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APPLYING BUSINESS INTELLIGENCE TECHNIQUES IN THE PROCESS OF ECONOMIC ANALYSIS: STUDYING SOME OF ITS PROBLEMS AND TREND
ЗАСТОСУВАННЯ ТЕХНІКИ БІЗНЕС-АНАЛІТИКИ В ПРОЦЕСІ ЕКОНОМІЧНОГО АНАЛІЗУ: ДОСЛІДЖЕННЯ ДЕЯКИХ ЙОГО ПРОБЛЕМ І ТЕНДЕНЦІЙ

Summary. *Introduction. The globalization of economic flows, the ability to do business from anywhere in the world due to the instantaneous receipt of up-to-date information has a twofold structure. On the one hand, the availability of information allows you to quickly respond to emerging risks and makes it possible to conduct business in ways that are more efficient. On the other hand, public information increases the necessary level of competitiveness of companies. This research discusses the most important challenges that business intelligence (BI) technology operations may face, as they are important processes for effective economic activities within companies, in order to advance the information and economic society of those companies.*

Purpose. The aim of this research is to propose and present several methodologies and strategies that include the processes of organization and

analysis, using business intelligence techniques, which companies should pay most attention to.

Materials and methods. The methodology used in this research is the use of several types of analysis, such as comparative and logical analysis, in addition to the use of measurement methods represented in research methods based on the experience of developed countries.

Results. As for the results, it was represented in proposing a scheme that represents the cost in order to include analytical solutions for business in the process of economic analysis of newly established companies, and at the same time, it can be considered an ideal model in the process of calculating the costs of that company.

Discussion. It is impossible to exclude, as the analysis showed, the strategy of outsourcing in the studied area. The foregoing actualizes the need for further development of prospects and practice of using BI as a tool for managing various processes of economic analysis in modern business, including taking into account advanced foreign experience.

Key words: *business intelligence, business analysis, analysis of economic activity, BI-analysis, financial resources, measurement method, economic information, integration, economic analysis.*

Анотація. *Вступ. Глобалізація економічних потоків і можливість ведення бізнесу з будь-якої точки світу завдяки миттєвому отриманню актуальної інформації мають двояку структуру. З одного боку, доступність інформації дозволяє швидко реагувати на нові ризики та дає можливість вести бізнес більш ефективними способами. З іншого боку, загальнодоступна інформація підвищує необхідний рівень конкурентоспроможності компаній. У цьому дослідженні розглядаються найважливіші виклики, з якими можуть зіткнутися операції технологій бізнес-аналітики (БА), оскільки вони є важливими процесами для*

ефективної економічної діяльності компаній, з метою просування інформаційного та економічного суспільства цих компаній.

Мета. Мета даного дослідження полягає запропонувати та представити кілька методологій і стратегій, що включають процеси організації та аналізу з використанням техніки бізнес-аналітики, на які компанії повинні звертати найбільшу увагу.

Матеріали і методи. Методологія, використана в даному дослідженні, передбачає застосування кількох видів аналізу, таких як порівняльний і логічний аналіз, а також використання методів вимірювання, що представлені в дослідницьких методах, заснованих на досвіді розвинених країн.

Результати. Результати були представлені у вигляді схеми, яка відображає витрати з метою включення аналітичних рішень для бізнесу в процес економічного аналізу новостворених компаній. Водночас цю схему можна вважати ідеальною моделлю в процесі розрахунку витрат для такої компанії.

Перспективи. Як показав аналіз, неможливо виключити стратегію аутсорсингу в досліджуваній сфері. Це підкреслює актуальність подальшого розвитку перспектив і практики використання бізнес-аналітики (БА) як інструменту для управління різними процесами економічного аналізу в сучасному бізнесі, зокрема з урахуванням передового зарубіжного досвіду.

Ключові слова: *бізнес-аналітика, бізнес-аналіз, аналіз економічної діяльності, BI-аналіз, фінансові ресурси, метод вимірювання, економічна інформація, інтеграція, економічний аналіз*

Introduction. The globalization of economic flows, the ability to do business from anywhere in the world due to the instantaneous receipt of up-to-date information has a twofold structure. On the one hand, the availability of

information allows you to quickly respond to emerging risks and makes it possible to conduct business in ways that are more efficient. On the other hand, public information increases the necessary level of competitiveness of companies. Modern business cannot be efficient only if there is one effective structure in the company. The global trend of increasing the level of knowledge of the company's employees leaves the narrowly focused competence of specialists in the past. Modern top and middle managers are faced with the task of being as integrated as possible into the economic processes of their company, not only within the framework of one department or department. The need for quick decision-making, taking into account risks that are not directly rselated to a particular problem, but which have a certain weight in solving it, requires a very accurate, multifunctional, high-speed system that can rebuild under the influence of new tasks.

Today, the development of systems for the accumulation, storage and computer processing of information creates a very extensive base, which serves as a catalyst for the development of new methods and tools for searching, making decisions in the implementation of economic analysis. One of these tools is business intelligence, systems, and solutions created on its basis. In this regard, at the beginning of the 21st century, the introduction of business intelligence systems, (BI,) into economic activity has become a hot topic for many companies in the world market. In addition, the international practice of developing economic analysis based on business intelligence can be used to develop even more effective information support systems for economic analysis in modern conditions.

