

Sergii Tkachenko*

USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN BANKING MANAGEMENT

The development of banking is impossible without the use of information and communication technologies. Today, the use of information technologies is one of the key factors of the efficiency and competitiveness of modern banks. Therefore, they invest their funds in the automation of business processes. Modernization of banking is impossible without intensive implementation of the latest achievements of scientific and technological progress in banks. This article examines the concept of information technologies and explains the essence of information technologies in finance. Types of information technologies in finance are studied, classification is carried out by subjects. A brief description of the main software products is presented, the purpose of which is to ensure the implementation of financial research processes.

Keywords: bank, technology, banking sector, information and communication technologies, software.

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Сергій М. Ткаченко

ВИКОРИСТАННЯ ІНФОРМАЦІЙНО-КОМУНІКАЦІЙНИХ ТЕХНОЛОГІЙ В БАНКІВСЬКОМУ МЕНЕДЖМЕНТІ

Розвиток банківської справи неможливий без використання інформаційно-комунікаційних технологій. Сьогодні використання інформаційних технологій є одним із ключових факторів ефективності та конкурентоспроможності сучасних банків. Тому вкладають свої кошти в автоматизацію бізнес-процесів. Модернізація банківської справи неможлива без інтенсивного впровадження в банки останніх досягнень науково-технічного прогресу. У статті розглядається поняття інформаційних технологій та пояснюється сутність інформаційних технологій у фінансах. Вивчаються види інформаційних технологій у фінансах, проведена класифікація за предметами. Подано короткий опис основних програмних продуктів, призначення яких – забезпечення реалізації процесів фінансових досліджень.

Ключові слова: банк, технології, банківський сектор, інформаційно-комунікаційні технології, програмне забезпечення.

Problem statement. The development of financial relations in our time requires the introduction of effective finance. Management in various spheres of human activity. Building an effective financial management system involves achieving the goal by performing certain tasks: organizational, informational, managerial, financial, legal, production, political and social. It is constantly under the influence of external and internal factors, which, accordingly, may pose a danger (risk) to the realization of the goal or contribute to its achievement. Therefore, financial management needs to process a large amount of information on the basis of which certain behavioral scenarios are selected. Therefore, in order to improve the process of management decision-making in the field of finance, to be competitive and succeed in the market, it is

* Zaporizhzhya national university, Ukraine.

necessary to use information technologies that allow to adapt and change in accordance with current requirements, quickly respond to external factors, increase profitability and efficiency.

Analysis of recent research and publications. The problems of using information technologies in management have been covered in scientific works by domestic and foreign researchers.

In particular, the following scholars have studied information technologies in enterprise management: T. Baranovska, P. Buryak, V. Denysiuk, A. Kozyrev, O. Kryvokon, T. Lepeyko, K. Malachevska, L. Melnyk, Y. Nabatova, A. Onopko, A. Romanov, M. Roik, P. Shchedrin, G. Titarenko, V. Utkin, and others.

It is important to note that Nabatova and K. Malchevska, in their scientific works, explore the theoretical foundations of automating the process of analyzing and forecasting the financial results of enterprises, analyze examples of statistical procedures and tools that make analysis possible. In addition, these scientists argued that “automation of analytics significantly improves the quality and accuracy of results, frees employees from long-term routine tasks and brings financial performance management to a new level, as it helps to make smarter and more efficient business decisions” [1].

Information technologies in public administration are considered in the scientific works of the following scholars: K. Andersen, L. Bakaev, O. Bakaev, A. Bersutskyi, Y. Bersutskyi, S. Brettschneider, P. Drucker, V. Glushkov, R. Kalyuzhnyi, M. Lepa, Z. avlyshyn, V. Porokhna, T. Pysarevska, V. Sytnyk, M. Tatarchuk, E. Toffler, O. Tsarenko, and others.

Thus, Z. Pavlyshyn noted that “the use of information technology in public administration allows finding alternative methods of data collection and performing the functions of collecting, storing, processing, transferring and using knowledge, which really increases the efficiency of public administration and allows finding the necessary resources”, he also pointed to the trend of increasing the number of government agencies using information technology and emphasized that it is now impossible to compete in the global market without the use of information technology [2].

