

Knowledge and business



Economics and computer science

A scientific journal

Volume: 2022, Issue: 2



Publishing house „Knowledge and business“ Varna

ECONOMICS AND COMPUTER SCIENCE

A scientific journal

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©SCIENTIFIC JOURNAL ECONOMICS AND COMPUTER SCIENCE

Volume: 2022, Issue: 2

ISSN 2367-7791, Varna, Bulgaria

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Sincerely: Prof. Dr. Sc. Petko Iliev

An approach to big data analytics in construction industry

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Abstract. Construction is often considered to be a slow-changing industry. However, construction companies are already collecting vast amounts of data that they can use in a meaningful way to keep up with growing customer demands for complex, fast projects. Now more than ever, companies need to find new ways to structure and analyze data to improve productivity and overall performance, as well as differentiate themselves in the marketplace. The study aims to present the different types of big data, specific to the field of construction, and to develop an approach for performing big data analytics within the construction organizations. It is based on the research of existing specific approaches to the analysis of different types of big data in construction. The proposed approach can be used as a reliable analytical process that can be improved and adapted to the specifics of each construction company. The study is part of Project BG05M2OP001-1.002-0002-C02 "Digitalization of Economy in a Big Data Environment".

Key words: big data, analytics, construction, approach.

Received: 04.11.2022

Revised: 07.11.2022

Accepted: 08.11.2022

Published: 30.12.2022

1. Introduction

Technology is rapidly changing the world we live and work in. Robotic systems, software and new technologies replace manual processes, human labour and outdated machines, leading to the transformation of entire industries (Sulova, 2021; Aleksandrova, 2021; Mileva, Petrov, Yankov, Vasilev, Petrova, 2021), one of which is construction. More and more companies in the sector are looking to adopt a comprehensive digital vision and strategy to increase productivity and achieve the goals set. One of the approaches that companies can use to meet changing customer requirements and solve many of their problems is data and its analysis – using computers and algorithms to extract patterns and trends from big data sets (Nacheva and Sulova, 2021). These practices assist companies in making faster and more informed strategic decisions that stimulate their better overall performance and successful positioning in an environment of increasing demand and competition.

An essential aspect of the use of big data is the good knowledge and understanding of the business processes and specific needs of construction companies that can support and improve them. This data needs to be adequately and effectively managed and analyzed to achieve a positive effect for organizations.

The purpose of the current research is to present the different types of big data, specific to the field of construction, and to develop an approach for performing big data analytics within the construction organizations.

2. Application of big data in the construction sector

The construction sector usually creates products that are used to create value in other sectors of the national economies around the world. Although construction can be described primarily as a sector focused on tangible assets, the appropriate use of big data and information is essential for the proper delivery of these tangible assets in a safe and environmentally friendly way at the right price, time and quality. Proper storage and use of data and information can provide many construction benefits.

Data and information in the construction sector are often generated in several ways. One approach to considering this process is to use a timeline (e.g., the life cycle of a typical construction product). Most often, the construction of products begins with an idea/concept and develops through the phases of development, implementation, operation and maintenance until their final removal.

Each of these identified phases provides the opportunity to generate, collect and use big data, which can be a good basis for further research using big data technologies. Unfortunately, much of the generated data/information in construction exists on paper and is sometimes discarded for economic and practical reasons, such as the need for huge storage spaces.

Typical construction projects generate many and varied data (such as drawings, documents (text), images, videos, etc.). The number of documents that can be generated in different projects (from small to very large projects) ranges from 8000 to about 100000 (Snyder et al., 2018). In addition, big data may be generated during the operation and maintenance phases of the assets. The durable nature of the products supplied by the construction sector determines the importance of these aspects in terms of data collection.

The widespread use of digital tools for the generation, storage and use of construction data can save a lot of physical space and provide significant economic, technical and legal benefits. In addition, this big data can form a good basis for improvements in the sector. There are currently a number of opportunities for construction to extract useful knowledge and ideas that facilitate decision-making on current and future projects, operational product maintenance and asset release, and to thrive through the application of relevant technologies.

These arguments explain why the construction sector should pay special attention to the recent technological advances in the field of big data. Visualization, analytical techniques and other appropriate tools used in this field have the potential to bring many benefits to construction participants.

Concerning the use of big data technologies in the construction sector, two categories of benefits can be identified. These include general business benefits and specific construction benefits. Examples of general business benefits are, for example, overall cost savings, overall operational efficiency, speed of informed decision-making and potential competitive advantage.

Specific benefits, associated with construction, include improvement of the final product, design, procurement, physical and maintenance processes in construction, development of new materials, technical skills, etc. Empirical studies on the application of big data technologies/tools can provide adequate evidence to support the identified benefits (Yan et al., 2020).

Construction is one of the main sectors responsible for the development of a country. The construction activities carried out in a project are dynamic and involve a large volume of data exchange from various stakeholders, which should be collected and processed (Wood, 2016). Data is generated during the various phases of construction projects from planning to completion. The data flow may include project and financial data, sensor and equipment data, images and videos, etc. (see Table 1). This data is often large in volume, very diverse in format and dynamic. Multilateral data reflects the many characteristics of data, derived from construction activities, thus in line with the 3V concept of big data (Bilal et al., 2016).

Table 1.

Context of big data in the construction sector

Characteristics	Participants	Examples
Volume	A large amount of data from different sources	Design data, cost data, financial data, contractual data, ERP system data, etc.
Variety	Diversity in the format of the content	DWG (drawing), DXF (drawing exchange format), DGN (project), ifcXML, ifcOWL, DOC/XLS/PPT (Microsoft format), RM/MPG (videos), JPEG (images)
Velocity	Dynamic nature of data sources	Sensors, RFID, Building Management Systems (BMS)

Source: (Bilal et al., 2016)

Table 1 shows that the development of construction processes through the widespread use of this data is expected to be the next frontier of innovation and productivity in the construction sector. This is also confirmed by Harenberg, who considers real-time data processing as a future accelerator of productivity in construction (Harenberg, 2019).

The digital revolution has a significant impact on the construction sector, as a large amount of heterogeneous data is used in construction (Bilal et al., 2016). The main prerequisites for the application of big data in the sector are the following:

- **Building Information Modeling (BIM)**

BIM covers multidimensional CAD data and aims to support the multidisciplinary and coordinated work environment among the stakeholders involved in a project. Since BIM involves collecting additional layers of

information throughout the life cycle of buildings, BIM is perceived as transforming the construction sector in different perspectives. Although data volume is an essential feature of BIM, according to some authors (Humphreys, 2016), this data is not exactly big data. This follows from the fact that huge BIM files with a combination of multiple models are still only processed by BIM applications. Also, the use of embedded devices and sensors increases the amount of data generated, which ultimately leads to big BIM data sources (Bilal et al., 2016). Thus, construction enters the era of big data.

- **Cloud computing**

Cloud computing is an Internet trend that gives access to the pooling of configurable resources on demand. The main goal is to provide multiple users with access to data storage and computing without the need for an individual license. Accelerating cloud technology is contributing to the development of big data. As cloud computing supports the coordination of orders in BIM-based applications, they are widely used in the construction sector, and the performance of big data in this revolution is astounding (Bilal et al., 2016). In addition, cloud computing and big data are considered to be an ideal combination that contributes to cost-effectiveness and infrastructure expansion in support of big data and business analysis (Bello et al., 2021).

- **Internet of Things (IoT)**

The Internet of Things (IoT) is the main pillar of the Big Data 3.0 era. In essence, IoT is a system of Internet-connected devices that collect and transfer data through installed sensors (Meola, 2018). IoT applications often involve a significant number of sensor devices for data accumulation. The construction sector offers a large number of cases of using big IoT data. Among the more important areas of IoT applications are logistics, transportation, asset recording, smart homes and buildings, energy and agriculture. According to some researchers (Bilal et al., 2016), IoT and big data are interdependent trends that create a huge amount of data, accessible and analyzed in real time in construction applications. In addition, some researchers (Williams et al., 2019) suggest that during the choice of big data processing technology, the huge flow of information, produced by the IoT, triggers big data on a reciprocal basis, following the choice of big data processing technology.

- **Smart buildings**

Smart buildings adapt modern technologies with existing building systems to achieve an economic compromise between maximizing comfort and reducing energy. These systems generate a huge amount of data and most of this information often remains undisclosed and possibly discarded. These data should be interpreted to truly reflect smart buildings, which is evidence of the important role of big data analysis. Integration and development systems, based on ICT, especially the IoT, are an important catalyst for various applications, both for the sector and for the population, in the implementation of smart buildings. In this sense, some authors (Daissaoui et al., 2020) think that big data and IoT are the perfect combination to increase the energy efficiency of smart buildings.

- **Augmented reality (AR)**

Augmented reality is a technology that mixes images of virtual objects with images from the real world. It is also widely recognized as a technology that improves the human perspective. Furthermore, the means to improve the mainstream big data visualization techniques are related to AR and virtual reality (VR). Therefore, AR and big data are certainly inevitable when the complexity of big data in construction is enormous and needs to be overcome through modern visualization methods, in particular AR and VR.

- **Social networking services**

Social media is one of the fascinating trends that can help the construction industry improve communication between project teams. However, one of the main challenges is to assess its value and explore ways to analyze it. This follows from the huge amount of heterogeneous data produced by social networks. Therefore, to properly analyze data from social media, data analytics techniques need to be modified and included in the big data for big data processing (Bello-Orgaz et al., 2016). In this regard, big data can be used to develop attractive applications for the field through the high volume, speed and variety of data on social networks to improve the productivity of stakeholders.

The review of the scientific literature on the application of big data in the construction sector provides an opportunity to derive and summarize the more important concepts identified in the analyzed studies. Based on them, the main orientation of the current research related to big data in construction can be determined, as well as the possible directions for future research in the field.

Analyzed studies of big data in construction show that they are focused on the concept of "management", especially "project management", "energy management" and "resource management". In this context, big data in project management includes those construction-related data that provide a broader understanding of complex projects. Studies show that big data leads to better project management, especially in terms of cost-effectiveness, as well as reducing delays. Also, big data generated by IoT devices such as drones, sensors or smartphones helps to record progress in construction activities and monitor performance. Real-time data can be used to take

appropriate actions to increase project productivity. In addition, IoT devices generate data with regard to "safety" - for example, data related to worker safety behavior and safety conditions on a construction site through sensors, automated equipment, tracking devices, and visualization technologies.

Big data also contributes to better project management by improving the decision-making process, especially when predicting project orientation, which reduces its risk.

Energy management covers the integration of IoT or BIM with big data analysis when considering the energy consumption of buildings to increase their energy efficiency and performance. Energy analysis further improve decision-making on the "design" process, which could be a determining factor in the creation of integrated building design models. In addition, big data provides an "aerial" view of all aspects of the architectural environment, which facilitates better design decision-making.

Similarly, tracking and monitoring resources through sensors or mobile applications help improve resource management decision-making and optimize resources. Other possible applications of big data found in the scientific literature include construction waste management, as well as efficiency in data exchange to improve communication.

Based on the performed analysis, the most common areas for big data research in construction can be summarized. The results of this study reveal the following five current areas: (1) project management; (2) safety; (3) energy management; (4) design decision making and (5) resource management. Table 2 summarizes the context of the most frequently explored areas related to big data in the construction sector.

Table 2.

Context of the explored areas related to big data in the construction sector

Research area	Important concepts	Details for the study
Construction project management	Monitoring	Monitoring progress/productivity through IoT devices
	Time, cost	Better time and cost management
	Decision-making	Decision-making using estimated data, leading to lower project risk
Safety	Safety of construction sites, safety behavior of workers	Big data generated through IoT devices to track and visualize the safety conditions of construction sites, as well as the safety behavior of workers
Energy management	Consumption, operational characteristics	Improving energy efficiency and performance by estimating energy consumption in buildings
Design decision-making	Decision-making	Big data on timely and informed decision-making
Resource Management	Resource Tracking	Track resources using IoT devices to improve resource usage efficiency

Source: Own elaboration

In conclusion, it can be pointed out that current big data studies in construction cover a variety of research areas. The analysis shows that researchers in the field of construction are intensively conducting research on big data related to monitoring, tracking and decision-making. This fact implies a rapid pace of development of big data and continuing interest in its application in the construction sector. Of the five research areas examined, big data on construction project management can be defined as an area in which research is intensifying. This follows from the fact that construction is a data-dependent industry, which is why it must be managed effectively with the right tools to ensure the success of a project. Big data research in construction offers good prospects for improving the sector. This is a step forward in the current digitalization efforts and provides an opportunity to obtain practical information from the vast amount of data.

3. Sources of big data in construction

Construction is one of the sectors with the largest scope and using the largest amount of heterogeneous data. Thanks to the new software technologies, digitalization of design, documentation and logic of planning is achieved. This is particularly true for BIM, which gives new meaning to data collection in design. Construction projects have a relatively long-life cycle and usually include the following phases: 1) design, 2) preparation for construction, 3) construction, 4) finishing works and 5) operation and maintenance. Each of the phases generates a large amount of data from a variety of sources, including:

- many engineering drawings in the design and construction of buildings (BIM)
- raw materials, main components, prices
- utilities and construction services, measuring instruments, building management systems
- infrastructure and transport systems
- corporate systems such as purchasing systems, performance reporting, work planning, etc.
- maintenance and replacement systems
- monitoring of operating costs
- ICT systems and equipment.