Purpose. The purpose of this study is to organize and analyze aspects of international practice, where the use of business intelligence is longer, and which local organizations and institutions of various types should pay special attention during the implementation of a business intelligence project.

Materials and methods. The problem studied in the work has a close connection, first, with the basics of information theory, the theory of business analysis and the theory of economic analysis of economic activity.

Organizations the theoretical and methodological basis of the research conducted in this article is the development of domestic and foreign authors on:

1) the problem of introducing modern information technologies, including business intelligence systems in various areas of activity of organizations;

2) Problems associated with the implementation of BI-systems in the development of the analysis of economic activities of organizations;

3) on the use of practical experience in adapting information systems in order to increase efficiency and develop business analysis in the current national and industry conditions in various countries of the world, incl. in European countries, USA.

Comparative, structural, historical, logical and system analysis and synthesis, analysis of secondary data, generalization and interpretation, measurement, analogy method were used as research methods.

As part of the study, the study of the practice of foreign companies operating in Europe, North and South America in the field of banking services, insurance, the aviation sector, restaurant business, trade, etc. was carried out. (Southwest Airlines, Transamerica, Zurich Insurance, debit card issuer Cartao Elo, Western Union, Experian credit bureau, restaurant chains Hardee's, Friday's, etc.), which formed the empirical basis of the study. The analysis of secondary data was carried out on the basis of systematized materials and "cases" published in international and domestic studies of leading analytical agencies (Forrester Research, Business Application Research Center, The Data Warehousing Institute, TAdvisor, RBC, etc.) and specialized publications (Information Week, IBM Journal, MIT Sloan Management Review, "Expert", etc.), which acted as the information base of the study.

Search overview and problem formulation. The genesis of the methodology of strategic management, economic analysis, information systems and technologies is complementary. As Berdney rightly emphasizes in his works, modern information technologies are designed to provide business leaders with the opportunity to move from the traditional historical approach in the analysis and forecasting of development to a strategic approach [12]. However, at the same time, a large number and variability of information technologies of the strategic, tactical and operational levels of management, as Kolozhvari points out, give rise to contradictions not only in the process of analyzing and making managerial decisions, but also in the field of formation, storage, and initiation of information resources [13]. This contributes to the emergence of problems with the timely identification of the necessary array of information, its correct processing and comparability of analytical indicators, which in turn makes it difficult to make adequate management decisions due to time constraints. In this regard, an increasing role in analytical decision support in systems management of business efficiency acquire methods and tools of business intelligence.

The term "business intelligence" was proposed by an American researcher, an expert in the field of information sciences, Bill Schmarzo [13]. BI received further meaningful development only in the late 1980s and early 1990s. In the works of Tim Harford, who presented its broad interpretation as "an umbrella term for various technologies aimed at decision support" [14]. This served as a starting point for discussions about the content of the definition under study, initiating the development of the methodology and practice of applying BI. Since the mid-1990s. BI has become an area of study for various international institutions and research organizations. Today, the field of BI is actively studied by foreign specialists Foster Provost & Tom Fawcett, etc. [15].

The significance of the studies of the above authors is beyond doubt. However, today there is a need to comprehend the category of business intelligence as at the same time an important modern economic, informational and

organizational-technical category in relation to other key concepts in the system of economic activity. In addition, taking into account the further development of scientific and technological progress, business intelligence as a technology requires continuous research, taking into account the specifics of its application in various fields of activity. This article makes a certain contribution to the development of this problem in relation to the economic sphere of activity and the field of economic analysis.

Letrireture review:

1) (Muhammad, Jamaludin, Zeeshan & Waqas, 2014): "Business Intelligence as a Knowledge Management Tool in" Providing Financial Consultancy Services.

This study aimed to crystallize the way in which business intelligence can help as a knowledge management tool.

Financial consultants in providing professional services to the financial sector. Where business intelligence systems can represent a competitive advantage for consultants if they are able to employ and use business intelligence tools such as data warehouse, data mining process, related analytical processing, and the process of reading, transforming and writing data. The researchers pointed out that the consultants are able to use business intelligence systems to analyze organizational data, such as data of establishments and commercial operations of the financial institution, through the analysis of organizational data. The financial institution is also able to achieve a better transition and coordination of functional competencies, not to support sales and marketing strategies and development.

Not only better for the customer service program, but also to reduce the size of risks through the development of the most appropriate risk management procedures. In short, by having this competitive advantage, the consultant will be able to survive in a market that is in a state of constant flux. The study concluded that business intelligence systems play their role as a tool for knowledge

management and to provide benefit to the financial sector, which is always characterized in the market by fast pace and huge volume of data.

Moreover, in extracting hidden patterns and valuable information from the Internet, where business intelligence plays a role, or external data sources that help consultants to do their work better.

2) A study (Abu Dayyah, 2011) entitled "The Reality of Human Capital and CompetitiveAdvantage: A Field Study on Palestinian Universities in the Hebron and Bethlehem Governorates from the Academic Staff's Point of View".

The study aimed to identify the reality of human capital and the competitive advantage in universities Palestinian Palestine in the governorates of Hebron and Bethlehem, from the point of view of the academic body.

