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INTERDISCIPLINARITY OF MODERN DEVELOPMENT OF ECONOMIC ANALYSIS AND COMPUTER INFORMATION SYSTEMS: PROBLEMS AND PROSPECTS OF HARMONIZATION

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Abstract: *The purpose of the study is to outline the specifics, problems and advantages of financial analysis, which is carried out using modern information technologies, with the aim of forming an effective system of managing the activities of business entities. On the basis of the empirical method and generalization, the essential conceptual foundations of the complex use of financial analysis with the use of modern information technologies for effective management of the enterprise's activities have been investigated. The place of analysis in the process of management decision-making is determined and a diagram of its relationship with other components of management is constructed. Based on the analysis of the opinions of scientists and practitioners, the need for a complex combination and application of analysis and modern information technologies to ensure effective management of activities is substantiated. The main advantages and problems of such a combination are determined, and a diagram of the relationships between management, analytical and information technologies is constructed using a graphical method. It has been established that conducting analytical research using information technologies will allow the company's management to form a high-quality information base for its management. It was concluded that in the conditions of globalization, the process of computerization of economic activity should be carried out in the direction of standardization (including taking into account international requirements), development and expansion of analysis opportunities (using both traditional and new indicators) and improving the training of specialists of the relevant profile.*

Keywords: *financial analysis, management, enterprise activity, information support, information technologies.*

Formulation of the problem. The instability and uncertainty of economic development prompts business entities to search for new creative ways to improve their activity and quickly adapt it to changes in the internal and external environment. For this, it is necessary to have relevant data and information. Therefore, analysis is a central element in the process of making managerial decisions. It provides an assessment of the company's performance in a competitive environment and forms the basis for finding ways to improve it. In the process of analysis, data on the company's activities are systematized during a certain period of time,

and based on the results, management decisions are developed for the further development of the business entity. The use of IT in these processes makes it possible to reduce the time spent on carrying out evaluation works and calculating the performance indicators of the enterprise. That is, conducting analytical work with the use of modern information technologies allows for a comprehensive and quick assessment of the situation, timely adoption of adequate management decisions regarding the elimination of negative factors of influence. In connection with the rapid development of information technologies and imperfect knowledge of their features, this issue requires further research and systematization.

Analysis of recent research and publications. Ukrainian scientists A.P. Ladanyuk, I.V. Elperin, T.L. Mostenska [1], N.S. Orlova, Yu.L. Mokhova [2], K.I. Dmytriv, Y.N. Shpak [3] actively researched the computerization of processes at the enterprise. They determined the specifics, advantages, disadvantages, role and significance of modern information technologies in economic and production processes, formed their general vision of modern IT in business and management as a whole. However, research in this direction is not enough. Today, IT technologies are rapidly developing and penetrating various sciences, thereby optimizing the work of the company's specialists. The automation of the analysis of business entities meets the modern challenges of the market environment and is a new level in the process of making management decisions. A competitive environment requires economic entities to allocate resources optimally and efficiently. With this in mind, management should be flexible and based on operational analytical information. The analysis of scientific publications shows the existence of a connection between the development of IT technologies and methods of analysis. Therefore, the topic of the selected scientific research is relevant.

The purpose of the study is to outline the specifics, problems and advantages of financial analysis, which is carried out using modern information technologies, with the aim of forming an effective system of managing the activities of business entities.

Presenting main material. In modern conditions, managing the activities of business entities requires the comprehensive use of diverse knowledge. The objectivity of this process is connected with the fact that modern management develops in conditions that are sufficiently turbulent. As a result, there are constant threats and challenges of various kinds, which must be overcome in the shortest possible time. The problem of implementing such a task lies in the field of many not only economic, but also related sciences. This is objective, because management aims to achieve optimality in management, reasonable saving of resources, increase in efficiency and effectiveness. The unpredictability of many situations, the occurrence of uncharacteristic phenomena, changes in the surrounding environment, and the latency of many influencing factors require management employees to use appropriate tools, including innovative ones. Currently, the application of analysis methods has been maximally activated. Therefore, it is important to have a high level of knowledge and to be able to use analytical tools. In general, various types of analysis are used in the implementation of management. Management is carried out both by the of firm's employees themselves in the course of their professional activities, and the results of the analytical work of various departments or third-party firms are used. The most common in business practice is financial analysis. In scientific literature, the concept of financial analysis is interpreted in different ways.