Thus, a comprehensive project involves the collection, storage and management of a large amount of heterogeneous data from its inception to its finalization, which supports all phases of business processes in construction. The data comes in many different types. Each type can have great value for the construction business. For some types the value of the data is easier to extract than for others. Different types of data require different storage solutions and therefore need to be processed in different ways.

The data generated in the construction sector can be divided into three main types - **structured, semi-structured and unstructured**. Structured data is tabular data that is very well defined. Often such data is stored in databases (Oracle, MySQL, MSSQL, DB2, etc.). Queries can easily extract data sets, which can be used in decision making. Unstructured data is the rawest form of data. It can be any type of file, such as text documents (PDF, DOCX, TXT), drawings, images (JPEG, PNG, DWG, DXF), sound files (MP3), videos (RM, MPG), etc. This data is often stored in file repositories. Extracting value from this form of data is often the most difficult, as structured characteristics from the data that describes it must first be determined. Semi-structured data has a certain format, but its structure is not very strict, as parts of the data may be incomplete or of different types. Semi-structured data is often stored as files. However, some types of semi-structured data (such as JSON or XML) can be stored in document-oriented databases that allow the use of queries.

These three types of data can often be found in a construction organization but can also be found in external data sources such as the Internet. All these forms of data from different sources can be combined into one source - a data lake.

The sources of big data in construction can be divided into two main groups - **internal** (within construction enterprises) and **external** (Internet, other organizations).

a) Internal sources of big data in construction

Any information collected from sources such as: design phase, machinery, employees, contracts, planning tools, corporate systems, specifications and manuals can be considered big data within construction companies (Fig. 1). The number of these sources may vary depending on the specific construction project.

Information from the design phase is available using technologies such as BIM, CAD and Document Management Software (DMS). In addition to big data, including construction projects and modelling, environmental data and stakeholders' investments are also used to help decide not only what to build, but also where to build.

Information from machines can be obtained in real time using IoT. In addition, high-level data flow can be achieved with robotic technologies. During the building of a construction site, big data is considered, related to weather conditions, traffic, public and economic activity, which can help determine the optimal performance of construction activities. The information, obtained from sensors embedded into various machines used in the sites, shows the time of their activity and inactivity. After its processing, appropriate conclusions can be drawn, for example, about the best combination of purchasing and renting such equipment, the most efficient use of fuel in relation to cost reduction and environmental impact. The geolocation of the equipment allows improvement of logistics, provision of spare parts if necessary and avoidance of inactivity.

In the operation and maintenance phase, big data from sensors embedded into buildings, bridges and all other structures allows their monitoring at many levels. The data obtained may be re-submitted to BIM systems in order to plan the relevant maintenance activities.

Contracts, specifications and manuals can be managed using search document management software. Planning and ERP are built on structured data systems. The data in these systems can be easily analyzed. Currently, most construction companies use ERP, CRM, workflow management systems, etc. This type of systems often uses a database to store data in a structured way. These databases contain vast amounts of data from which value can be easily extracted. For example, the workflow management system can easily give an idea of bottlenecks in business processes or sales forecasts can be made, using data from an ERP system.

An interesting point is to get to the data generated by employees. Unfortunately, access to this data is very limited. In general, employees generate data related to their experience and expertise, efficiency, issues they face, solutions they find, and coordination problems. There is a flow of data in construction, which consists only of reports and notes. For this reason, the sector loses some of its experience and know-how in each project.

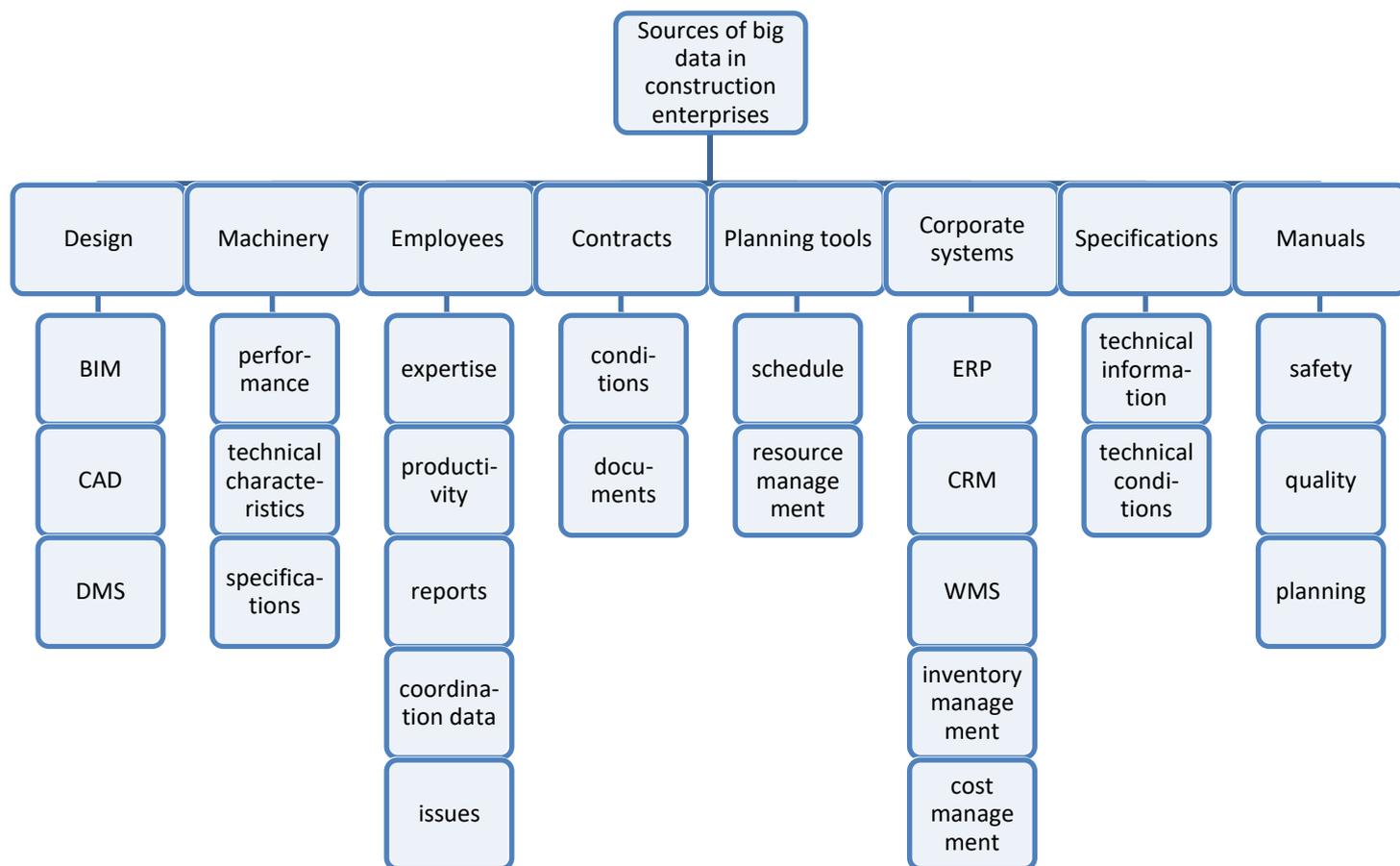


Figure 1. Sources of big data in construction enterprises
Source: Own elaboration

b) External sources of big data in construction

The data of construction companies may be enriched with external data sources, which are also of different nature. Examples of such data are publicly available datasets. Government organizations often publish demographic and economic datasets over a certain period (e.g., population/km² for a particular region). Such data can be used to improve risk assessment.

Other organizations focus on collecting, evaluating and selling data. Their datasets contain information such as net income at a specific address, house size, etc. This data can be used to enrich the data of construction companies for various purposes – for example, improving the profile of their customers or predicting their credit risk.

Many websites today offer APIs that can be used to collect data from discussions and opinions on social media (e.g., Twitter, Facebook, LinkedIn). All tweets that contain a specific hash tag can be extracted from Twitter. Customer support software often could extract social media feeds using these APIs and to perform sentiment analysis. Sentiment analysis is a method of determining whether text regarding a topic is positive or negative. Using this method, customer support can effectively focus on unsatisfied customers. Moreover, the analysis of such data can be useful for construction companies in deciding what and where to build.

The increasing use of the Internet for access and storage of data, as well as the advancement of cloud computing, are associated with the creation of new data (del Vecchio et al., 2018). Extracting unstructured data from web content and social media and their subsequent analysis can improve various aspects of construction project work.

The ability to use large amounts of data and extract useful knowledge from them allows companies in the construction sector to meet changing customer requirements, to implement more complex projects in less time and at lower cost, and to accelerate and improve the quality of management decisions. The use of computers and algorithms to extract models and trends from big data sets helps construction companies make faster and more informed decisions that lead to better overall performance.

4. Specific types of big data in construction

The construction sector deals with huge amounts of data, resulting from different disciplines during the different phases of construction projects. The interdisciplinary nature of this industry creates big, heterogeneous and dynamic construction data. In addition, primary big data sources in construction generate data in large volumes, multiple formats and near real-time (Ismail et al., 2018).

The specific types of big data in construction can be considered in relation to the life cycle of construction projects, which includes five main stages.

1. Conceptual planning and design

The project life cycle begins with the formation of a project concept and design development. During this stage, geospatial big data can provide planning experts and designers with important information about project location, infrastructure, public spaces and resources (Wu et al., 2020). Loyola (Loyola, 2018) adds that big data can also offer insights from previous projects for future residents, their behavior and preferences, thus facilitating stakeholders' understanding of end-users needs and designing an optimal project.

Big data can be integrated with BIM and online social networks to choose sustainable energy solutions, capable of optimizing the implementation of construction projects. This can improve their design and is especially valuable for green buildings. Big data can also be used to generate simulations to evaluate different design options in terms of space and efficiency.

Stakeholders can use big data to estimate their profits. Some authors (Bilal et al., 2019) point out that big data allows for rapid research of large amounts of project data, identification of key trends and understanding of the relationship between profit margins and project attributes.

2. Pre-construction planning

The effectiveness of this stage depends on the proper use of all available knowledge, needed to develop an implementation plan. The big data collected from similar past projects can be analyzed and used to ensure the stability of the project plan by reducing uncertainty and allowing more accurate forecasts and planning. Model analysis, simulation and trend analysis are three approaches that are often used to analyze data during pre-construction planning and aim to assess the consequences of current problems and solutions, detect early warnings and threats that may affect the implementation of the project, consider the consequences of project assumptions and simulate future scenarios. Another application of big data at this stage focuses on predicting the behavior of stakeholders and analyzing the reliability of their commitments, the level of cooperation and the willingness to share knowledge.

Furthermore, historical and new data collected during this stage can be used to simulate various construction activities and tasks and thus to improve the implementation of the project. These simulations become very critical when automating activities or tasks, as the effect of automation on safety, performance and parallel tasks must be carefully analyzed.

3. Construction and commissioning

At this stage, big data is used in real time or near real time to track project progress and create built-in 3D models. Computer visual techniques are used for monitoring and analysis of activities performed on construction sites. These visual techniques have the ability to analyze static images and visual streams.

Real-time data can be collected using built-in smartphone sensors to collect equipment-related data. The state of the equipment (off, idling or occupied) and the type of work performed can be analyzed to help construction staff make better use of the equipment, make better decisions and have better control over a project. Moreover, the use of laser scanners and video cameras on construction sites allows the collection of new data that can benefit equipment operators by providing them with 3D workspace data, automatic object recognition and fast 3D surface modeling in near real time.

Big data is used to monitor the quality of construction in real time, in order to ensure timely collection and analysis of data from ongoing activities. GPS, global satellite navigation techniques, sensor technologies and network transmission technologies are used for this purpose.

Big data also applies to human resources and the workforce. A group of researchers (Guo et al., 2015) use big data to analyze the behavior of subway workers in China. Their research forms a knowledge base for behavioral risk, which is used to detect dangerous behavior and analyze the factors, influencing this behavior. Mobile applications and cameras are used for monitoring purposes. All information is stored in a cloud platform for big data and is sorted by Hadoop Distributed File System (HDFS).

4. Operation and maintenance

In the operation and maintenance phase of the construction project lifecycle, with the help of installed technologies such as RFID and sensors, facility managers can obtain information on the exact location and details of the various components of the building to simplify its monitoring, inspection and maintenance. Besides, the use of BIM models and the Internet of Things (IoT) makes it possible to generate big data on buildings that provide geometric and semantic information, as well as information on the condition of building elements. All this data can be used to present buildings in a virtual GIS environment for urban monitoring and management.

Big data, which includes information on construction and especially on energy efficiency, is becoming a major interest in a sustainable society. Big data analysis can be the solution to understanding behavior in terms of energy consumption and improving energy efficiency in the construction sector (Koseleva & Ropaita, 2017). Successful examples include energy consumption analysis, environmental measures and employment information using big data analysis techniques to study building performance.

5. Demolition

The last stage of the construction project is demolition. The big data collected from construction waste management indicators, especially in the demolition of a project, can help manage the disposal of deconstructed materials and reduce waste generation by the contractor (Lu et al., 2018). Examples of performance indicators include levels of waste generation, costs related to the collection, storage, transportation and recycling of waste, as well as revenues and savings from the sale of waste. This data can also be useful to the public by being used for construction waste management and monitoring of air pollution and construction noise (Chen & Lu, 2018; Lu, 2019).