The researcher used the descriptive analytical method to reach the results of the study, and the questionnaire was used. As a data collection tool, the study population may consist of all academic and administrative staff in (Male and female employees. Universities in the Hebron and Bethlehem governorates, whose number is).

The study reached several results, the most important of which are: The high level of efficiency of academics.

3) A study (Al-Abadi, 2013) entitled "The Impact of Information Technology on Human Capital / Study An exploratory study in the General Company for the Industry of Medicines and Medical Supplies in Nineveh Governorate the study sought to determine the impact of information technology on human capital a reconnaissance for the General Company for the manufacture of medicines and medical supplies / Nineveh. She explained that interesting The management of the company with information technology and human capital contributed to the possibility of providing products that meet the needs And the desires of customers, and at the same time allows the company to stand in front of competing companies and stay ahead of the competition Accordingly, the need

to study information technology and a relationship statement has increased business world, depending.

The connection and influence between them and the human capital in order to enhance the company's competitive position. Moreover, he arrived the researcher indicated that there is a correlation and a significant impact of information technology on human capital.

As the study recommended the need to increase the interest of the company in question in the element of information and processing it, as well the matter is for human capital by expanding relations with universities and institutes to organize courses Seminars and scientific conferences in both fields (information technology and human capital) with the aim of constantly improving it. In universities in their work, the ability to keep up with work and the achievements of its members the faculty helps them to raise their level of creativity and innovation, and the universities provide their members with the teaching staff are tools that help them carry out their work, and try to attract faculty members.

Competent people and is interested in developing their skills and developing their professional competence, and universities are also interested in this advantage Competitiveness, as the libraries are technologically good, and postgraduate students are selected According to effective scientific standards and foundations, and there is interest in scientific research to serve the community, in addition to Application of accreditation and quality systems.

4) Study (Arendsen1 & Wittberg, Lennart 2019):

The study aimed to find a good honeycomb model for the Zukhaib administration, as a result. The environment of the gastropods, the change in the thickness of the particle pushers, and the solution of the social and morphological challenges required to limit the effectiveness of zygomatic management, the study showed that blindness The administrations of the zahabs are now in the incline of time, but the hours have changed since time My child does not want to explain it on the basis of each case on an argument, as the basis of these systems.

Dismissing and dismissing brothers and dealing with insults and rudeness, and I was appointe the study of the role of the formation of sorbents in changing the current bee pattern of molasses and kohl He is cuddling in the Harj al-Sajta'a al-Zukhaybi, in the neighborhood of Qum Masa, and the mosque of al-Tikhib.Y.

5) A Case Study of Business (2017): AiTawi and AlMurad: Intelligence in the Iraqi Environment: Case Study at the Mobile Telecommunications Company (Cork).

This study aimed to shed light on the phenomenon of business intelligence and its capabilities and contents With the aim of building a contemporary model, the model was tested in the Mobile Telecommunications Company, Cork From the Korek Telecom Company The Iraqi city of Kirkuk, and the study sample consisted of (25) individuals Work on a number of tools in order to verify hypotheses in the light of analytical data and information it was collected and analyzed through the statistical analysis program (SPSS), and the study concluded that:

A group of results, the most important of which is the existence of a discrepancy in the level of availability of business intelligence, in terms of its ability organization in the researched company, and the study concluded with a set of recommendations, the most important of which is increasing attention by promoting business intelligence strategy because of its role in developing the researched company.

6) Social Media Based on a Study Titled: (2018) Fakhri and Younis Business Intelligence Capabilities: "Relationship and Impact.

This study aimed to shed light on two contemporary phenomena, which are business intelligence and what it includes Contents, media, and social media, and the study community consisted of the Mobile Telecommunications Company and the analysis software was used Zain Telecom in the city of Kirkuk, and the sample size was (35) individuals statistical data (SPSS) in analyzing the data, and the study concluded a set of results, the most important of which is the presence A

correlation relationship between the capabilities of business intelligence in terms of its organizational and technical capabilities and social media, and concluded.

The study led to a set of recommendations, the most important of which is the need for the company's management to seriously discuss the situation Ideas related to raising the level of business intelligence and its ability.

7) Study: The Impact of Strategic Titled (2020) Al-henzab, Gauod Agility in Crisis Management Readiness at the Qatar Airways.

This study aimed to measure and analyze the impact of strategic agility in preparedness for crisis management in Qatar Airways, where the study population consists of employees working in senior management,

The comprehensive survey method was used in the study, while the descriptive method was used Analytical, and the questionnaire was used as a tool to collect data from the study sample, which consisted of (53) The respondents were employed, and the statistical analysis program (SPSS) was used to analyze the data, and the study concluded that:

A group of results, the most important of which is the presence of a statistically significant effect of strategic agility with its combined dimensions in preparing for crisis management in Qatar Airways, the study concluded with a set of recommendations one of the most important is the need for Qatar Airways to adopt the concept of crisis management.

8) Study by Al-Jumaili, Al-Jabori (2019) Entitled: Business Intelligence and its Role in Achieving Excellence Organizational "An Exploratory Study of the Opinions of a Sample of Principals at the University of Kirkuk".