In scientific literature, financial analysis is identified (defined) as a process, a management function, a component of general economic analysis, a component of management. For example, Aschaulova M. P., Golovko A. Yu., Chub V. O., Malii O. G. emphasize that “financial analysis is a component of the general analysis of economic activity, which includes two interrelated sections: financial analysis and management” [4, p. 59]. The authors recognize that such a division is quite conditional and develop theoretical justifications for the expediency of dividing such an analysis into internal and external. O.V. Dobrovolska and M.A. Rondova believe that financial analysis practically aims to assess the financial state of the enterprise, and therefore its application is extremely important in the context of preventing bankruptcy [5, p. 41]. O. V. Nazarenko, Yu. A. Horshkova claim that “financial analysis occupies one of the main places in the development of measures to overcome the crisis, the most important of which is the assessment and analysis of the Report on the financial condition of the business entity” [6, p. 27]. The named authors also claim that, accordingly, it is important to choose the right indicators for assessing financial stability, and therefore the source of analysis should be various forms of reporting, including the balance sheet.

Many other examples can be cited, they are widely represented in modern scientific thought. But summarizing, it should be noted that, as our research shows, interpretations of the concept of “financial analysis” in scientific opinion differ significantly among themselves. However, the perception of such an analysis from the standpoint of its goal is common, or at least very similar. Goal consists in providing information for the implementation of management decisions aimed at increasing the efficiency of activities. The legal interpretation of financial analysis, given in the official document of the Ministry of Finance, is as follows: financial analysis of the enterprise’s activity is a comprehensive study of the financial state of the enterprise with the aim of evaluating the achieved financial results, which is carried out using methods of financial analysis based on the data of the enterprise’s financial statements [7]. Since the main task of modern enterprise management is to optimize the use of resources and increase efficiency and effectiveness, financial analysis acquires a priority status, and its toolkit becomes the most widely used. The logical explanation for this is that such an analysis provides the necessary information data and an assessment of the results of the business entity’s activity in the appropriate format and indicators. In other words, financial analysis ensures the achievement of management goals using its own methodology, tools, and approaches (Fig. 1).

Financial analysis in Ukraine, as we can see, is regulated by law and has clear rules that all business entities must follow. However, the methodology of such an analysis is a separate, independent research phenomenon and is not legally regulated. In order to settle the issue of comparability of different business entities and develop a unified approach to the evaluation of indicators, the main areas of improvement of financial analysis in the legislative sphere should be: development of a bill on the system of conducting analytical work enterprise; development of standards regarding the selection of indicators for analysis and methods of its implementation; formation of the main provisions of financial analysis and their approval at the state level; legalization and development of software products for carrying out financial analysis at the enterprise for the purpose of its evaluation (at the same time, it is important