The problem of using information technologies in finance was studied by M. Bastrikov, E. Burtseva, N. Yemelyanova, A. Gavrylenko, T. Gavrylko, O. Korystin, A. Kvilinsky, L. Melnyk, I. Semakin, N. Svyrydyuk, I. Tkachenko, V. Tkachenko, O. Tomashevsky and others. In their works, they often mentioned digital finance, in particular, the impact of cryptocurrency on micro and macro indicators [3]. The problems of digitalization of the economy were studied in more detail by the following scientists: K. Bilyk, R. Bukht, G. Chmeruk, A. Dobrynin, G. Karcheva, Y. Levytska., V. Lyashenko, R. Narishman, V. Panasyuk, N. Podolchak, M. Rudenko, L. Zakharchenko and others. In particular, N. Podolchak, O. Bilyk and Y. Levytska, analyze the current state of digitalization and the main problems that hinder the intensive development of the digital economy [4].

I believe that scientists have made a great contribution to the development of research on the application of information technologies in financial management, but, given the modern process of computerization, digitalization, and globalization, some problems require more detailed and in-depth research.

Formulation of the article's objectives. The purpose of this article is to understand the existing information technologies in the field of finance, to systematize them and to understand the positive and negative impact on the functioning of the finances of

enterprises (businesses), households (people) and states. The methodological basis of the study was the theoretical provisions set out in the works of domestic and foreign authors. This work uses the methods of scientific abstraction and systems analysis.

Presentation of the main research material. According to the Law of Ukraine «On the National Informatization Program», information technologies are a purposeful Organized set of information processes using computer technology, which ensures high data processing speed, fast information search, information dissemination, access to information sources regardless of their location [5].

It should be noted that along with the term «Information Technologies», the term «Information and Communication Technologies» is widely used. In addition, in scientific articles these 2 terms are often used interchangeably. In my opinion, «Information and Communication Technologies» is a more general term that includes Information Technologies and Communications, mass media broadcasting, all types of audio and video processing and information transmission.

Information technologies are implemented using IT tools - software (programming languages, operating systems, applications, etc.) and special devices that allow processing, transmitting and storing information (computers and computing equipment, modern communications, etc.).

Information technologies in the management process are a method and way of interaction between the organization's management system and the quality management system, based on the use of modern means of information transformation [2].

Based on the above definitions, Information technologies in financial management are the use of modern means of transforming financial information or data necessary for making effective financial decisions.

Given the rapid development of information technologies and the global trend of digitalization, globalization and internationalization, the use of information technologies in the management of the finances of an enterprise (business) is one of the most important stages of enterprise management, as it allows for a comprehensive study of the financial condition of the enterprise. the main financial indicators of the enterprise and to carry out effective planning and forecasting of its financial activities. The process of searching for financial and analytical information and its research is very extensive and laborious and requires the involvement of a large number of specialists and a significant amount of various calculations, including using methods of economic and mathematical programming and forecasting. Therefore, the automation of financial analysis processes has become natural and necessary, and this has become possible thanks to the rapid development of information and digital technologies. Automation of financial analysis for companies allows you to speed up the process of assessing financial indicators, quickly and in the shortest possible time to identify possible risks and threats and plan further actions to minimize losses and increase profitability. You can identify potential domestic and foreign partners, suppliers, lenders, investors, etc., determine the most favorable sales market in Ukraine and abroad, and also study the activities of competitors.

The main advantages of automating financial indicators of a company's activities are:

1) increasing the productivity of financial managers: Automation of calculations to accelerate the process of calculation, understanding and evaluation of the obtained indicators and providing alternative solutions to complex financial problems;

2) expand the scope of research: Automation of calculations uses a large amount of information and a significant number of indicators that indicate the possibility of a comprehensive study of the influence of all factors (or most of them);

3) improving the quality of analysis: Automation of calculations allows you to obtain more accurate and diagnostically reliable analysis results. This will help prevent and eliminate errors, and will also allow you to formulate conclusions and recommendations for more effective functioning of the company's finances.

The main tool for financial research, which ensures the implementation of automated processes, is software, represented by various software products (programs, packages). A wide range of such software products on the market has necessitated their systematization according to the following criteria:

1. Depending on the functionality of the program for financial analysis [1]:

1.1. General-purpose programs (universal programs):

STADIA is a universal statistical package, which is a set of methods for categorical, dispersion, correlation and spectral analysis, smoothing, filtering, forecasting, regression, discriminant, cluster and factor analysis, quality control and sequential analysis methods. It also includes analysis and replacement of missing data, as well as a full set of business and scientific graphics (functions, dependencies, maps, diagrams, etc.) [6];

STATGRAPHICS is a comprehensive desktop product for Windows desktops designed for statistical analysis, data visualization, and forecasting using more than 290 statistical operations, procedures, and special functions [7];

IBM SPSS is a statistical software platform with a set of functions necessary for the analysis of financial, statistical, and informational data, which is the property of the company. The results obtained are quite easy and understandable to visualize, so the program is universal for users of different levels. SPSS offers two programs: SPSS Statistics, which is based on a «top-down» approach, and SPSS Modeler, which uses a «bottom-up» analysis [8];

1.2. Professional programs:

SAS (Statistical Analysis System) provides functions that allow you to analyze spreadsheets, perform statistical analysis, make forecasts, provide access to data and report. This program includes quite a few built-in mathematical and financial functions, such as depreciation, compound interest, cash flow, hyperbolic functions, factorials, combinations and mechanisms [10].