5. Existing approaches to big data analytics in construction

With the advent of big data era, the construction sector is focused on processing large amounts of engineering data and extracting its value. However, inaccurate manual inputs and delayed data collection make it difficult to fully use the information. Meanwhile, difficult data sharing and poor interoperability of data between different business information systems lead to a lack of integration of resources in construction companies, which can facilitate decision-making (Özenre & Kabadurmus, 2020). To overcome these challenges, it is necessary to develop and adapt new approaches to big data analytics in the field of construction. To this end, research on this topic should be studied and analyzed.

A group of authors (You & Wu, 2019) offers a big data infrastructure, called Enterprise Integrated Data Platform (EIDP), to be used by construction companies. In their work, the researchers propose a framework for future business improvement that contributes to the management of the closed-loop construction supply chain, cost management and control, knowledge discovery and decision-making. The proposed solution provides a theoretical basis for the implementation of data exchange and interoperability between business management and project management. On this basis, construction companies are expected to improve their efficiency both in terms of their operations and project implementation by optimizing their business processes and improving decision-making.

Another group of scientists (Le et al., 2019) offers an innovative BIM-based framework for multi-purpose and dynamic temporary design of construction sites. It uses a hybrid approach to systematic design planning and mathematical modeling. The hybrid approach, which follows the construction site planning process, is designed to facilitate the collection and processing of qualitative and quantitative data. A BIM platform is used to determine the required quantitative data, while qualitative data is generated through knowledge-based rules. The proposed framework is expected to serve as a practical application that takes advantage of data collection and processing technologies.

A framework for integrating the construction supply chain in order to solve the problems related to heterogeneity and data exchange in the construction sector is presented by Das, Cheng and Law (Das et al., 2015). The standardized web services technology is used for specification, data transfer and integration in the proposed framework. The open standard SAWSDL is used for descriptions of web services with pointers to

concepts, defined in ontologies. The NoSQL database Cassandra is used for distributed data storage between stakeholders in the construction supply chain. The results of the study show that ontologies can be used to support the transfer and integration of heterogeneous data through web services. Distributed data storage facilitates its sharing and improves its control. To demonstrate the proposed framework, the authors also present an example scenario for the material delivery process, involving three parties, namely a project manager, a contractor and a material supplier. The presented web services framework facilitates the storage and sharing of information in a distributed way through ontology-based web services. Security is improved with access control. A data model for distributed databases for data storage and extraction is also presented.

Another study combines cloud computing with big data processing techniques (Yang et al., 2020). The goal is to build a real-time energy monitoring system for a smart campus. The monitoring platform collects electricity consumption on campus buildings through intelligent meters and sensors and processes large amounts of data through big data processing techniques. A Hadoop ecosystem is built on a big data processing architecture to improve big data storage and processing capacity. In addition, the authors compare the efficiency of Hive and HBase in searching for energy data and the efficiency of relational databases and distributed databases for big data in searching for data. The proposed system has been implemented on the campus of Tunghai University. It allows administrators to monitor electricity consumption in real time and analyze historical data at any time and from anywhere.

The researched literature indicates that some construction companies have already implemented activities on big data analytics, but most of them are ad-hoc and situation specific. There is a need for the development of generalized approach which integrates big data analytics with the corporate strategy for digitalization of the construction companies.

6. An approach to performing big data analytics for the construction area

By using big data available in existing corporate systems, own databases and tools, construction companies can analyze their projects to make them better positioned, to seek and win new contracts, to control their current contracts, use their resources more efficiently and be better informed about their business.

Using as a basis the studied literature for big data analytics in construction industry, basic steps are proposed, which can be used as a starting point and resource by construction companies, seeking to build a comprehensive approach for big data analytics (Fig. 2).

The proposed approach for the analysis of big data includes the following main stages and tasks:

1. Goals and objectives
 - a) Clearly defined problem or question
 - b) Consent and support from managing stakeholders
2. Data evaluation
 - a) Identification and mapping of data sources
 - b) Defining a data set for analysis
 - c) Selection of key attributes
3. Data extraction, transformation and loading
 - a) Clear understanding of extraction requirements
 - b) Data preparation for analysis
 - c) Loading data into analytics software
4. Data analysis and validation
 - a) Identification of tools and methods of analysis
 - b) Creating a script or workflow for analysis
 - c) Validation of results and study of deviations
5. Summary and presentation of results
 - a) Selection of tools for presenting results
 - b) Creating visualizations
 - c) Reporting of feedback from stakeholders
6. Update/repeat analysis
 - a) Development of an automated process
 - b) Identification and standardization of KPIs
 - c) Creation of executive dashboards

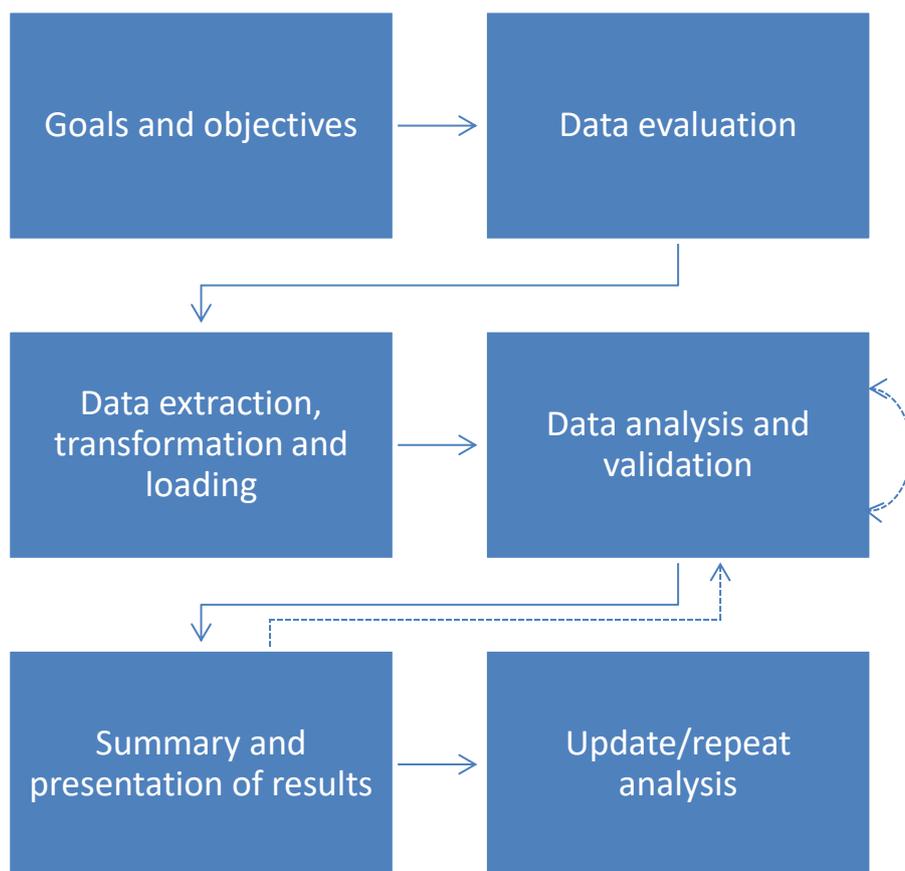


Figure 2. An approach for big data analytics in construction
Source: Own elaboration

The first step of the proposed approach is related to the clear definition of the problems or questions (goals of the construction company) that should be resolved or answered as a result of the analysis. Obtaining the consent and support of managing stakeholders and measuring the level of effort are also crucial factors for success.

As already mentioned, data in construction companies is usually extracted from many different systems. The initial **data evaluation** should include the following:

- Data sources – enterprises should create a map that identifies all data sources, shows how these different sources interact and describes in detail the format of the data. Once the available data is determined, the specific sources, necessary for the analysis, should be identified.
- Data set – in addition to identifying the sources, establishing a set of data to be used in analysis helps to further refine the purpose of the analysis and narrow the focus. Also, documentation and approval are needed on how many projects and for what period will be included in the analysis. Data that are incomplete or inaccurate should be considered when determining the set.
- Data attributes – after identifying and mapping the data sources, it is important to understand the specific data attributes that will be used in the analysis. It is appropriate to identify common fields (e.g., a unique identifier) that can be found in multiple data sources to facilitate the comparison of different data sets.

It is important to take the time to establish the quality and sources of data. If it is not possible to determine how the different data sets are interdependent, an enterprise may make decisions based on an erroneous analysis that contains incomplete or inaccurate data.

Once the sources, data set and data attributes are identified, qualified personnel are needed to extract the data from existing systems and tools to ensure its completeness. Data is extracted from one or more sources, which are mostly available in data warehouses or data lakes, maintained by the construction company. If necessary, the data obtained from multiple sources **should be transformed** (e.g., changes in the format) **and/or**

integrated to ensure consistency during the analysis. The data should then **be loaded** into an appropriate software tool for further analysis.

Conducting the data analysis and validating the results usually takes the most time and effort. Validation should be performed to ensure that the enterprise has reached complete and well-founded conclusions. Actual data analysis can be performed using a variety of tools and methods, from simple Microsoft Excel analysis, performed by average users, to more reliable analysis, performed by qualified data specialists or professionals with significant experience in big data analytics. The two key components needed at this stage include:

- Development and conduction of analysis - when developing the analysis, it is important to assess which tools and methods to use. They may vary depending on the technical capabilities of the people, performing the analysis, and the complexity of the initial goal. It is recommended that construction companies also consider the possibility of automating the analysis, which would allow easier updates in the future.
- Validation of the results – after the completion of the analysis it is necessary to make a review by experts to verify the initial results. The accuracy of the input and output data should be confirmed and any significant deviations or anomalies should be investigated. After validation of the results, it may be necessary to perform the analysis again with corrected data.

Intuitive and clear visualization allows easier **understanding, summarizing and presenting the results** of complex analyzes. For this purpose, it is appropriate to consider specialized software packages designed specifically for the visualization of large volumes of data. Moreover, visualization is an iterative process that allows data entry by the end user or experts in the field, who best understand the data. Using presentation as a brainstorming session to attract alternative ideas on how to display data can lead to different or new conclusions.

If necessary, construction companies may regularly **update or repeat the analysis**. Where possible, it is appropriate to automate the update process by linking existing data sources with analytical tools. By conducting regular analyzes, companies can develop internal key performance indicators (KPIs) or benchmarks.

In conclusion, although the proposed approach for big data analytics in construction is illustrative, it includes some of the key elements of developing a reliable analytical process, as well as considerations for companies that are beginning to analyze their existing data on projects and programs. Each construction company should develop its own approach to conducting analyzes and improve it through evaluation.

7. Conclusion

The construction sector is a data-intensive area that is experiencing rapid growth in data generation and collection. In line with advances in technology, construction has entered the digital age, where data volumes are growing at an unprecedented rate. Different types of data such as numerical, graphical, textual, multimedia and other construction information are collected from different sources. The effective use and analysis of this heterogeneous data allows the discovery of knowledge in the construction sector, which facilitates the right decisions for better implementation of construction projects. Improving the efficiency of construction projects and/or enterprises requires to a large extent the analysis and transformation of the vast wealth of data into useful knowledge.

The proposed approach for big data analytics in construction industry provides opportunities for analysis and interpretation of big data in a fast, easy to use and accurate way. It can be used to automatically detect hidden knowledge from large and complex data stored in databases, data warehouses or data lakes. The main steps included in the approach ensure the development of a reliable analytical process that can be improved and adapted to the specifics of each construction company.

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The currency board and the single European currency – the valuations in the accounting

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Abstract. The aim of the publication is to present opinions of prominent economists, politicians and researchers concerning the policy of introducing the euro in Bulgaria as the main monetary unit. The research method is content analysis of publications from specialized economic publications, from non-specialized publications, interviews of economists, politicians and businessmen. The scope of the research covers specificities of the process of switching from one currency unit to another influenced by policy decisions has a significant impact on the accounting estimates applicable in the financial statements of economic operators. Public attitudes both for introducing and refusing to maintain the currency board are analyzed. The practical implication of the paper concerns new rules that have to be adapted directly relevant to the introduction of the single European currency (EUR).

Keywords: accounting valuations, currency board, euro, risk.

Received: 25.10.2022

Revised: 08.11.2022

Accepted: 14.11.2022

Published: 30.12.2022

1. Introduction

In recent months, after Bulgaria and the world came out of the grip of COVID-19, prominent figures from the world joined in the discussion taking place in the public, media and economic scientific space. As names of one of the most prominent participants in the discussion can be indicated: Steve Hanke, Levon Harpanzunian, Asen Vasilev, Georgi Saryski and others.

The adoption of the euro in the EU Member States has been and will be a very important and essential step towards full community accession. With this step, the country concerned declares not only its affiliation and the sharing of common European interests, policies, culture and values, but also shares the burden of economic responsibility for the stability of the single common European currency.

All this, as well as several other prerequisites, determine the topicality of the question Of and against the Euro. Of course, such debates and discussions are not and are not conducted only in Bulgaria, they are of serious political and public interest in other Member States.

This publication aims to provide an overview of the latest reasons, positions and opinions for and against the adoption of the euro as a national currency, as well as the impact of this process on accounting assessments.

2. Main body

In recent months, a significant person about the transition of the Bulgarian economy and what happened (from a financial and economic point of view) in the 1990s has come up with a startling stance on Bulgaria's entry into the Eurozone. In an interview with BTV for the show "This Morning" with interviewer Zlatimir Yovchev with guest Prof. Steve Hanke, known in Bulgaria as "The Father of the Currency Board", an adviser to President Petar Stoyanov, winner of doctoral honoris cause from the Bulgarian Academy of Sciences, the question "Who will win and who will lose the most if Bulgaria joins the Euro zone?" – his answer was "... the Bulgarian people will lose out on this." From this moment on, the discussion between politicians, economists and the CITIZENS of Bulgaria has become significant. As talking points of his position, the interview can be taken (Hanke, 2022)out: (1) the risk of higher inflation will be increased; (2) the lack of an economic analysis of

the benefits and costs of switching from the currency board system to the euro; 3) why do "this thing secret"; 4) "... why abandon something that works?" the currency board said.