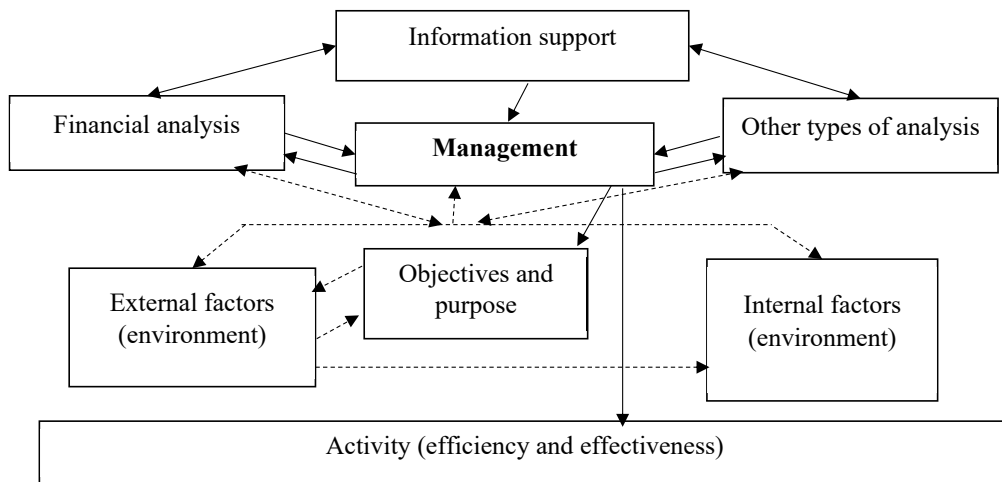


Fig. 1. The place of financial analysis in the management system of the enterprise
[Summarized by the author]

that these products automatically download all new provisions in the event of a change in legislation). It should be noted that such issues are partially resolved at the state level thanks to information legislation [8, p. 338; 9, p. 7; 10, p. 5]. In particular, there are certain established rules for the formation of information support in the course of the activity of a business entity. For example, they include: requirements for specialists (developed educational standards in the field of training); identifiers of licensed software products and instructions for their use; requirements for the data protection system, etc. Instead, the creativity of the company's managers to the challenges of the competitive environment requires prompt response and changes in the process of scientific and methodological research. In fact, this is one of the reasons for the strengthening of interdisciplinary ties, in particular in terms of complex application for the purposes of analyzing modern information systems. So, if, in addition to the analysis itself, such an element as IT is included in the above scheme of relationships (including their application for the purposes of management and analytical work), then such a scheme will acquire a complex, interdisciplinary character (Fig. 2).

A feature of IT technologies is the prompting of the rapid development of electronic management and the improvement of the effectiveness of management decision-making. This is extremely relevant in the context of a crisis situation in the environment of the functioning of modern enterprises.

The transformation of analysis and IT has important reasons, conditions and needs. The first thing is that any enterprise in modern conditions usually has the technical capabilities to implement the task of a complex combination of management, analysis and IT. The main reason that requires such a combination is the need for efficiency in making management decisions.

IT provides such efficiency both in terms of analysis and management. Today, information technologies are represented by a wide range of software products that perform important

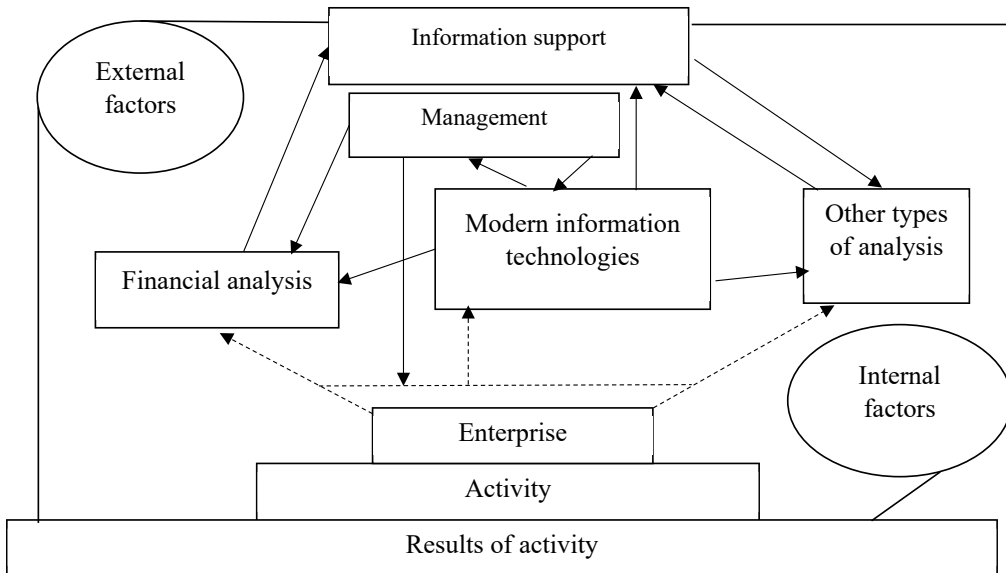


Fig. 2. Relationship of analysis, management and IT
 [Summarized by the author]