This study aimed to identify the relationship of business intelligence represented by its dimensions (data warehouses, Data mining, data operations, real-time data processing, information display techniques) in Achieving organizational excellence at the University of Kirkuk, and the research followed the descriptive analytical approach, through A questionnaire was designed for this purpose, and (40) questionnaires were distributed to managers working in the

Kirkuk University, and the statistical analysis program (SPSS) was used to analyze the data.

The study led to a set of results, the most important of which is that there is a strong and significant correlation between intelligence variables Business and the organizational excellence variable, and the study concluded with a set of recommendations, the most important of which is necessity The university management defines the goals of business intelligence accurately and future directions, in a way that contributes to achieving organizational excellence.

9) Sweiss and Abedin (2019) study (titled: The role of business intelligence systems in building organizational dexterity by applying it to banks operating in Palestine).

The research aimed to identify the role of business intelligence systems in building organizational dexterity in banks working in Palestine, and the study population consisted of workers in (Bank of Palestine, Cairo Amman Bank, the Bank The Arab Islamic Bank, the Palestinian Islamic Bank), and the study sample consisted of (120), and it was followed Recommendations, the most important of which is the need to pay attention to the work of continuous training courses in order to increase the awareness of employees in Banks to achieve more benefits of using business intelligence systems

The analytical descriptive method, the study tool was the questionnaire, and the statistical analysis program was used (SPSS) in analyzing the data, and the study concluded a set of results, the most important of which is the existence of a relationship direct relationship between the components of business intelligence systems and building organizational dexterity.

10) A collective of Ukrainian authors K. Bezverkhyi, L. Hnylytska, O. Yurchenko, & N. Poddubna, 2023 are researching analytical procedures for auditing integrated reporting of corporate enterprises.

11) Nazarova K. and others, 2021 conduct risk analysis of company activities based on non-financial and financial reports.

12) Shygun M. and others, 2023 analyze the presentation of financial information in digital formats as a basis for the analysis and audit of business activities of enterprises.

Study of the possibilities of applying foreign experience in integrating BI into the system of economic analysis of Jordanian economic entities

Analytical research by Forrester Research (USA) testifies to the fact that business intelligence technology continues to occupy a leading position in the lists of business information solutions that foreign companies acquired or upgraded in 2018 [19] It should be noted that a few years earlier this trend occupied only the fifth place in the rank of priorities of modern companies [20].

It should be noted that today too many companies are still considering business intelligence (for example, DSS / EIS – Execution Information Systems, Decision Support Systems, enterprise management information systems that are focused on unprepared users and full-featured data analysis and research systems designed for trained users) as an internal function. In jordan, the application of business intelligence technology is also showing rapid growth. However, it should be emphasized that a significant problem in this area was the fact that for many years increasing the efficiency of introducing BI systems into economic analysis in many cases was solved in Jordanian practice by attracting foreign firms to work on the development of corporate systems, the use of complex software solutions or copy methodology. Moreover, although in the last two years, activity in this area has begun to decline, this trend is still evident. Some companies that implemented their projects using full reliance on foreign methodology did not get the expected results and came to the need to develop a methodology on their own. Therefore, speaking about the possibilities of adapting foreign practice in the area under study, one should first pay attention to the fact that when evaluating the effectiveness of applying a foreign practical basis, it is necessary to take into account the existing differences in the world experience in using business intelligence solutions and in Jordanian practice. They are associated with

significantly different national legislative requirements in both the economic, financial and information areas, which makes it difficult to introduce standard tools. Given this aspect, when choosing not complex, but specialized BI solutions (which often take into account such features to a lesser extent, while remaining open to adaptation), it would be more expedient for Jordanian companies to initially focus on domestic products (for example, for analysis and cash flow forecasting, budgeting, financial control), which allow making quick and balanced local decisions based on an economic analysis in an environment where cost reduction and an increase in the efficiency of the company's activities come to the fore, adapting and developing the methodology embedded in them independently.

It should be noted that, despite the significant progress of foreign companies in the field of introducing business intelligence systems in the field of economic analysis, and their experience indicates that today it is impossible to formulate standard recommendations or a methodology for building a corporate BI system, since this task also requires significant organizational changes in each individual company, not only depending on its economic specifics, but also on the type. Organizations that are attempting to gain an enterprise-wide view of their data should start by developing an implementation strategy (or extending existing components to the level) of an enterprise BI system and its design that reflects the contributions of both business and IT professionals. It also requires a continuous and systematic methodological approach and a long-term strategy. Attempts to immediately create a corporate BI system in any organization, even the largest and most experienced in the operation of BI systems in the field of economic analysis, are doomed to failure.

According to [19], today it is also impossible to talk about the existence of a single correct practice for the implementation of BI tools. Usually, business people interested in achieving their goals initiate implementation, and information about the project is brought to the attention of management when the solution

created by the user is very important for the company, and difficult to maintain and manage. Another option is also possible – when the IT department initiates the implementation in order to reduce its own load. Both approaches can be considered appropriate if all key business units, data scientists, economists and other stakeholders are involved in its implementation, and not just top management, the working group and the information technology department.