Another famous and public figure involved in the debate is Levon Hampartoonian, who was deputy minister of economy in the cabinet of Ivan Kostov, former Executive Director of the Privatization Agency, twice banker of the year, winner of the Burov Prize. In a transmission to BNT 1 – Levon starts the day expressing the view that we have already joined the euro through the (Hampartoonian, 2022) currency board, as well as since 2007 with our entry into the European Union (EU) and the adoption of the obligation to introduce the euro. Earlier, that Bulgaria did not meet the criteria for introducing the euro, Hampartoon reacted sharply and said that it was controversial to what point he was the father of the currency board in Bulgaria. He is a wonderful university lecturer, but he is not responsible in the way that politicians and people who live here. According to Hampartoonian, the adoption of the euro is useful for Bulgaria and is a geopolitical anchor that will keep us in the orbit of the EU and THE EU. In front of another media, Bloomberg TV Bulgaria in the show "Club Investor" with host Ivaylo Lakov – Hampartoonian declares "The political risk to Bulgaria is one of the highest of the countries in the EU because of the ambivalent position of politicians regarding the EU, NATO and the entry into the euro area. This uncertainty discourages long-term foreign investment in Bulgaria and they are redirected to politically more stable countries." (Hampartoonian, 2022) .

Asen Vasilev – Acting Deputy Prime Minister and Minister of Finance (for the periods 12.05.2021 – 16.09.2021 and 13.12.2021 – 02.08.2022) publicly shares his views on the introduction of the euro, stating several reasons: "The first is that with the currency board we have already introduced the euro into the economy... Officially adopting the euro gives us a place in the room where decisions are made about what the policy should be and our voice will be heard." (Vasilev, 2022)

Of course, there are opinions at the other pole, like the businessman and active participant in economic shows and debates – Ivaylo Penchev, who, when participating in TV1, tv show "The Questions" (Penchev, 2022) says "the adoption of the euro tells the world: We are so lame that we do not deserve independent monetary policy and should be managed by European officials... I do not share the euphoria that we will become dependent on something else from the EU. It's not going to affect businesses in a particular way, people might get poor.'

Ass. Georgi Sariyski from the Institute of Economic Research of BAS, before "TRUD" states "The radicals for the euro often put a sign of equality between our currency board and the entry into the euro area, only nothing can be further from the truth". He also shares the view that "... Bulgaria will lose the right to an independent monetary policy" with the adoption of the euro. As an example of a negative impact on small economies after the adoption of (Sariyski, 2022) the euro, he points to Greece, which in 2007 was 93% of the European standard, now reaches only 65%, in Slovakia the indicator is deteriorating by 8 points, and this trend is observed in other countries on the periphery of the European Union. conclusion says that this initiative is insane and why all the haste is.

After the debate about the impact of the euro on the economic situation of the country when it was introduced, it is inevitable to ask the question: How would the new monetary unit affect the valuations of resources owned and managed by business?

This cannot be answered unilaterally for a number of reasons:

- 1) The uncertainty of whether Bulgaria will be able to meet the requirements for entering the euro area;
- 2) The level and rate of inflation for the foreseeable future, both nationally and globally;
- 3) Market volatility due to global resource limitation (from a macro economic point of view) as well as market risk;
- 4) The global political risk influenced by the increasing approval of patriotic parties and increased military action worldwide, as well as the short terms of office of the Council of Ministers;

In the context of the existing reality and economic environment, an attempt will be made to analyze and assess the impact for some of the factors advocated above on estimates of assets reported and managed by the business.

According to IFRS 7 Financial Instruments: Disclosure – Under Market Risk defines "The risk that the fair value or future cash flows of the financial instrument will vary due to changes in market prices. Market risk consists of three types of risk: currency risk, interest rate risk and other price risk.'. In the context of the definition presented, the materiality of the currency risk that would occur when entering the euro zone is clearly highlighted. For currency risk, a legal definition can again be found in IFRS 7– the risk that the fair value or future cash flows of the financial instrument will vary due to changes in exchange rates. Interest rate risk is known as a risk that the fair value or future cash flows of financial instruments will vary due to changes in market interest rates. At first reading, there is a great closeness/ similarity between the definitions of currency risk and interest rate risk, but nevertheless they are different factors capable of influencing the assessment of the property condition of the enterprise. It should not be overlooked that definitions speak of a financial instrument,

but should not be overlooked and forgotten (without putting in place equality) that an enterprise is a set of rights and obligations expressed from a financial accounting point of view such as assets (resources) and liabilities (sources). On the basis of this reasoning, the definitions of the risks concerned presented and adopted above could also be applied in full to the non-financial (material) resources that an entity manages and exploits.

Some measures have been debated intensively in recent months, both nationally and globally, concerning the overcoming and/or retention of inflation. A number of countries and global financial institutions have implemented less popular measures so far, such as increasing the cash mass, directly interfering with market mechanisms, such as withholding the prices of basic resources (electricity, fuels), subsidising households in order to ensure their standard of living and maintaining the stock market, leading to the preservation of the revenue side of indirect tax (VAT) budgets, excise duties, etc.), an increase in the budget deficit financed by new loans/debts, etc.

The elements of these monetary and fiscal policies will lead to changes in interest rates globally by the European Central Bank (ECB) and the Federal Reserve (Fed). A Reuters poll (Todor Shishkov, 2022) published by CAPITAL shows the ECB will raise interest rates by nearly half a percentage point by the end of the year. and even more drastic measures. The Fed raised its key interest rate by half a point, the sharpest rate hike since 2000. Economists and CNBC executives say the Fed's efforts to curb inflation will lead to recession.

From a financial and accounting point of view, such an increase in the underlying values will lead to an appreciation of the loan financial resource, which will put investors ahead of the choice of investing in property/equity instruments (such as shares, units, etc.) or debt instruments (such as bonds, deposits, etc.). This will lead to caution on the part of investors and the banking sector (risk assessment more conservatively), which in turn will reflect a decrease in investment in companies, while in the short term it will support production volumes, but in the long term it will shrink them (due to the lack or limitation of the introduction of innovation). The development of most modern corporations is based on investing borrowed funds, not so much on reinvesting accumulated profits. This approach has enabled them to make future payments based on new production capacity. But how would that affect the valuations of the resources held by the business. The basic rules of the economy do not give way to all actions, namely as production capacity decreases and supply decreases, as production volumes shrink, a unit of manufactured product will have to bear most of the constant/overhead costs, which in turn will lead to a rise in the prices offered by a producer. After all this, the market will increase the price levels not only of production raw materials, but also of basic resources. In the face of inflation, which some economists see as creeping, in recent months we have seen its impact on purchasing power, there will be a need to update estimates of business-owned production resources. i.e. the impact of interest rate risk will be material in the long term.

Combined interest rate risk with foreign exchange – characteristic of our country under the terms of a policy of switching to another currency (euro) and the presence of inflation not only domestic, but also globally, will again lead to substantial price volatility. As mentioned above, in several countries on the periphery of the euro area since the adoption of the euro, there has been a decrease in the indicator of a European average standard. The latter is a clear sign of a decrease in purchasing power and consumption, which is largely due to speculative increase (rounding) in prices from currency conversion (calculation) to the new base currency. The change in market prices (estimates) of at least 8 points is substantial and will again lead to the need to review and update the valuations of managed resources by the business.

3. Conclusion

In conclusion, it can be summarized that accounting is facing a new reality and a dynamic economic environment influenced by several factors, such as political, market, interest rate, foreign exchange. All of them will cumulatively have a serious impact on market valuations of resources that will need to be transferred to previously acquired resources from the business to represent the financial and property situation of the reporting agents properly and fairly. All this should happen with the application of a single methodology to respect the principle of comparability. An ongoing question arising from the above-mentioned factors, risks, changes concerning valuations is "Will there be a specific regulatory framework in force or will the general rules set out in the accounting bases (Accounting Standards) apply?". The final answer for the adoption of the EUR is in the hands of Bulgaria's political elite. What will happen in a highly volatile political environment is yet to be seen. In summary of the positions presented by prominent politicians and economists, a unified position supported by strong arguments on the single European currency cannot yet be highlighted.

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Is it an advantage or disadvantage to source materials from manufacturers

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Abstract. In the conditions of an unprecedented global crisis, which has affected all spheres of social, economic and political life in Bulgaria and the world, the awareness of where and from whom companies receive and will receive the raw materials, materials, goods, etc. they need is of crucial importance to prevent disruptions in supply chains. Deciding which vendor to go with is a strategic decision and requires good reasoning. In this regard, the aim of the article is, based on a study of literature sources, to derive advantages and disadvantages of working with a supplier-manufacturer and to draw conclusions based on information from a group of companies, regarding whether it is an advantage to work with a supplier-manufacturer compared to working with a middleman and if yes what are the established advantages. In accordance with the set goal, the present study targeted production and trading companies that operate on the territory of Bulgaria. The data for the study is collected during the period November 2021 - January 2022. 13 enterprises are covered, 6 of which (46%) are manufacturing and 7 (54%) are trading companies. Based on a literature review, the advantages and disadvantages of choosing a supplier-manufacturer over a supplier-intermediary are summarized. Based on collected information, the advantages of working with manufacturers have been put forward. It is noteworthy that for trading companies, the priority "lower price" when purchasing from a manufacturer is very often indicated by the interviewees, in contrast to manufacturing companies, which value most the possibility to order large quantities. With the current trends of digitization, restructuring of supply chains and the loss of trust between organizations, this type of information would serve researchers and specialists who make a choice of suppliers and take this complex decision that requires a competent and thorough analysis.

Key words: supplier, manufacturer, intermediary, distributor, supply chain, direct form of supply, material flow.

Received: 01.12.2022

Revised: 08.12.2022

Accepted: 14.12.2022

Published: 30.12.2022

1. Introduction

The suppliers of trading and manufacturing companies provide them with raw materials, materials, goods, semi-finished products and services. Both producers of the above-mentioned commodities and materials and distributors can fulfil this role. In the first case, the material flow moves directly between the producer and the consumer, and in the second, it passes through an intermediary before reaching the consumer. Accordingly, we are talking about direct and indirect form of supply to companies. The decision about the supplier's place in the supply chain (Blagoeva 2008) (Julian Vasilev & Miglena Stoyanova 2019) is made when defining the target range of potential suppliers.

Customer satisfaction is directly linked to the quality of materials, prices, order fulfillment times, quantities, etc. that manufacturers offer. On the one hand, they create the consumer value and the value of the products, and on the other hand, they carry out sales and prepare the goods for movement along the sales channels, they form single, group packaging and large cargo - handling units (Koraliev 2013).

In supply chains, intermediaries are positioned between producers (or other intermediaries) and customers, who may be producers, wholesalers and retailers, and end customers. The role of intermediaries can be played by distributors, wholesalers, intermediary agents (Koraliev, 2013), commodity exchanges. They resell to their customers goods purchased from their suppliers. The focus of these companies is on selling rather than manufacturing.

In this regard, the aim of the article is, based on a study of literature sources, to derive advantages and disadvantages of working with a supplier-manufacturer and to draw conclusions based on information from a

group of companies, regarding whether it is an advantage to work with a supplier-manufacturer compared to working with a middleman and if yes what are the established advantages.

2. Literature review

Many authors (Maikl Linders & Harold Firon 2006), (Koraliev 2013), (Wood 2017) (Sharma 2022), (Salvador 2022), etc. in specialized literature have attempted to highlight the advantages and disadvantages of working with a supplier who is a manufacturer or with a supplier who is an intermediary. According to Koraliev in the case of the direct form of supply to companies, the following is observed: improvement of the assortment and quality of supplied materials, goods, raw materials, etc.; deliveries with the exact parameters of the order, complying with the pre-agreed schedules; active participation of users in the production and delivery of materials to streamline the document flow. On the other hand, Wood believes that many manufacturers create the materials after they have been ordered, which requires more time than is necessary with the wholesaler or distributor. Linders, distinguishing between large and small customers, depending on the quantities they need, points out that most large companies often look for the opportunity to buy directly from a manufacturer, because the latter can provide them with large quantities at a trade discount. On the other hand, according to the same author, when looking for production from various small producers, they prefer to place orders with distributors who have larger quantities in stock delivered by these small producers. Small buyers with smaller needs cannot get a good deal from a large manufacturer and therefore turn to wholesale suppliers. In support of the above is Salvador's assertion that companies that need large quantities of materials can achieve significant savings if they buy from a manufacturer.