analytical tasks. For example, the main programs that conduct financial analysis at the enterprise are “AIS – Accounting Information System”, “Project Expert 6.0 Professional”, “BPM (business process management)”, “SCM – Supply Chain Management”, “Finance without problems” and others. The list of software products for conducting financial analysis is much larger, and each enterprise independently decides which program it will use in the course of its activities. At the same time, the main tasks of creating software for enterprises for the purpose of analysis are:

- 1) creation of a software product in accordance with the needs of the business entity and the requirements of its management services;
- 2) computerization of business operations of the enterprise and formation of standard forms of reporting on articles of interest to information users;
- 3) achieving the formation of a simple software product interface using economic terminology understandable to employees at all levels of management;
- 4) high productivity and quality of work and information;
- 5) the possibility of using programs on different platforms, the ease of transferring the generated data to other software products for their processing and obtaining results;
- 6) the prospect of correcting the internal software product, the possibility of adding new commands in accordance with the specifics of the business entity;
- 7) absence of errors in the process of forming summary data regarding the analytical work of the enterprise.

A good advantage in modern conditions is that the management of Ukrainian enterprises has the right and opportunity to choose the most effective software products. However, the

creation of the software products themselves is a complex process that requires compliance with a number of conditions and standards (Fig. 3).

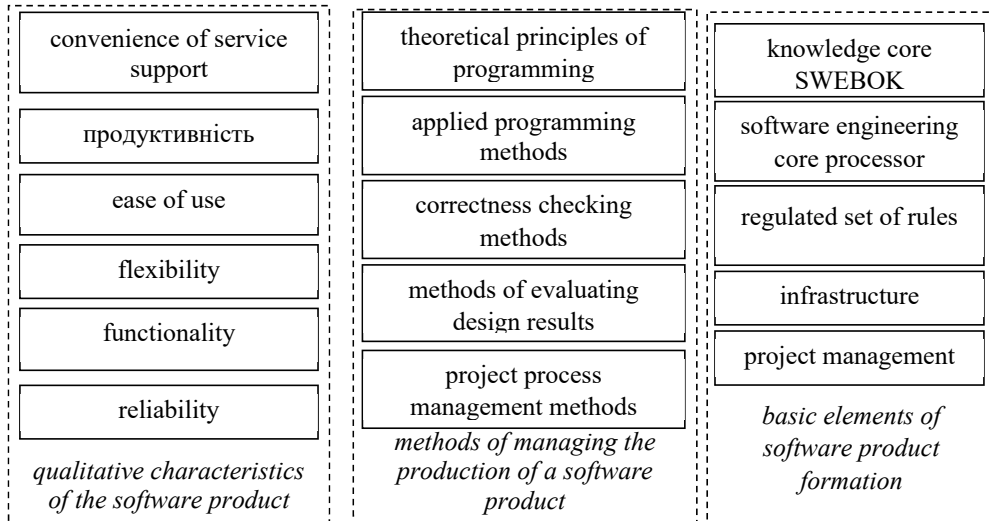


Fig. 3. Constituent elements of the formation of a quality software product for the purposes of financial analysis.