The rapid growth of Internet technologies provides a proliferation of user interaction environment with software solutions, bringing everything together to create a rich environment for business analysis. The advantage of BI lies in the fact that this technology extracts information from many other systems, allowing the organization to derive economic benefits from the processing and analysis of so-called "big data". This circumstance poses another important methodological challenge for modern organizations. For the effective implementation of the organization's BI implementation project, as evidenced by foreign experience, at least one expert is needed who will deal with both structured and semi-structured data for economic analysis in conditions of their large volume. Relevant research data [20] demonstrate that it is semi-structured data that is extremely important for improving performance and creating new business opportunities. In 2015-2017 about 35-45% of the time of business analysts and management was spent on attempts to manage semi-structured data (both with their own efforts and with the involvement of IT specialists in this activity), compared with 25% in 2013-2014, which indicates about a significant increase in their volumes. However, these attempts, according to the same analytical studies above, still cannot be considered effective. Meanwhile, it should be emphasized that, according to experts [21], more than 85% of all commercial information used as data for economic analysis today belongs to the category of semi-structured data.

Numerous semi-structured data in Russian companies are still little used in business analysis, especially when using information tools and technologies. Their processing for the purposes of economic analysis is often carried out

manually by specialists. Therefore, the management of semi-structured data and the development of methodology in this area remains one of the main unsolved problems in the field under study, despite the active efforts of developers to create more complex software BI solutions and other information products. The development of this problem should be carried out in close cooperation with both specialists in information and mathematics, as well as in the economic field, practitioners, meteorologists and scientific organizations.

Another trend should also be noted. So, until recently, business intelligence technologies and the systems created on their basis, implemented in economic analysis, worked on the so-called transaction data, periodically making "snapshots" of data in the accounting system at certain times of the day or week, then carrying out their consistent economic analysis, trend visualization, forecasting, etc. However, in the current highly competitive economic environment, business entities are trying to achieve more efficient operational decision-making (as opposed to strategic and tactical ones), which requires more timely analysis of integrated data. For example, restaurant managers need to look at revenues from yesterday rather than last month, compare facility performance on the same day last year, at other branches and outlets, and so on. To support such operational decision-making, BI systems are gradually transforming in their characteristics into transaction ones. Development teams use "active stores", "live data warehouses" and middleware (including using enterprise application integration and Web services) to collect near-real-time data and get that data to business users as quickly as possible. Firms often provide "business dashboards" in near real time so that users can track the status of a process or event by watching the counters and scales on the dashboard change. It is recommended that organizations pay special attention to these parameters of BI software products and solutions in modern conditions.

All of the above aspects can be characterized as a kind of "internal" trends in the introduction of business intelligence technology in economic analysis. In

addition to them, other aspects should be considered, including general economic parameters. In this regard, the ratio of the price of BI solutions and the continuous growth of data volumes remains of particular importance for companies today. Prices of hardware and software in the field of BI due to the variability of tools and the rapid growth of the market for business intelligence technologies and information technology in general are currently declining, but ensuring data quality requires additional investment. We emphasize once again that, speaking of the negative aspects of savings in the field of data quality assurance for economic analysis, we do not automatically extrapolate this thesis to the entire area of implementation of BI in the field of economic analysis of economic activities of organizations, where the issue of cost optimization, especially in conditions, remains one from priority.

Cost tree for integrating BI solutions into the economic analysis of the economic activities of modern organizations

Based on foreign studies [8; 10; 11; 12] and Jordanian sources [1-7], Let us formulate the content and structure of the cost tree for the area of interest, which can be considered as a typical source for a more specific calculation of costs and a reference point for their further expansion, taking into account the characteristics of the activities of an individual company and its industry specifics (Fig. 1).

It should be emphasized once again that now a significant number of Russian companies continue to use certain parts of business analysis systems in the economic analysis of economic activity, however, such systems are rare in their full form [21]. To simplify the consideration of the cost of this system, consider the cost tree in relation to a company implementing a BI integration project from the zero stage.