Based on the conducted research in literary sources, the following conclusions can be drawn, concerning:

Most common advantages of working with a supplier-manufacturer versus a supplier-intermediary:

- Focusing on customer needs and fulfilling orders for customized or unique products according to customer specifications.
- Buying directly from the manufacturer is associated with a lower price. Regarding this advantage, there are different opinions. There are specialists who believe that the prices of intermediaries contribute to the client's profit margin. This phenomenon is usually observed in case of small quantities of purchased materials.
- The customer has information about exactly who the manufacturer is
- Quick reaction in case of delivered defective products
- Ability of the client to exercise direct control over the quality of the goods
- Lower customer inventory costs
- Effective communication

Most common disadvantages of working with a supplier-manufacturer versus supplier-intermediary:

- Territorial distance from the client, which creates conditions for delays and taking risks related to force majeure circumstances (Stefanova, 2017; Bliznakov, 2020; Stoyanova, 2017) is collected.
 - Requirement from the supplier for a minimum volume of the order below which the transaction is not possible
 - Limited choice of solutions in terms of assortment of offered raw materials, materials, semi-finished products, etc.
 - It takes more time to fulfil the customer's order
- We believe that the following disadvantages are not included among the above-mentioned ones:
- Likelihood of order fulfilment delays for customers ordering small quantities in the presence of higher value orders
 - Weak personal connections

The data for the study is collected through a 'survey study with questionnaires' in which information is collected through the personal interview method. The goal is to reach the highest possible ranks of the company. In accordance with the set goal, the present study targeted production and trading companies that operate on the territory of Bulgaria. The data for the study is collected during the period November 2021 - January 2022. 13 enterprises are covered, 6 of which (46%) are manufacturing and 7 (54%) are trading companies. Representatives of micro, small, medium and large companies are included in the survey. The conclusions that have been drawn apply to the researched enterprises. The group of production companies includes producers in the field of food industry, glass production, representatives of light industry and clothing. More than half of the trading companies carry out wholesale and retail trade, and the rest do either wholesale or retail trade.

In relation to the purpose of the research, the companies are asked what percentage of suppliers - manufacturers and intermediaries they work with. It is established that, on average, 86% of suppliers to trading firms are manufacturers. The exception is one company with 30 % and another that did not answer this question.

The remaining sources of goods are intermediaries. On average, 80% of the suppliers of the researched manufacturing companies are the manufacturers of what is purchased. Here also one company makes an exception, as only 15% of its suppliers fall into this group. The employees are asked directly "Is it an advantage or a disadvantage to work with suppliers – manufacturers versus middlemen?" The opinion of almost all participants is that it is an "advantage". An exception is one company that answered "both an advantage and a disadvantage". Confirmation of the positive opinion is also the stated intention of 29% of all surveyed enterprises to increase the share of suppliers-producers and reduce intermediaries in the next period of time. Among the remaining 71% of the companies are those that buy entirely from manufacturers. The interviewees are asked to formulate in their own words arguments for this opinion, precisely why they think it is an advantage to work with a supplier - manufacturer. In this regard, the following is established:

The trading companies pointed out the following advantages:

- Lower prices of the purchased goods: 71% of companies
- The supplier bears the transportation costs: 42% of companies
- Greater security concerning the expected quality: 14% of companies
- Quicker reaction in case of customer complaints: 29% of companies.

The manufacturing companies pointed out the following advantages:

- Large quantities of materials are offered: 50% of companies
- Lower prices of the purchased goods: 33% of companies
- Possibilities for long-term contracts: 33% of companies
- Saving time: 17% of companies
- Possibilities for deferred payment: 17% of companies
- Lower inventory costs: 17% of companies.

Among the most frequently advantages of direct procurement pointed out by the surveyed companies are lower prices compared to those of intermediaries, followed by the possibility of purchasing large quantities. Less common are benefits such as faster response in the event of a claim, the possibility of long-term contracts, the availability of deferred payment options, saving time and reducing inventory costs due to the ability of the supplier to store and fulfill orders according to customer needs. It is noteworthy that for trading companies, the priority "lower price" when purchasing from a manufacturer is very often indicated by the interviewees, in contrast to manufacturing companies, which value most the possibility to order large quantities. In connection with the obtained results, new aspects arose that are of interest to the author and may be the subject of future research. For example, what is the reason companies expect higher quality from the manufacturer compared to what is offered by the intermediary; why they have a large share of intermediaries among their suppliers, etc. In this regard, no dependence is found between the size of the enterprises according to the number of employees and the share of the two types of suppliers.

3. Conclusion

After the attempt made, based on a literature review, to derive advantages and disadvantages of working with a supplier - manufacturer or intermediary and the subsequent analysis of a group of trading and manufacturing companies, the advantages that they point out are derived and summarized. With few exceptions, we find the advantages mentioned by the studied companies among those presented in the literature analysis. With the current trends of digitization, restructuring of supply chains and the loss of trust between organizations, this type of information would serve researchers and specialists who make a choice of suppliers and make this complex decision that requires competent and thorough analysis.

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Supply Problems of Construction Companies

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Abstract. The aim of this paper is to highlight the problems in the supply to a group of construction companies operating on the territory of Bulgaria and to suggest guidelines for overcoming these problems. Based on the objectives set, the scope of this study are construction companies operating on the territory of Bulgaria. The data for the study are collected during the period November 2022 – December 2022. 3 types of companies are covered by the study – a small, a medium-sized and a large enterprise. The companies implement group I, II and III constructions, which includes residential construction, public service construction, industrial construction and the relevant adjoining infrastructure, electronic communications and facilities. This paper summarises the nature, scope and purpose of supply to construction companies. Problems in this field have been highlighted based on information about a group of construction companies operating on the territory of Bulgaria and an attempt has been made to suggest guidelines for mitigating the adverse effects resulting from the current crisis and the weakness in the operation of supply that have been identified. Based on the difficulties and weaknesses we have identified in the supply to the studied companies, we believe that it is essential to undertake measures to increase the awareness on the need to become familiar with the concept of logistics and apply it, especially in one of the enterprises that lags significantly behind in this regard.

Key words: crisis, supply, logistics, construction companies, suppliers.

Received: 02.12.2022

Revised: 09.12.2022

Accepted: 14.12.2022

Published: 30.12.2022

1. Introduction

Over the past few years, the construction sector in Bulgaria has been facing certain difficulties. According to data from the National Statistical Institute (NSI), the construction products manufactured over the first quarter of 2022 has decreased by 14.1 percent. In 2021, the building construction products manufactured amounted to BGN 9043 million. This is a 37.7 percent decrease, as compared to 2020, while the decrease in the engineering infrastructure segment was 29.4 percent.

Decline has been observed in both the engineering and building construction segment. In the context of the rising prices of construction materials, serious financial difficulties faced by the companies, lack of funding from the state and municipalities, inter-company indebtedness and other factors, mitigating the effect from these problems in the supply of construction companies is among the main factors for their competitiveness and earning capacity. Over the past few years, because of the reinforcement of the importance of supply (Genov, G & Raychev, T. 2008), significance of the effective management of supply for ensuring the necessary level of customer service and achieving minimum costs for logistics was realised. In the context of the political, economic and social crisis, the need of research in this field is also predetermined by several unresolved problems and competition among the supply chains. The objective of this report is to highlight the problems in the supply to a group of construction companies operating on the territory of Bulgaria and to suggest guidelines for overcoming these problems.

2. Literature review

Supply is a basic process carried out as part of the supply chain management (Blagoeva, S., Kehayova-Stoycheva, M. 2008), which is characterised by the provision of the products necessary for each company (Dybskaya et al. 2008) (Anikin et al. 2011). The scope of management is the material inflow, which is accompanied by an information, financial and service inflow. There is a wide variety of definitions of supply and of formulations of the scope of management in specialised literature. The authors (Afanasenko & Borisova 2010) and (Korbankoleva 2010) have restricted their studies to the scope of supply, which only includes: material resources and services; material flows, service flows and the related information flows; the necessary items, the material flow and the accompanying information and financial flow (Milusheva 2022). According to Friemuth and Stich (1998), supply includes the provision of plant and equipment, workforce, materials, capital, rights, services and external information to the enterprises. From the distance of time, we believe it is inappropriate to include the workforce and rights in the scope of supply, because these do not accompany the inflow of materials. There are many authors of specialised literature (Bowersox, 2002) (Waters, 2003) (Terminology in Logistics, 2005) (Lysons & Gillingham, 2005) (Afanasenko & Borisova 2010) (Blagoev et al. 2009) (Dimitrov et al. 2010) that have tried to formulate a full and accurate definition of supply, however, there is no generally accepted definition adopted by all experts. Therefore, we believe that supply is a key function of logistics, which focuses, on the one hand, on the integrated management of the material, information, financial and service flows within the process of supplying the companies with the necessary material resources and, on the other hand, on the close interaction with the other functional areas of the enterprise (Milusheva 2022). The organisation's specialisation is crucial for the nature of the scope of supply. In construction companies, different scopes of supply can be observed, particularly: management of the input, raw materials, details, etc. from the supplier to:

- the warehouse and their storage until they are needed;
- the warehouse and then, to the construction site;
- directly to the construction site.

Construction companies provide themselves with the necessary material resources in order to fulfil their manufacturing programme. The purpose of supply is to ensure reliable delivery of the necessary quantities at the necessary time and at the expected quality. This purpose can be achieved by competent decisions based on in-depth analyses and up-to-date information. Some key strategic decisions in the management of supply, accompanied by a high level of uncertainty and risk, are related to the choice of suppliers and the relationships with them (Milusheva 2022).

3. Results from the study

The questionnaire survey approach was used for the study, where the information was received through an interview and observations. Based on the objectives set, the scope of this study are construction companies operating on the territory of Bulgaria. The data for the study were collected during the period November 2022 – December 2022. 3 companies were covered by the study – a small, a medium-sized and a large enterprise. The companies implement group I, II and III constructions, which includes residential construction, public service construction, industrial construction and the relevant adjoining infrastructure, electronic communications and facilities. The conclusions drawn are valid for the surveyed construction companies.

An indicator of problems in the supply of the three construction companies is the deficit of materials during the construction process. Some of the main reasons for this phenomenon are:

- Delay in the fulfilment of orders by the suppliers. It was concluded that there is no dependence between delays from manufacturing suppliers and intermediary suppliers. Among the most common reasons for the suppliers' delays were problems along the supply chain they were part of. A number of cases were identified in the small and medium-sized company, where the delays in supply were caused by the suppliers' incapability to fulfil orders without prepayment (due to the lack of reserves or maintaining insufficient quantities for the client), which could be as high as 80% of the price for the order. These financial difficulties are largely the result of non-payment or delays in payment (Nikolaev, R., Milkova, T., Miryanov, R. 2017) both between a large part of the construction companies and the suppliers and between the construction companies and the state (municipalities). Another reason for the delays in the fulfilment of orders is the late submission of accurate information by one of the companies studied. In contrast to the suppliers of the large and the medium-sized company, which received a schedule for supply and updates thereto in a timely manner, the suppliers of the small company only received tentative information about the time and

quantities of the needed materials, which were of large quantities. No information about future plans was submitted for resources used periodically and in small quantities.

- Delays when using rented transport vehicles and supplier's transportation.
- Lack of own production. No deficits during the construction were observed with respect to materials that two of the companies produced themselves.
- Inconsistencies between the material resources ordered and the ones supplied, both with respect to the quantities and with respect to the type of material. There were often situations, especially with the small and the medium-sized company, where a supplier delivered substitutes with no advance notice and at their discretion due to the lack of the material ordered, without notifying the clients first.
- Poor quality at the fault of the suppliers.
- Telephone communication with suppliers when submitting orders which causes lack of traceability of the information. This method of work was most commonly observed in the small company and resulted in inaccuracies in the information submitted and accepted.
- Lack of or inaccuracies in the documents accompanying the materials. This problem is most common for the large and the medium-sized company, most often in the case of import of materials.

A factor for the difficulties in the supply to companies described above, which is related to the operations with the suppliers, is the choice of relationships with them. It was concluded that for two of the companies (the small and the medium-sized company), the most important criteria for selection of suppliers was the price, followed by the quality, the reliability of the materials and the possibility for deferred payment. This is explained by the difficult financial situation of the enterprises.

The significant increase in the prices of materials, which is expected to continue, is another challenge faced by the analysed companies. This is the reason why one of the companies purchases part of the materials in advance, however, the other two companies do not have the necessary financial resources for that and rely on the rapid response of the suppliers. As a result of the overstocking of the large company, it was faced with increased costs for warehousing for the materials that cannot be stored at the supplier's premises.

The fact that the small company does not use information technologies for supply management is alarming. Nevertheless, we believe that the integration of the supply operations and the other logistics operation is achieved because of the organisational structure, particularly, the manager and the construction engineer, whose competences include all decisions related to logistics.

Based on the difficulties and weaknesses we have identified in the supply to the studied companies, we believe that it is essential to undertake measures to increase the awareness on the need to become familiar with the concept of logistics and apply it (Milusheva 2022), especially in one of the enterprises that lags significantly behind in this regard. The problems with suppliers identified lead to the conclusion that changes are needed with respect to:

- The planning and management of the material inflow of the organisations by experienced and competent experts.
- The criteria for the decision about the supplier(s) of materials companies will work with. We believe that in the current context the importance of the criterion related to the price of the materials and the transport services needs to give way to the following essential criteria in the choice of suppliers, particularly: potential, reputation and financial stability, especially with respect to the materials important for the organisation's operations.
- The management of the relationships with the suppliers after realising the need of successful integration with the suppliers, which will require stable and long-term relationships based on active exchange of timely and accurate information (Vasilev, J. & Cristescu, M. 2019), knowledge and mutual support.

4. Conclusion

After a short theoretical overview of the nature, scope and purpose of supply in construction companies and a subsequent analysis focusing on the current problems with the supply to three companies, we believe we have achieved the objective mentioned above. In the context of the crisis that gives rise to a number of difficulties in the operations of construction companies (part of which were presented here), the role of competent management is becoming increasingly important.