1.3. Specialized programs:

MESOSAUR is a program used for time series analysis (smoothing, filtering, autocorrelation, cross-correlation, spectral, cross-spectral analysis), allows you to perform regression analysis, solve parametric and non-parametric problems [1, 11];

DATASCOPE is a statistical package that specializes in performing multivariate data analysis.

2. Depending on the country using the program [1]:

2.1. Used in foreign countries:

EViews (econometric views) is a statistical package that allows you to analyze econometric time series data, perform analysis, model and forecast data, and create regression models using the latest innovative and easy-to-use interface. The program is used for financial analysis, macroeconomic forecasting, modeling economic processes, forecasting market indicators, etc. [12];

Maple is a computer program capable of performing modeling and interactive visualization using built-in capabilities of modern mathematics (more than 5,000 functions), which can be used to analyze the results of calculations, formulas and tests.

2.2. Used in Ukraine:

Analytical software:

MS Excel: This program is one of the MS Office programs and is currently the most widely used program in Ukraine. It is used for financial analysis of domestic companies. The Ukrainian market presents both ready-made products developed in MS Excel, which can be used by companies if necessary, and MS Excel itself is often used by companies for their own calculations. This application is a spreadsheet processor with ready-made built-in formulas, is represented by a fairly powerful mathematical apparatus, and also allows you to create the necessary formulas for automatic calculation of table cells. Tables can be interconnected and are able to process large amounts of information using many indicators.

Google Sheets, Google Apps Script and Google Analytics are applications provided by Google, a free web-based software package designed for financial analysis. Google Sheets is a spreadsheet program that uses powerful financial analysis tools based on artificial intelligence technology, which allows you to get fairly accurate calculations and predict a balanced way to solve problems. Google Apps Script - you can use this program to create macros, which simplifies the process of financial calculations and automates the process of preparing and writing reports. Google

Analytics is a program designed to perform web analytics. Internet: analysis is based on Internet sites and mobile applications [3].

BAS is a line of programs that allow you to automatically perform a wide range of tasks related to enterprise management in various aspects. The main BAS programs are: Accounting, CORP Accounting, Integrated Enterprise Management, CORP Document Management, Small Business, Retail, Trade Management, Holding Management, ERP (financial management, including accounting for deposits and loans, acquiring (payment cards), flexible tools) for maintaining a payment calendar, expanded capabilities for managing current payments, application reconciliation routes, flexible tools for generating payment documents for future dates, inventory of cash registers and bank accounts, analytical reporting on cash flows, chart of accounts for international financial reporting, translation of operations into the IFRS subsystem, operational and regulatory accounting data, deferred display of account postings, creation of documents for regulatory operations, audit, financial report generator) [15].

M.E.Doc is a program that allows you to enter electronic document management (reports, contracts, tax invoices, acts, invoices and other documents). With this program, you create tax invoices, sign them with electronic digital signatures, register them in the Unified Register of Tax Invoices and return them from the register to counterparties.

Conclusions. Summing up the results of the study, it should be noted that today, due to the rapid development of digital technologies, the use of information technologies has entered a new stage of development. Important measures have already been taken in this direction, but the innovation process is always accompanied by problems and shortcomings that must be eliminated in a timely manner.

In my opinion, in order to establish the effective functioning of information technologies in the field of finance, it is necessary to: 1) create national information systems, platforms and technologies to reduce the share of foreign software; 2) organize and conduct internships for information technology developers; 3) conduct outreach work and organize training to inform the population about the benefits of using information technologies; 4) stimulate enterprises to use information technologies, including financial ones; 5) in small settlements where there is no Internet connection, especially expand the coverage of the Internet and promote the spread of information technologies to users.

Therefore, to establish the effective functioning of all spheres of life using digital technologies, it is necessary to find improved rules for legislative regulation and the use of information technologies in finance and to work on creating new methods of information technology management.

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