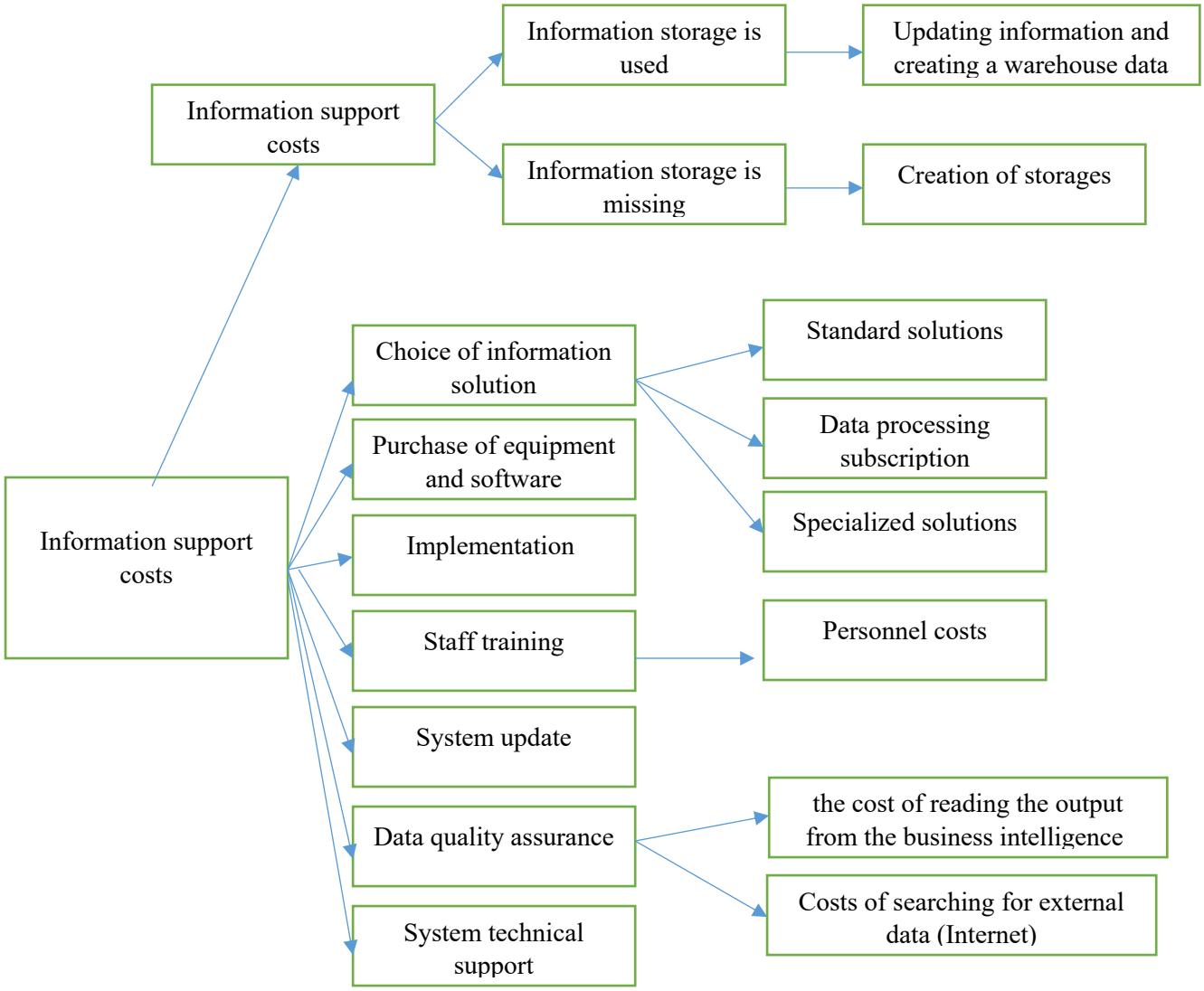

Fig. 1. Cost tree for integrating BI solutions into the economic analysis of the economic activity of modern organizations

For such a company, the list of main cost areas for implementing a BI solution in the economic analysis of the organization's economic activity will include the following categories:

- Hardware costs, which depend on what storage capabilities the organization already has to store the data to be analyzed. If a company is already using an information data warehouse, then the main costs can be attributed to the development and implementation of a data mart specialized for business analysis tasks in the company and, possibly, updating the information data warehouse

(depending on the quality of the data). Such costs can range from $3,000 to $10,000;

- Software costs. The cost of standard packages of systems and platforms for business analysis of a corporate plan can reach 40-50 thousand US dollars. More narrow and less large-scale solutions differ in less significant cost (3-5 thousand US dollars). It is also necessary to take into account the costs of subscriptions to various data services (which is often overlooked by organizations), license renewal (which is also not always included in the cost of a corporate package). For example, a company operating in the retail industry subscribes to a data scan to determine how demand for its products and competitors' products responds to special offers, various innovations and other daily market changes, etc.;

- Implementation costs. After the purchase of hardware and software, the company will need to invest a significant amount in the implementation process, which also includes initial training. Staff training will also require constant costs. You also need to consider the cost of updating the BI system. In addition, you need to take into account the fact that annual maintenance contracts for BI software, as a rule, amount to about 15% of the cost of the system itself;

- the costs of personnel responsible for performing economic and analytical calculations using BI technology and information technology support employees should be fully taken into account, as well as wages, overheads, expenses for premises, computer equipment and other infrastructure for employees. Such costs can vary between 5-80 thousand US dollars, depending on the size of the company and the scale of the project being implemented.

Sophisticated cost analysis must also consider the cost of time spent reading output from BI and time spent searching the web and other sources for BI. The data of foreign experts indicate that the project of introducing BI into economic analysis may require investments of about 200 thousand US dollars only in the first year [19] (in this case, we are not talking about budget standard solutions,

such as Qlik Sense and QlikView). Thus, it is obvious that a company that decides to start implementing BI technologies in the area we are studying will face significant financial costs, which are both one-time and long-term.

According to a study by BARC (Business Application Research Center), 31% of BI implementations do not fully solve their tasks because companies initially incorrectly determine the goals for which the project is specifically aimed. Meanwhile, it is from them, and the complexity of the technology or product, that the timing and cost of the project depend. The minimum cost of a project for collecting, storing, analyzing and publishing data for the same small business, with clearly defined tasks, may initially be much lower than expected. For example, about 150 thousand rubles for 5 jobs (while allowing independent implementation). In this regard, for medium and small companies, an implementation project should begin with the definition of several key tasks. The main thing is to get a tangible result in a few months and then move on, increasing the functionality of the implemented systems.

