyuk.htm](https://tourlib.net/statti_ukr/chernomazyuk.htm) [in Ukrainian].
18. Mihus, I., & Melko, L. (2022). ECONOMIC SECURITY SYSTEM MANAGEMENT OF TRAVEL INDUSTRY: MAKING MANAGEMENT DECISIONS IN CRISIS CONDITIONS. *Economics, Finance and Management Review*, (4), 96–102. <https://doi.org/10.36690/2674-5208-2022-4-96>.
19. Havryliuk, S., Melko, L., Uvarova, G., Karyuk, V., & Mihus, I. (2021). IMPLEMENTATION OF THE MODEL OF INNOVATIVE TOURIST PRODUCT IN UKRAINE: FINANCIAL AND ECONOMIC ASPECTS. *Financial and Credit Activity Problems of Theory and Practice*, 1(36), 219–232. <https://doi.org/10.18371/fcaptp.v1i36.227769>
20. Mihus, I., & Bievets, A. (2016). International service quality standards of hotel and restaurant business entities. Collection of scientific papers of the Cherkasy State University of Technology. Series: Economic Sciences, (43 (1)), 29-34.
21. Lee, H., Park, J., & Kim, Y. (2021). "Digital Technologies and Collaborative Management in the Hospitality Industry." *International Journal of Hospitality Management*, 92, 102683.

22. Johnson, M., & Smith, A. (2022). "Information Sharing and Supply Chain Collaboration in the Hospitality Industry." *Journal of Hospitality & Tourism Research*, 46(3), 321-340.
23. Chen, L., & Wang, S. (2020). "Social Media and Collaborative Marketing in the Hospitality Industry." *Tourism Management*, 81, 104198.
24. Kim, J., & Chang, M. (2023). "Big Data Analytics for Operational Collaboration in Hospitality Enterprises." *Journal of Hospitality Marketing & Management*, 32(1), 55-73.
25. Wang, Y., & Li, Q. (2021). "Information Security Concerns in Collaborative Environments: A Case Study in the Hospitality Industry." *Information & Management*, 58(1), 103436.
26. Smith, B., Johnson, A., & Davis, C. (2022). "Employee Training and Collaborative Performance in Hospitality Enterprises." *Journal of Human Resources in Hospitality & Tourism*, 21(4), 458-477.
27. Garcia, M., & Kim, S. (2020). "Cross-Cultural Collaboration Challenges in Multinational Hospitality Enterprises." *International Journal of Contemporary Hospitality Management*, 32(5), 1792-1812.
28. Wang, S., Li, M., & Chen, H. (2021). "Strategic Alliances and Collaborative Innovation in the Hospitality Industry." *International Journal of Hospitality Management*, 94, 102843.
29. Patel, R., & Gupta, A. (2022). "Sustainable Practices and Collaboration: An Informational Perspective in the Hospitality Industry." *Journal of Sustainable Tourism*, 40(6), 781-801.