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The novelties in the International Valuation Standards (IVS) and their relationship with the Bulgarian Valuation Standards (BVS) and appraisal practice

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Abstract: The purpose of the article is to examine the novelties in the latest edition of the IVS (issued by IVSC and published in the UK by Page Bros, Norwich) and to make a connection with the Bulgarian Valuation Standards (BVS), their update, as well as the overall improvement of the appraisal practice in our country. The IVS are the basis for professional valuation practice on a global scale. They are also a foundation for European Valuation Standards (EVS), The European Business Valuation Standards (EBVS), several other current valuation standards around the world and the BVS and the Bulgarian valuation practice. The new highlights of the IVS are mainly related to changes in the market environment, the development and needs of the valuation profession, and the challenges faced by professional valuers of assets, liabilities and businesses. The scope of the research corresponds to the used bibliography sources, including, in addition to the IVS, but also other leading valuation standards worldwide and mainly in Europe, Asia and North America, the professional organization of valuers in the country, namely the Chamber of Independent Appraisers in Bulgaria (CIAB), domestic regulations, the Independent Valuers Act (IVA), BVS, the development of appraisal activity in our country over the last 30 years, as well as the activities of major international appraiser organizations, including the latest editions of the best authors in the world in the field of asset appraisal and businesses appraisal. The research is mainly limited to the latest editions of the IVS and BVS, as well as the valuation activity in our country since 1992. The design and layout of the article include the main points regarding the emergence of the appraisal profession in our country, the presentation in chronological order of the main stages of development, including the timetable-type figure, tables, as well as the presentation of the novelties in the IVS effective from 31 January 2022. The methodology used includes a historical approach, a systematic approach, a method of analysis and synthesis, and a method of induction and deduction. Empirical research methods applied are survey, observation, comparison and measurement, and statistical and descriptive methods of analysis. The findings, practical implementations (consequences) and originality in the research are determined by the type of the researched matter, its poor knowledge in our country, and the good international practices that can be imposed in the assessment guild in Bulgaria, which in turn are largely related to some gaps in our regulations, the evaluation standards and the activity of the CIAB. Logically, the main conclusion is formed at the end of the article, which mainly covers the possible change in the BVS based on the International evaluation standards, which would have a positive impact on the evaluation practice in Bulgaria in general.

Key words: Bulgarian Valuation Practice, BVS, Changes, IVS, Novelties, Relationship.

Received: 03.12.2022

Revised: 12.12.2022

Accepted: 17.12.2022

Published: 30.12.2022

1. Introduction

The valuation activity in Bulgaria has been developing dynamically for 30 years (Kostov & Atanasova 2021; CIAB 2022; CIABVRC 2022). Here is the place to celebrate its round anniversary, on the occasion of which many events for the valuers in Bulgaria were planned and organised in 2022, some of them with representatives of extremely significant valuation organisations worldwide: (1) ASA – American Society of Appraisers (USA), which dates back to 1936 and is significant for the valuation guild in our country, as members of this organisation came to Bulgaria in the early 1990s as lecturers and advisors in order to create a valuation profession and practice. The ASA is a world-renowned and respected international organisation dedicated to the

appraisal profession. ASA is the oldest and only major membership international organisation of professional appraisers from all valuation specialities. Its structure, in terms of introduced valuation skills, closely resembles Bulgarian practice. In some sources, ASA is presented as the most famous international organisation dedicated to the profession of the appraiser (ASA 2022); (2) TEGOVA – the European Group of Valuers' Associations, representing a source of valuation standards for 45 years, originally established as TEGOVOFA, The European Group of Valuers of Fixed Assets (TEGOVA 2022).

2. Development of the valuation profession in Bulgaria

The most important stages of development and improvement of activities related to the valuation profession in Bulgaria in the period 1992 - 2022 include:

- 1992 – the Transformation and Privatisation of State and Municipal Enterprises Act was adopted; the Privatisation Agency was established.
- 1992 - 1993 – Licensing (by the Privatisation Agency) of the first independent valuers of businesses and individual assets in Bulgaria (modelled after well-established German and Anglo-Saxon schools, including with the collaboration of leading lecturers in the field of valuation).
- 1994 - 2001 – the Association of Business Appraisers, later renamed Association of Bulgarian Appraisers, was established in 1994; the Bulgarian Association of Real Estate Appraisers was established in 1995; valuations were carried out predominantly for the purposes of the privatisation process in Bulgaria.
- 2002 – the Privatisation and Post-Privatisation Control Act was adopted; the Privatisation Agency was restructured into the Privatisation Agency (PA) and the Post-Privatisation Control Agency (PPCA).
- 2003 - 2007 – The valuation practice began to expand to private clients and other state and municipal bodies beyond the framework of the privatisation process.
- 2008 – IVA was adopted (IVA 2008); the valuation profession became self-regulating (Kostov 2020).
- 2009 – the CIAB was established in accordance with IVA (CIAB 2022; Kostov 2020); the Code of Professional Ethics and the Statute of CIAB were adopted; the governing bodies of CIAB (Management Board, Supervisory Board, Professional Ethics Committee) were elected; ex-officio certification of existing valuers licensed by the Privatisation Agency; establishment of a Public Register of Independent Appraisers (kept at CIAB); first certifications of valuers by CIAB; establishment of the first regional college of CIAB (Varna Regional College, and subsequently seven more regional colleges were established in Bulgaria); establishment of the Chamber of the Professional Valuers.
- 2010 – Establishment of the Privatisation and Post-Privatisation Control Agency (through the restructuring of the PA and the PPCA); adoption of amendments to the Independent Valuers Act.
- 2011 – Latest amendment to the Independent Valuers Act.
- 2012 – CIAB became a member of TEGOVA; the first memorandum for international cooperation was signed (between CIAB – Varna Regional College and the National Association of Authorised Romanian Valuers /ANEVAR/ – Constanta Territorial Centre).
- 2013 - 2014 – Development of the regional colleges of CIAB.
- 2015 - 2017 – the IVS become mandatory for use in the valuation practice in Bulgaria; dynamic activity related to the qualification of valuers; establishment (after an initiative of the author of this paper and express inclusion in the departmental program “Training and Qualification” of CIAB and a suggestion of the author of this paper) of a national conference of independent appraisers in Bulgaria on the topic “Current issues of the valuation practice”, held for the first time in Varna on 5 September 2015 on the model of established European and global practices in the field of valuation, which subsequently became a traditional annual event, and in 2021 it brought together nearly 700 participants; organising a number of courses and exams (including some conducted by leading international lecturers from Europe); increasing number of certified valuers; international activity of CIAB; start of the process of setting the BVS (BVS 2018), as well as creating the first conditions and entry into negotiations with TEGOVA to accredit CIAB to award the well-known European designation REV (Recognised European Valuer).
- 2018 - 2022 – Amendment to the Code of Professional Ethics (CPE 2018); adoption of the BVS (effective 1 June 2018), with mandatory application; the requirement for mandatory use of IVS is no longer in force; IVS, EVS, EBVS, RICS, USPAP, CVS and other internationally applicable

valuation standards are now optional and can only be used where the client expressly has requested so (IVSC 2021; TEGOVA 2020; RICS 2019; AF 2020; Wolters Kluwer CCH 2013; WAVO 2022); CIAB is recognised by TEGOVA as a REV Awarding Member Association; the designation REV is for the first time awarded to valuers in Bulgaria; introduction of an annual membership fee (payable by all certified valuers) used for technical, administrative and logistical support of the Public Register of Independent Appraisers (CPE 2018; Kostov 2020); dynamic activity of CIAB in the field of qualification and training courses for valuers (by holding numerous conferences, seminars, webinars, round tables, qualification discussions, etc.); annual verification of the fulfilment of the obligation of valuers under IVA to maintain a professional liability insurance (CPE 2018; Kostov 2020); introduction of a rule for annual documented retraining (qualification) for each valuation competence (CPE 2018; Kostov 2020); striking-off thousands of certified valuers from the Public Register due to failure on their part to fulfil specific obligations under IVA and various regulations, as well as under procedures put in place by CIAB; increasing the number of online trainings (mostly due to the pandemic), as well as of hybrid trainings conducted both online and in person; dynamic activity of CIAB internationally (including through regular participation of CIAB in important forums of professional valuers' organisations in Europe, etc.) (SCIAB 2022).

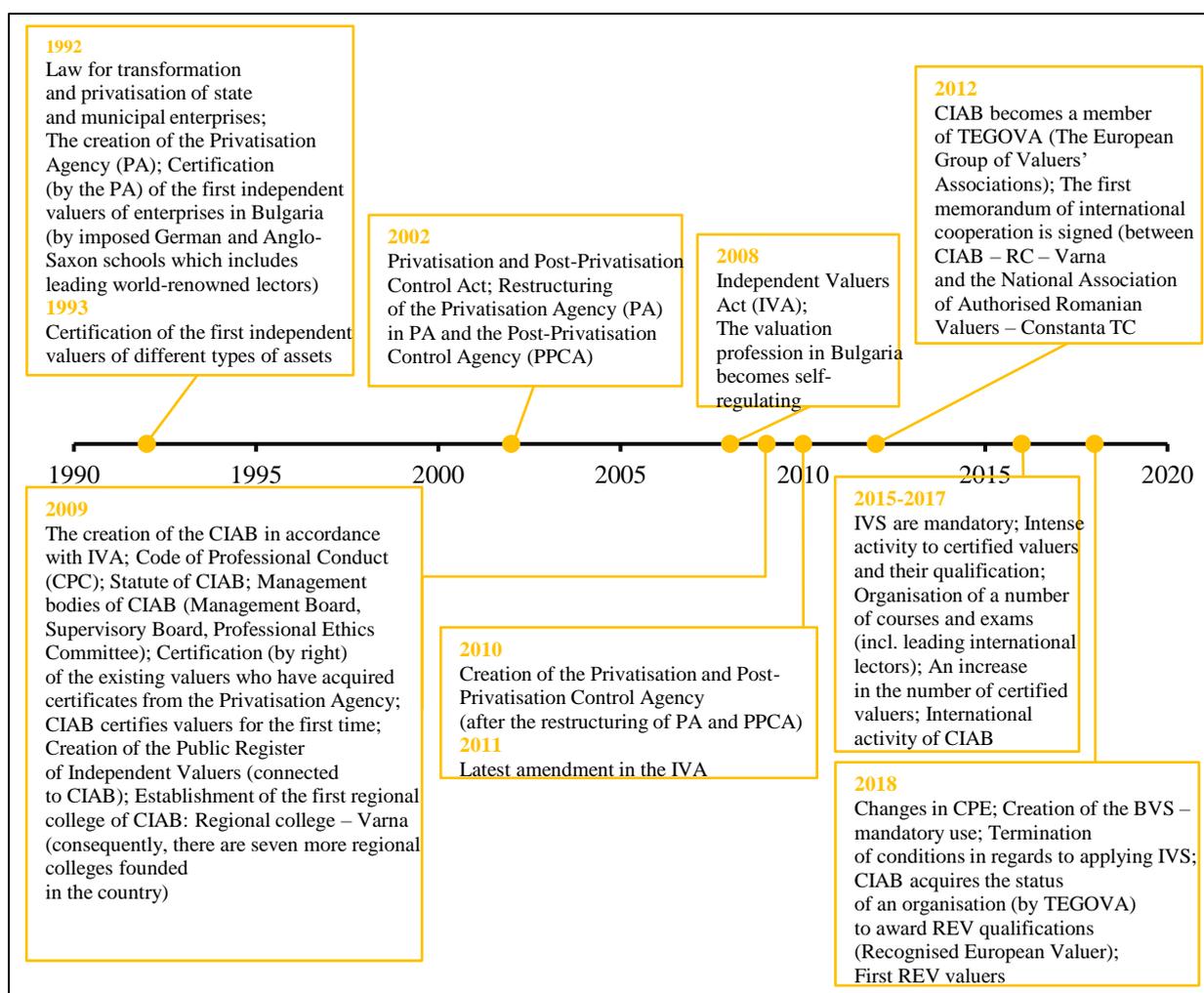


Figure 1. Development of valuation activity in Bulgaria for the period 1992 – 2022 (main stages)

Source: Own elaboration

Table 1.

Relative share of valuers (individuals) by certification in Bulgaria as of 2022
(some valuers have more than one license)

Valuation certification	Relative share
Real estates	68,19%
Machinery and equipment	24,99%
Trade enterprises and receivables	23,18%
Agricultural lands and perennial crops	19,41%
Land properties in forest areas	6,48%
Rights of intellectual and industrial property and other factual relations	5,88%
Financial assets and institutions	2,00%
Other assets	0,90%
Immovable cultural heritage	0,00%

Source: CIAB and own calculations

Table 2.

Relative share of valuers (legal entities) by certification in Bulgaria as of 2022
(some valuers have more than one license)

Valuation certification	Relative share
Real estates	94,30%
Machinery and equipment	63,16%
Trade enterprises and receivables	60,53%
Agricultural lands and perennial crops	31,58%
Rights of intellectual and industrial property and other factual relations	19,74%
Financial assets and institutions	8,77%
Other assets	2,63%
Land properties in forest areas	1,32%
Immovable cultural heritage	0,00%

Source: CIAB and own calculations

3. The BVS and the leading valuation standards worldwide

When scrutinising the BVS, it becomes evident that they were created mainly on the basis of the IVS and the European Valuation Standards, taking into account the legal framework of valuation in Bulgaria (BVS 2018). That is why a good knowledge of both IVS and EVS (including their amendments) is essential for the updating of BVS and also for the Bulgarian valuation practice in general. We should also note that in 2020 the European Business Valuation Standards (EBVS) were adopted. A variety of good practices and innovations are identified through a detailed study of RICS Valuation – Global Standards, as well as of USPAP (issued by the Appraisal Foundation, which is authorised by the US Congress to set valuation standards and qualifications of appraisers). There are valuation standards (at a national level) also in Russia, China, Poland, Romania, Serbia and many other countries around the world.