A significant number of companies around the world in various industries have been taking advantage of BI technology for many years, deriving millions of dollars in profit from it. For example, Southwest Airlines in 2018 increased its revenue by $50 million while reducing costs by more than $35 million by implementing only three of the 30 applications that were part of an enterprise BI product, one of which was related to analytical processing of "big data" [22]. Life insurance and asset management group Transamerica was able to save more than $10 million in cost savings and additional profits as a result of the introduction of an enterprise BI project into economic analysis during the first year, and by the second year of development, a return of over $80 million was predicted. US dollars [19]. No less significant results were achieved by Zurich Insurance [22]. Of course, not every BI solution brings a high payback. However, one cannot but admit that foreign practice shows that most companies manage to achieve success in this area, even if they started with failures. Therefore, in a survey conducted

during the last TDWI (The Data Warehousing Institute) conference, it was found that only 18% of protracted projects were canceled. The rest got a second chance – after the reorganization with the involvement of other investors, project managers, consultants, or as a result of a change in the level of funding [23].

Speaking about the relevance of introducing business intelligence technologies for any business entity in the current economic conditions of the development of the digital economy, it should be noted that the introduction of a full-fledged system of this type at the corporate level, of course, is not within the power of every company. In this regard, we should dwell on the issue of outsourcing in the context of the problem under study. We emphasize the fact that, according to IDC analysts [23], in the next 2-3 years in the world practice, a number of factors will contribute to the further growth of the market for outsourcing BI services in business analysis. This forecast is associated with a situation in which, firstly, there is a shortage of qualified specialists who are required to implement BI initiatives in economic analysis, including mathematicians, directly business analysts, data model specialists, statisticians and researchers of various profile. On the other hand, the development of new technologies and the tight integration of BI with social networks and mobile platforms are making BI tools increasingly accessible to a wide range of business intelligence end users. However, it is still extremely difficult for end users, especially small and medium-sized business entities, to organize implementation teams in the absence of their own IT department or its low qualification, or the inability to evaluate it, and the costs of the necessary infrastructure of BI systems are often too high for this category of customers. Therefore, it is obvious that in such conditions the relevance of the development of outsourcing services remains, although their cost for the same small and medium business entities, especially in domestic conditions (as opposed to foreign practice), can be quite high, which, in turn, contributes to the growth of the latter's interest in standard BI solutions.

To avoid an increase in the cost of the project, it is necessary to correctly assess the scope of implementation. In practice, it is not uncommon for a system to be initially implemented with the expectation of 10-20 users, but it turns out that no more than 2-5 employees of the financial service use it. In order to reduce financial costs, it may also be expedient for a company to gradually deploy a BI project, while each three-four-month step, according to foreign experts (D. Wells et al.) [19], should bring some benefit to the business. For example, a BI project for a VP of Sales will initially be a desktop system for an executive to track revenue and rewards by salesperson and product. At the next step, this information will become available to ordinary distributors (sellers) through the Web interface in the corporate network. At the third stage, the data of departments and customers are included in the system. This "slow" incremental approach not only reassures managers that their project vision will be achieved, but also optimizes integration costs.

It is extremely important to take into account the intangible nature of the effect of the introduction of BI systems, which makes it difficult to evaluate it in money terms. Virtually every enterprise level application (ERP – Enterprise Resource Planning or BI) brings quality effects to management. For example, if an analytical system is used to make managerial decisions, then it is extremely difficult to say how many such decisions were made correctly and in a timely manner thanks to this system and how many of them could not have been made without it. As a result, the calculation of ROI (return on investment) in the area we are studying, rather, can act as an additional, but not the main argument when introducing a BI system into economic analysis.

From the standpoint of ROI assessment, it is possible to systematize a number of principles, without which the calculation will be incorrect. The first of these is that the calculation of ROI is unique to each company and each solution. Theoretically, you can try to compare different BI projects in different companies based on some average indicator and compare your results with it. If it is known

that a certain company has implemented a certain solution and this one differs slightly from ours in terms of business processes and scope of activities, then, taking their ROI as a starting point, one can potentially try to determine how successful the project will be. However, since this information is almost never disclosed, the accuracy of such a calculation will be in question. The second principle is that monetary "equivalent" (predictive value) can be used to determine qualitative effects (in addition to quantitative ones), but this is also often difficult to implement in practice. Income from implementation is estimated with the maximum degree of conservatism. For example, the reduction in costs for reporting functions should be calculated based on the minimum values of labor costs. The third principle is to determine the criteria on the basis of which the evaluation of the effectiveness of investments will be carried out (reducing labor costs for preparing and consolidating reports; releasing the time of business users that they spent on searching for information after data consolidation; reducing the time needed for a top manager to evaluate efficiency activities of various structural divisions, etc.).

Practice shows that the payback period is on average 3 years, the first of which is the period of initial investment. If the BI system implementation project involves a small number of users, then it's payback period can be significantly reduced (up to 1.5 years). To obtain the greatest effect, it is necessary to apply BI at all levels of management: from middle managers and leading specialists to company management. In this case, the effect of use at each level of management will be aggregated and eventually give real results.