[Summarized by the author]

The main problem of IT in the process of financial analysis is the low level of presentation of Ukrainian software products. This is what causes the need to use and adapt programs from foreign manufacturers. In addition, another problem arises, which is the quality of service of software products. An important role in this was played by the emergence of IT outsourcing activity, which involves the provision of services to eliminate deficiencies in the software product. This is quite convenient, since such works are quite specific and not systematic. In the event of malfunctions, it is much more economical for business entities to use IT outsourcing services than to retain similar specialists as part of the company's employees. All the more so, as managers require from employees the ability to use software products, and not to provide services related to the elimination of defects in case of their occurrence. But the main disadvantage of IT outsourcing is the instability of the quality of service provision and the terms of its execution. This can negatively affect the efficiency of the business entity. In turn, this may have a negative impact on the image of the IT company that provides this type of service. Therefore, an important element in the process of choosing an IT enterprise should be the conclusion of a contract between the parties, which will outline the terms of order fulfillment. In this case, the work model of IT outsourcing employees, tasks and methods of monitoring the quality of service provision will be determined. It is in this way that the efficiency of the business entity can be increased. But apart from that, it also depends on the quality of management decision-making by the management regarding its development in

the future. Making such decisions requires a detailed analysis and consideration of the initial conditions. That is, it should be based on the results of the analysis of the company's activity during a certain period of time (Fig. 4).

The main element in this case is a correctly conducted financial analysis. However, in the event of a crisis situation, management decisions must be made quickly, so software products act as a means of conducting a quick analytical study of internal processes at the enterprise. The results obtained in the process of processing with software products need to be analyzed by specialists, and then management decisions are made based on them.

Without IT, analysis and management are not as efficient and effective as required in dynamic economic conditions [11, p. 25]. As I.M. Parasiy-Vergunenکو rightly points out. "the changes that have taken place in the theory and practice of analyzing ... the activities of business entities ... are primarily associated with the emergence of new needs to meet the main goal of modern enterprises - increasing the value of the company through increased productivity in both the short and long term. Along with traditional technologies, new methods and approaches have recently gained a fairly wide development..." [12, p. 332].

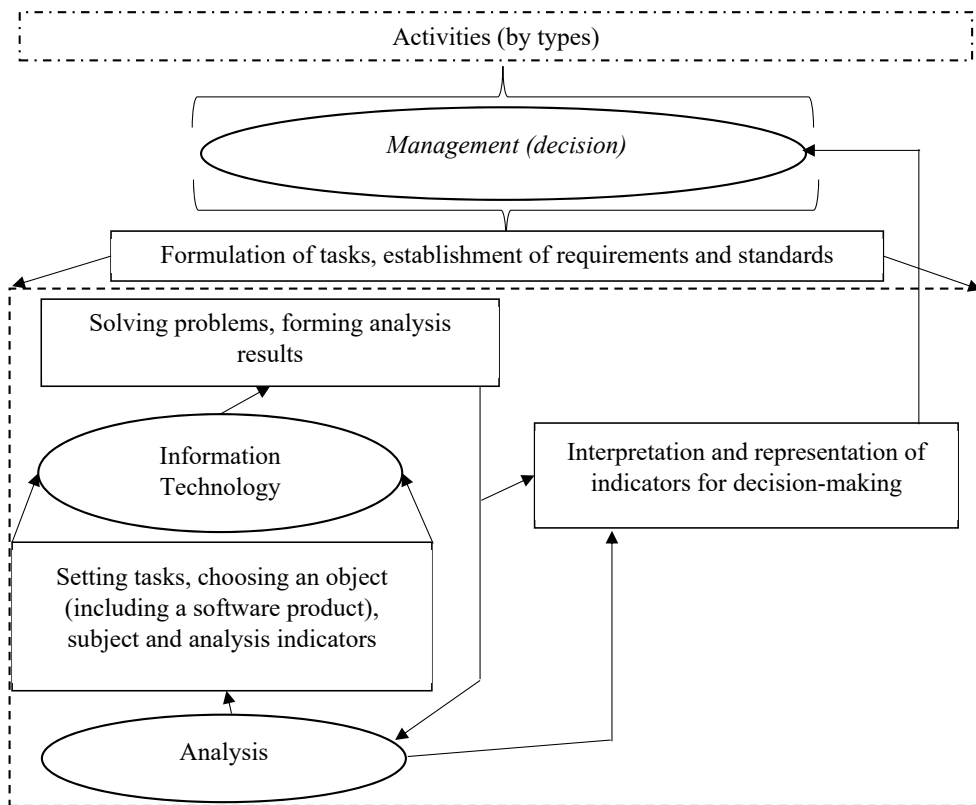


Fig. 4. Interrelationship of IT with analysis and management decisions.
[Summarized by the author]