4. The novelties in the IVS

In the latest updated edition of the IVS, effective 31 January 2022, the following highlights stand out (IVSC 2021):

1. First and foremost, not only for IVS but also for a number of other valuation standards globally, is the mandatory process of professional proofreading of texts. For the next updated edition of the BVS, it is advisable to apply this global good practice, bearing in mind that these standards are regularly used by professionals (some with very extensive practical experience), as well as their significance in historical terms. It would be expedient to introduce appropriate numbering of the relevant standards (e.g. BVS 100, BVS 200, etc.) so that they can be more easily identified, used and managed (including for the purposes of more effective monitoring and adoption of appropriate measures thereafter).
2. Some core principles have been introduced in the IVS: the purpose, the relevant valuation standards, the development and revision of the standards, and the jurisdiction are clearly set out.

3. Particular attention is paid to the meaning of the term "scope of work".
4. Record-keeping rule – for an appropriate period of time; a copy on digital media (photocopy or electronic copy) also meets the requirement for record-keeping, and such an option is laid down in a number of other valuation standards (e.g. USPAP, USA).
5. "Discount rate" is a widely-used concept that appears in many places. A thorough review of the Bulgarian valuation theory and practice reveals that this concept is often used via one of the following different phrasings (some of them varying semantically): "profit rate", "discount factor", "capitalisation rate", "interest rate", "required rate of return" and the like. In this regard, it is desirable, both in the BVS and in the valuation practice, to use a more precise and clear single concept in connection with the discounting of cash flows back to a present value (Pratt et al. 2022; Damodaran Online 2022).
6. The terms "cost" and "price" are often used, and here is the place to pay special attention to the significant differences between such basic concepts in the valuation practice as "value", "price", and "cost".
7. *IVS 104 Bases of Value* includes the term "allocation of value", which denotes the separate apportionment of the value of an asset on an individual or component basis.
8. An entirely new standard has been created – *IVS 230 Inventory*. In this regard, it would be appropriate to include information on inventory valuation also in the BVS, but in examining this matter, our attention was drawn to another "gap" in the BVS and IVA, which has been the subject of vigorous discussions in the valuation profession in recent years, namely the valuation of biological assets, for which purpose the Tangible Assets Standards Board under the IVSC (IVSC 2022) issued in June 2019 the *IVSC Perspective Papers Issue 1: A road map to valuing agricultural properties (including biological assets)*, where biological assets are defined as living animals or plants, and a number of other clarifications have been made with regard to the valuation of these specific types of assets.
9. For the purposes of valuations of inventory and non-financial liabilities, the Top-Down method is described, and also the Bottom-Up method. *On the other hand, it should be clarified that even in previous versions of the IVS, there was a standard (not well known to the Bulgarian valuation practice) for the valuation of non-financial liabilities, which are liabilities requiring a non-cash performance of obligation through the delivery of goods or services. The non-exhaustive list of liabilities that may in part or in full require a non-cash fulfilment and be subject to IVS 220 Non-Financial Liabilities includes deferred revenue or contract liabilities, warranties, environmental liabilities, asset retirement obligations, certain contingent consideration obligations, loyalty programmes, power purchase agreements, certain litigation reserves and contingencies, and certain indemnifications and guarantees.*
10. It is noted in *IVS 400 Real Property Interests* that, in some instances, legitimate individual, communal/community and/or collective rights over land and buildings are held in an informal, traditional, undocumented and unregistered manner.
11. The definition of "transaction costs" remains valid.

Some of the other amendments to and more significant characteristics of the updated version of the IVS include:

- The definition of "bases of value" – these are the fundamental premises on which the reported values are or will be based.
- "Costs" – the price or costs incurred in the acquisition or construction of an asset.
- "Discount Rate" – a rate of return used to convert a monetary sum, payable or receivable in the future, into a present value.
- "Equitable Value" – the estimated *price* for the transfer of an asset or liability between identified knowledgeable and willing parties that reflects the respective interests of those parties. This concept is presented as different from the concept of "Fair Market Value" and that of "Fair value".
- In addition to the traditional definition, well known in the valuation theory and practice, it is also referred to as *worth*.
- "Price" – it should also be noted here that the price may be equal to, higher or lower than the value; this applies to both the asking price and the market price (the actual selling price – the transaction price).
- The valuation is as of a specified date, i.e. it is not acceptable (such valuation practice exists in Bulgaria) to designate a validity period of the valuation report, for example, 90, 180 or 270 days (as required by some banking institutions, municipal administrations, government agencies), as there

are no guarantees as to what the state of the subject asset and the market will be, e.g. on the 198th day after the effective date of the report.

- The definition of "valuation reviewer" is still valid and effective – a professional valuer engaged to review the work of another valuer. As part of a valuation review, that professional may perform certain valuation procedures and/or provide an opinion of value. Looking at the existing BVS, we notice that reviews do not constitute valuations within the meaning of the IVA (BVS 2018; IVA 2008). It should be noted that there are a number of well-established valuation practices around the world (including USPAP, USA) where the reviewing of valuations requires a separate valuation competence.
- The definition of a valuer includes even an "external" individual engaged by an entity under a contract. It is also stated that in some jurisdictions, licensing is required before one can act as a valuer. By this logic, we come to the conclusion that there are countries in the world where it is not necessary to obtain such licensing in order to perform certain valuations. *An example in this respect is Poland, where only the practice of real property valuers is regulated by law. Thus, valuations of machinery, business or assets/liabilities other than real property can be performed by any person who has the necessary knowledge for this and whom the client would trust to determine reliable values and achieve the final results of the valuation.*
- *IVS 105 Valuation Approaches and Methods* expressly states that one or more valuation approaches may be used in order to arrive at the value in accordance with the basis of value. It is worth noting that many valuers in Bulgaria still comply with outdated valuation standards adopted decades ago for the purposes of privatisation, where it is specified that at least two approaches/methods must be used in the valuation reports.
- According to *IVS 200 Businesses and Business Interests*, "enterprise value" is often described as the total value of the equity in a business plus the value of its debt or debt-related liabilities minus any cash or cash equivalents available to meet those liabilities.
- *IVS 230 Inventory* stipulates the following:
 1. Inventory includes different types of goods (raw materials, parts, supplies, work-in-progress, finished goods).
 2. The market value of inventory typically differs from and is usually higher than the book value of inventory.
 3. The valuation techniques and considerations for inventory vary from those of other assets.
 4. The three valuation approaches can all be applied to the valuation of inventory.
 5. Distributor profit margins may represent a meaningful market proxy for returns on the disposition process. Contract manufacturers, to the extent available, may provide a proxy for margins earned through the manufacturing process.
 6. Under the income approach, the value is arrived at through the allocation of profit (value) contributed pre-valuation date versus the profit (value) contributed post-valuation date.
 7. The main methods for the valuation of inventory include (1) Top-Down; (2) Bottom-Up; (3) Current Replacement Cost.
 8. With regard to intangible assets and their relationship to inventory, whether intangible assets are owned or licensed, the market value of the inventory should be the same.
 9. The valuer should account for obsolete inventory reserve balances.
 10. Typically, the obsolete inventory adjusted for the inventory reserve would not be valued as it has been adjusted to net realisable value.
- It can be concluded that *IVS 300 Plant and Equipment* covers facilities, installations, units, apparatus and equipment.
- In *IVS 400 Real Property Interests*, the three main types of interest remain valid:
 1. The superior interest in any defined area of land.
 2. A subordinate interest that gives the holder rights of exclusive possession and control of a defined area of land or buildings for a defined period and/or
 3. A right to use land or buildings but without a right of exclusive possession or control.
- *IVS 410 Development Property* remains effective, and such properties are defined as interests where redevelopment is required to achieve the HBU or where improvements are either being contemplated or are in progress at the valuation date, including the construction of buildings, previously undeveloped land which is being provided with infrastructure, the redevelopment of previously developed land, the improvement or alteration of existing buildings or structures, land

allocated for development in a statutory plan, and land allocated for a higher value uses or higher density in a statutory plan.

5. Conclusion

A significant part of the amendments to the IVS examined in this paper are directly relevant to the valuation practice in Bulgaria, and this, in turn, warrants discussions and updates to the BVS to improve the valuation profession and services in general, with emphasis on valuations of the assets, liabilities and businesses or parts thereof, for the needs of banks, state and municipal bodies, buyers, sellers, tenants/lessees, landlords/lessors, credit intermediaries, leasing companies, investment companies, construction companies, insurance companies, pension funds, the judiciary, etc.

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Strategic guidelines for the development of enterprises of the construction sector

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Abstract. The current trend of globalization of the world economy necessitates the use of high-tech developments and innovations that allow achieving strategic goals at the national, regional, and sectoral levels. The prerequisites of the study are determined by the urgency of finding solutions to problematic issues of formation and implementation of priority strategic guidelines for the development of enterprises of the construction sector, designed to ensure an adequate contribution to the strategic vector of advanced industrial, technological and socio-economic development of the construction industry and the national economy. This determines the need to find a solution to the problem of forming and implementing priority strategic guidelines for the development of enterprises mainly by increasing technological and innovative potentials that form the economic potential of the development of enterprises by the type of activity "Construction". The purpose of the study is to identify strategic guidelines for the development of enterprises of the construction sector that meet the targets of the fourth scientific and technological revolution and the achievement of strategic goals for the development of national economies. The findings of the paper outline the key signs of development, inherent in the nature of the development of material objects and economic entities of the economy are revealed. This allowed us to propose a systematization of the formation of priority strategic guidelines for the economic development of construction enterprises, reflecting the relationship with the targets for achieving national goals and strategic objectives for the development of economies of various countries and meeting the targets of the fourth scientific and technological revolution Industry 4.0. The practical implications refer to enterprises of the construction sector.

Key words: construction, strategic goals, economic development guidelines, change management strategies.

Received: 05.12.2022

Revised: 16.12.2022

Accepted: 22.12.2022

Published: 30.12.2022

1. Introduction

The current trends of globalization and the development of the world economy are changing significantly under the influence of the factors of the fourth scientific and technological revolution Industry 4.0, the consequences of the spread of a new coronavirus infection (Covid-19) and the introduction of trade barriers aimed at achieving the goal of reducing global hydrocarbon emissions. This generates new trends for the development of the economies of various countries operating under conditions of economic sanctions and investment restrictions, the impact of man-made, environmental, political and socio-economic risks. In these conditions, the search for a solution to the problem of ensuring sustainable economic growth and socio-economic development of the national economy and its economic entities is an urgent problem.

The actual direction of finding a solution to this problem at the level of the construction complex is the formation of priority strategic guidelines for the development of enterprises of the construction complex in the medium and long term based on the use of high-tech developments and innovations in the production activities of construction enterprises that meet the targets of the fourth scientific and technological revolution Industry 4.0,

strategic goals and objectives at the corporate, sectoral and regional levels. In this regard, the identification of these priority strategic directions of development, focused on achieving national goals and strategic objectives of the economies of various countries, predetermined the purpose of the study.

2. Methods

The search for a solution to the problem under study involves the use of generally accepted methods of scientific research, one of which is system analysis. Its application to the search for a solution to the problem under study makes it possible to use a systematic approach to research and management of economic development. System analysis makes it possible to comprehensively assess the change in the development of the activities of manufacturing enterprises and organizations and the change in the management system of their development process. In particular, following the method of system analysis, considered from the perspective of the general theory of the development of systems of nature, society and thinking (Urmantsev, 2020), focuses on the need to: understand and form the initial prerequisites, concepts, categories, teachings, patterns of development, principles, strategies and criteria for the development of the system under study.

The specificity of system research consists in their focus on the study of complex, large-scale problems, in the consistent orientation of researchers not only to cognition of the essence of the studied problems and the corresponding objects, but also to create tools to ensure optimal management of these objects. The system methodology is characterized primarily by a system approach. Following the systematic approach necessitated the need to initially clarify the methodological prerequisites for substantiating the priority strategic guidelines for the economic development of the enterprises of the construction complex. This prompted us to turn to the disclosure of the characteristics of the concept of "development" as a philosophical and economic category of the phenomenon under study. This concept is not well-established until recently. Clarifying the interpretation of the concept of "development" allows not only to better understand the essence of the phenomenon under study, but also to identify its key features. These features are considered by the authors as a methodological basis for systematization and classification of priority directions of economic development of enterprises of the construction sector. The above explains the need to clarify the characteristics of the category "development", which is a complex philosophical and economic category. From the standpoint of the concept of the general theory of systems development (Urmantsev, 2020), the characteristic of the phenomenon under study "development" is a categorical concept reflecting the patterns of systemic transformations and changes in the forms of stability and instability, forms of movement and change, forms of manifestation of quantitative and qualitative changes in the transition from the old to the new type of movement, which is characterized by regular, directed, irreversible and qualitative changes in the material object, its connections and processes.