Suggesting some strategic approaches to applying business intelligence analysis in the practical activities of a modern Jordanian organization

Considering the economic value of business intelligence for the economic analysis of the economic activity of a modern organization, special attention should be paid to the connection of BI with the business mission and visionary of the organization, as well as the role of the head of the organization. In many

foreign companies, entire departments are being created in this area, the activities of which include, among other things, monitoring the effectiveness of the implementation and use of information technologies as tools to improve the quality of managerial decision-making.

Foreign experience shows that BI can be effectively applied in the economic analysis of an organization, subject to the following key conditions:

1) The presence of leadership in the company;

2) The absence of motivating obstacles for the manifestation of initiative, professional and organizational growth of specialists;

3) Training and advanced training of at least a minimum number of specialists – the main personnel for the development and implementation of the implementation project and the implementation of the direct process of economic analysis using BI capabilities;

4) the availability of a methodology for retaining and developing talented and professional specialists and managers [19].

In the context of these conditions, we would like to draw special attention to the third point. Whichever option for the development and implementation of the project for introducing BI into the economic analysis of economic activity (independent in-house efforts, full outsourcing or joint work with an external firm) is chosen by the organization, for the further effective process of implementing business analysis in the company, persons with the necessary both economic and information competence, which can be assigned the roles of experts and analysts. Meanwhile, an expert, a hypothesis and an analyst constitute a model for the implementation of the economic analysis process, carried out using an information-analytical approach.

An expert in the framework of the designated model is a specialist in the subject area (in our case, economic analysis), a professional who, over the years of training, advanced training and practical activities, has learned to effectively solve problems related to the subject area of business analysis. The expert is a key

figure in the process of economic analysis. In practice, truly effective solutions in the field of economic analysis cannot be obtained solely based on the use of certain information technologies and tools, regardless of their degree of innovation, but solely because of a combination of human and information resources that carry out analytical activities. The main tasks of an expert (who can be both a middle manager and an analyst of a higher level than ordinary personnel implementing this activity in the organization) include putting forward hypotheses (assumptions), to verify the reliability of which he either looks through some samples using various methods, methods and means, or builds certain models [13]. For example, a hypothesis in data analysis when building a sales forecast may be the assumption that the value of future sales is significantly affected by sales results for previous periods and stock balances.

In foreign practice, the staff of the company, as a rule, has several experts (at least one), as well as several analysts. The latter are specialists in the field of economic analysis and modeling, having a sufficient (higher or equal level with an expert) level of relevant technologies, tools and software, for example, deep analysis methods in BI. In addition, the functions of an analyst, who must have system knowledge, include systematization of data, polling experts' opinions, in some cases, coordination of the actions of all project participants in data analysis (if this is not the task of an individual specialist). He collects various hypotheses put forward by experts, determines data requirements (together with IT specialists), performs hypothesis testing, and analyzes the results with experts.

Thus, the analyst acts as a link between specialists of various levels and areas in a company implementing a project to integrate BI into the economic analysis of business activities. Very often in modern companies, especially Jordanian, as our practical observations show, the above issue is not given the necessary attention and the roles of an expert and an analyst that we have identified are combined, which is methodologically incorrect, causing natural problems and errors in constructing an economic analysis procedure using

information tools and negatively affecting the quality of its results. Therefore, this problem requires further methodological development and practical testing both at the general level and within the framework of the activities of individual economic entities in Jordanian practice.

The results and Discussion. In this paper, the author also substantiates the need to take into account the aspect of data quality control and ensure their transparency in the course of preparing for the implementation of the project for introducing BI into economic analysis, considers the strategy of role identification of specialists in the implementation of economic analysis using BI, and identifies the features of accounting for the management of semi-structured data in economic analysis. In the context of integration with BI as one of the main unsolved problems in the researched area.

Where the results of this study agreed with the results of the two studies: AlMurad, Najla AND AiTawi, Ehab, 2017. and Younis, Najla and Fakhri, Ehab, 2018.

The recommendations. As for the recommendations, it was represented in the need to determine the material and immaterial nature of these companies during the introduction of business intelligence technology, in addition to the need to define the roles of specialists during the implementation of economic analytical processes related to business intelligence technology**.**

Scientific addition:

From the foregoing, we see that the scientific addition lies in:

- in the analysis of a number of topical problems and trends in integrating BI into the economic analysis of modern enterprises، expanding the applied potential and the effectiveness of the use of information technologies in the field of economic analysis through the study of foreign practice in the development of economic analysis based on the use of business intelligence systems and the implementation of relevant projects;

- in determining the content and structure of the cost tree for the desired area, which can be considered as a typical source for calculating costs and a reference point for their further expansion, taking into account the specifics of the activities of a particular company and its industry specifics, defragmenting the specifics of costs in the case of the introduction of corporate and simple solutions in areas of BI, defining general practical recommendations for various business entities, including the segment of small and business in order to save financial resources.

Conclusion. Continuous improvement, development of business intelligence systems and related solutions to the system level in economic analysis make it possible, both comprehensively and step by step, with equal efficiency, to integrate, based on the results obtained, the development strategy of modern companies with key processes and tasks of operational activities. It is impossible to exclude, as the analysis showed, the strategy of outsourcing in the studied area. The foregoing actualizes the need for further development of prospects and practice of using BI as a tool for managing various processes of economic analysis in modern business, including taking into account advanced foreign experience.

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