IT should also be included in such methods. Their role is constantly growing, including in the context of performing analytical calculations. Complexity in the use of a combination of analysis methodology and modern IT has many advantages and allows forming a high-quality management information base. But instead, the main obstacles on the way to their application and achieving high efficiency are: lack of personnel with appropriate qualifications (a task for educational institutions); the level of management of the business entity itself (a task for business enterprises and their owners); high cost of software products and their capabilities (a task for software developers). A possible way out of the situation in the first two cases is to use the services of third-party analytical organizations. But it also requires performance evaluation.

Conclusions and prospects for further research. The application of IT technologies in the economic activity of a business entity for the purpose of conducting financial analysis is determined by external challenges and scientific and technical progress. An important element in the process of IT development in Ukraine is the development of Ukrainian software products that will take into account the peculiarities of the regulatory and legislative framework of Ukraine and correspond to the specifics of the financial and economic activities of its business entities. Also, their focus on the specifics of the industry and its features is important in the process of developing software products. The disadvantage is the insufficient qualification of employees to work with IT and the inability to take corrective actions to eliminate deficiencies or improve the software product. This direction needs further development and improvement, including taking into account legislative and regulatory documents in the field of education. Therefore, in the conditions of globalization, the process of computerization of economic activity should be carried out in the direction of standardization (including taking into account international requirements), development and expansion of opportunities for conducting analysis (using both traditional and new indicators) and improving the training of specialists of the relevant profile. The development of a standardized methodology for analyzing the activity of a business entity, which should be implemented in the future in a software product, is also an important perspective direction of research.

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ФІНАНСОВИЙ АНАЛІЗ ТА СУЧАСНІ ІНФОРМАЦІЙНІ ТЕХНОЛОГІЇ: СПЕЦИФІКА МІЖДИСЦИПЛІНАРНОГО ЗАСТОСУВАННЯ

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Анотація: Мета дослідження – окреслити специфіку, проблеми та переваги фінансового аналізу, який здійснюється з використанням сучасних інформаційних технологій, з метою формування ефективної системи управління діяльністю суб'єктів господарювання.

На основі емпіричного методу та узагальнення досліджено сутнісні понятійні засади комплексного використання фінансового аналізу для якісного управління діяльністю підприємства. Ідентифіковано місце аналізу в процесі прийняття управлінських рішень та побудовано схему його взаємозв'язку з іншими складовими управління. Використовуючи аналіз думок вчених і практиків, обгрунтовано

потребу в комплексному поєднанні й застосуванні аналізу та сучасних інформаційних технологій для забезпечення ефективного управління діяльністю. Ідентифіковано основні переваги та проблеми такого поєднання й графічним методом побудовано схему взаємовідношень між управлінням, аналізом та інформаційними технологіями. З'ясовано, що проведення аналітичних досліджень із застосуванням інформаційних технологій дозволить керівництву підприємства формувати якісну інформаційну базу управління ним. Зроблено висновок, що в умовах глобалізації процес комп'ютеризації господарської діяльності повинен проводитись в напрямі стандартизації (в тому числі з урахуванням міжнародних вимог), розвитку і розширення можливостей для проведення аналізу (з використанням як традиційних, так і нових показників) та удосконалення підготовки фахівців відповідного профілю.

Ключові слова: фінансовий аналіз, управління, діяльність підприємства, інформаційне забезпечення, інформаційні технології.

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