A number of researchers consider the concepts of growth potential and development potential to be equivalent. However, scientists from Russia and Bulgaria (Chaparov, Gospodinova, Fedoseev & Yudenko, 2020) substantiate that the concepts of growth and development of economic entities are not identical economic categories, and believe that it is necessary from a methodological point of view to differentiate these concepts for the purpose of productive research, measurement and justification of the method of assessing the potential of growth and potential development of entrepreneurial organizations (Chaparov, Gospodinova, Fedoseev & Yudenko, 2020). It should be noted that the concept of development is the finale of dialectical-materialistic ontology, which points to three objective laws of development: the unity and struggle of opposites, the relationship of quantitative and qualitative changes, the negation of negation. These laws explain how development takes place and in which direction. And if the operation of laws is often investigated in relation to society, the political system, wildlife, then in relation to territories, including regions, research is not systematic.

3. Results

The identified key signs of economic development of economic entities were a methodological prerequisite for systematization and classification of priority strategic directions of economic development of enterprises of the construction sector in the medium and long term (Table 1).

Table 1

Systematization and classification of priority strategic directions of economic development of enterprises of the construction sector

Classification attribute	Key feature of the development vector	Systemic characteristics of the vector of economic development
Qualitative changes in the relationship between construction participants	New quality of business partnerships between construction participants	Qualitative changes in business partnerships between construction participants (customers, investors, suppliers, designers, commercial banks, insurance companies, consumers), accelerating the return on investment and commissioning of production capacities and facilities
	New quality of communication in the organization and management of team work in the activities of enterprises	Qualitative changes in the teamwork of the construction company's team (heads of structural divisions, departments, services and top managers), increasing the efficiency of managing the economic development of the enterprise
Qualitative changes in the methods of managing the processes of vital activity, growth and development of the economy of enterprises of the construction sector	New quality in the development and implementation of business strategies of construction companies	Qualitative changes in the methods of substantiating business strategies and ensuring their effective implementation (qualitative changes in increasing the potential of price and non-price competition in the construction market)
	New quality in ensuring the processes of vital activity, growth and development of the economy of construction enterprises	Qualitative changes in the organization's life support (in timely and full fulfillment of its obligations to creditors, tax authorities, its own employees and partners in the construction business)
		Qualitative changes in ensuring the economic growth potential of a construction enterprise (production of construction products mainly due to intensification)
		Qualitative changes in the management of the economic development of a construction company based on ensuring balanced economic, information and environmental security
Qualitative change in the impact of innovations on the economic development of enterprises of the construction sector	Application of new technologies and production methods. Innovations in the development of the production of construction products. Application of new methods in the organization of production	Mastering new technologies for the production of construction products and new methods of organizing construction production and labor of workers
	Development of innovative construction products	Mastering the production of new (innovative) construction products (new for the construction market; new for the organization)
	Innovations in the management of the activities of enterprises of the construction sector	Qualitative changes in the application of new technologies in management (organization, departments, business processes, resources, type of activity)
		Qualitative changes in the application of new methods in management (in the application of new corporate management quality standards, new management principles, criteria, strategies, methods of stimulating the work of employees)
New quality of structural transformation	Qualitative structural changes in ensuring the economic development of construction organizations	Structural changes associated with the formation of an innovative type of work volume growth, the development of the domestic material and technological base of construction enterprises, the reorientation of investments in technological production innovations

		Qualitative changes in the sphere of structural transformation (qualitative changes in the structure of construction costs by economic elements; the specific structure of fixed assets and investments in fixed assets and construction development; the structure of exports and imports of construction services; the specific structure of construction machinery of domestic and foreign production)	
Abilities and opportunities of qualitative changes in ensuring the potential of economic development of enterprises of the construction sector	Focus on the client-centricity of the construction industry	The relationship of client-centricity with the work of civil servants, top management of enterprises and digitalization in the industry.	
	Abilities and opportunities to increase competitive potential in the regional construction market	Ability and opportunity to form and develop stable positions in the regional construction market (by increasing the volume of products that exceed the consumer properties of competitors' products and the predominance of the potential of non-price competition over price)	
	Ability and opportunity to implement qualitative changes in the capacity building of comparative advantages of construction enterprises		Ability and opportunity to qualitatively measure the potential of economic development, to assess, analyze, forecast and monitor economic development
			Ability and opportunity to exercise comparative advantages in the development and implementation of targeted programs, strategies and mechanisms of economic development with a focus on increasing the competitive potential of organizations, considering the acceleration of the return on investment, increasing the efficiency of the resources used
			Ability and opportunity to manage economic development qualitatively by applying new methods of employee motivation
		Ability and opportunity to successfully manage the sustainable growth and development of the construction sector as a result of balanced management of economic and environmental risks in reducing the damage caused to the environment	

Source: compiled by the authors according to (Chaparov, Gospodinova, Fedoseev & Yudenko, 2020; Lewis, 1955; Rostov, 1959)

4. Discussion

The proposed systematization and classification of priority strategic directions of economic development of construction enterprises in the medium and long term is considered one of the alternative methodological approaches to its improvement. The authors do not pretend to the finiteness of these strategic directions for the development of enterprises of the construction sector, but are confident that the recommended systematization and classification are a methodological prerequisite for substantiating and selecting priority strategic guidelines for the economic development of enterprises of the construction complex of the country, as it reflects the potential economic development of enterprises based on their ability to carry out constant changes and alterations focused on implementation new technologies in the field of construction production and management, the use of new construction machines, mechanisms and innovative building materials.

The need of construction organizations for constant changes and alterations in their activities creates the need for the formation and development of a new approach to management – change management (Harrington, 2008; Shironina, 2019). This necessitates the formation of an adequate strategy for managing changes in the system of strategic management of economic development of construction organizations.

At the same time, the identification of priority areas for the formation of strategic guidelines for the economic development of organizations of the construction complex necessitates their alignment with national goals and strategic objectives for the growth and development of economies of various countries in a complex relationship with the targets of the fourth scientific and technological revolution Industry 4.0. The implemented concepts of economic development of countries with advanced technologies reflect at their core the targets of their development, adequate to the stages of industrial development, called industrial (scientific and technical) revolutions (De Vries, 2008; Earth Policy Institute, 2021; Fedoseev, Yudenko, Vasiliev, 2022). Fedoseev I. V., Yudenko M. N., Vasiliev A.N. (2022) based on the methodology of an expert survey, determined different levels

of the relationship between Industry 4.0 and the main factors affecting the global construction industry. It is concluded that within the framework of Industry 4.0, the main problem of the economy is limited resources, and the low material and energy intensity of production in Industry 4.0 will allow abandoning the principle of territorial placement of production facilities near raw materials, energy sources, labor resources (Fedoseev, Yudenko, Vasiliev, 2022, p. 172).

Thus, the potential opportunities for the development of science, engineering, technology and innovation are key factors for further economic growth and development of countries, reflecting the obvious nature of their economic development, which is based on the realization of the potential of scientific and technological progress. And the authors of the article (Arzinzov, Chepachenko & Leontev, 2020) clarify in this regard the interpretation of breakthrough technologies as dominated by new technologies that can provide a more accelerated progressive development of the economy and minimize damage to the natural environment.

In this regard, it is important to adequately measure, analyze, evaluate and increase the potential of economic development of enterprises of the construction complex in an integrated relationship with their technological and innovative development potential.

5. Conclusion

The potential opportunities for economic development of the enterprises of the construction sector are in general based on the inevitable process of change due to the continuous development of new technologies in the field of production and management, the tightening of price and non-price competition, the impact of other environmental factors. In this regard, the identification of priority strategic guidelines for the development of construction enterprises generates the need to find solutions to a number of theoretical, methodological and applied problematic issues that require concretization of the concept of "development" in relation to economic entities, identification of key signs of economic development, their systematization and classification, substantiation of principles, criteria and methods of economic development management.

The priority directions identified in the course of the study for the formation of strategic guidelines for the development of enterprises of the construction sector should eventually reflect the relationship with the targets for achieving national goals and strategic objectives for the development of economies of various countries and meet the targets of the fourth scientific and technological revolution Industry 4.0.

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Normative requirements and practical-applied skills of personnel employed in the hotel industry - problems and challenges

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Abstract. The aim of this article is to explore the problems facing the hotel industry caused by the lack of staff. On this basis, specific proposals have been made to overcome the shortage of staff resources by making recommendations to the management related to the optimization of personnel policy and the stimulation of staff. The scope of the study is limited to the problems arising in the hotel industry in Bulgaria, arising due to the lack of staff, including managerial positions. The latter is also a so-shaped limitation of the study, although similar problems exist both in countries of the European and in countries of the extra-European Union. The survey is carried out on the basis of an analysis of statistical data on the number of accommodation establishments, the number of overnight stays, the revenues from nights spent in Bulgaria, the tourism expenditures of Russia and Ukraine, etc. It is argued that increasing the knowledge and skills of employees is a serious incentive to keep the last to work in tourism. The design of the study and the methods used are clear and understandable to the reader. The results of the research, after some adaptation, can find immediate application in the practice of any tourist enterprise.

Key words: hotel, hotel industry.

Received: 20.11.2022

Revised: 19.12.2022

Accepted: 22.12.2022

Published: 30.12.2022

1. Introduction

Hospitality skills are vital for the work in the industry. They are all the skills, knowledge and behaviors that enable employees in the sector to create a positive relationship between the company they work for and the people they service. Possessing good skills includes the ability for staff to be always friendly and professional with customers, to anticipate and respond to customer needs, and to be organized so that hotel operations run smoothly. Skills in the field are essential for any role in the service sector, including working in hotels, restaurants, spas, guest services and reception. Although there are many roles in the hospitality industry, most of them require many of the same basic skills, such as communication and teamwork.

The challenges in hospitality have always been a balancing act of taking care of employees and customers. However, the global Coronavirus pandemic adds another layer of complexity to an already nuanced sector. The hospitality industry may not be unique in its reliance on customer service, but few other industries in the modern economy are so closely tied to it. Most organizations in this dynamic and competitive space depend on their ability to effectively cater to the ever-changing demands of a fluctuating customer base. Some of the issues that managers in the hospitality industry deal with are related to cross-cultural management, people empowerment and people assurance, all of which are very important to ensure that employees perform their duties and provide quality service to the customers.

This study examines some of the most important challenges facing the hospitality industry, including the current business environment and the issues of human resources. It goes without saying that one of the best ways to overcome the problems is to invest in human resources. Finding qualified staff who can manage a hotel is the surest path to guest satisfaction and guest retention. At the same time, this is one of the most important challenges for hotels, as employees are the face of the business. They take care of all activities including customer service, housekeeping, administration and payment processing. Industry can overcome this challenge through several activities outlined in the article.

The hotel industry is one of the fastest developing industries in the world. It is an inseparable and irreplaceable part from the tourist sector. According to the International Monetary Fund (IMF, 2020) travel and tourism constitute 10 percent from the world's gross domestic product and more than 320 million work places in the world. This report debates the basic normative requirements and practical-applied skills of personnel, employed in hotel business, as well as the problems and challenges, which they face.

In the years hotel industry demonstrates weak indicators of slowing down even during economic recessions (IMF, 2020). Independently of that, the COVID-19 pandemic led to global challenges, economic and health crises and created negative impact on global industries, including tourism and travel. Russia's military offensive in Ukraine brings a negative risk for international tourism. Additionally, it affects the already high prices of petrol and transport costs, increases the instability and disturbs travel in Europe. According to WTO data (2020), the mostly affected destinations to this moment, except Russia and Ukraine, are the Republic of Moldova with 69% decrease of flights from 24 February (compared to the levels from 2019), Slovenia (-42%), Latvia (-38%) and Finland (-36%) according to Euro control data. Russian reservations for outgoing flights also decreased at the end of February and the beginning of March, but they recovered since then, according to data of Forward keys.

Despite the conflict, a growth in the European air traffic can be seen from the middle of March till the beginning of May in year 2022. The airplane reservations for Intereuropean travels and for flights from the USA to Europe are also increasing. The alleviation of travel limitations, connected with Covid-19, contributes to the normalization of travels, but the conflict continues to represent a serious threat for the recovery of the tourist industry and the world economics. A possible loss of 14 billion USD in the tourist sector is foreseen and hindrance of the recovery of trust in global travel as a result from the military actions. As outgoing markets Russia and Ukraine constitute a total of 3% from the global expenses for international tourism as of year 2020. In 2019 the Russian expenditures for travelling abroad equal 36 billion USD, and the Ukrainian ones 8,5 billion USD. In the year 2020 these values have decreased to 9,1 billion USD and 4,7 billion USD respectively.

As tourist destinations Russia and Ukraine in 2021 constitute 4% from the international tourists' arrivals in Europe, but 1% only from the international tourism revenues in Europe. Still, the importance of the two markets is essential for the neighboring countries, and also for the European destinations.

Although the hotel and tourist industry as a sector exhibits recovery trends after the worst year 2020, there are challenges that still have to be examined. They have been existing for the latest several years and are going to need strategic solutions. The present elaboration examines the main problems of hotel industry in the year 2022 and in the future.

In view of the complex economic situation, the Bulgarian touristic sector is undergoing changes and is facing new challenges. According to data of the National Statistical Institute, the places of accommodation in 2021 are 3,335, and the number of accommodated persons is 5,647,634.

Although there is no available statistic, a shortage of personnel is continuously observed in the sector. Apart from the lack is filled with staff from abroad - mainly Ukraine, Belarus, Moldova, Russia, etc. In view of the present situation, the current summer season is subject to changes. The shortage of employees is deepening distinctively in 2022 as well, this problem remains a main challenge in the tourist sector and hotel business.

RUSSIA AND UKRAINE'S INTERNATIONAL TOURISM SPENDING (% OF WORLD TOTAL)

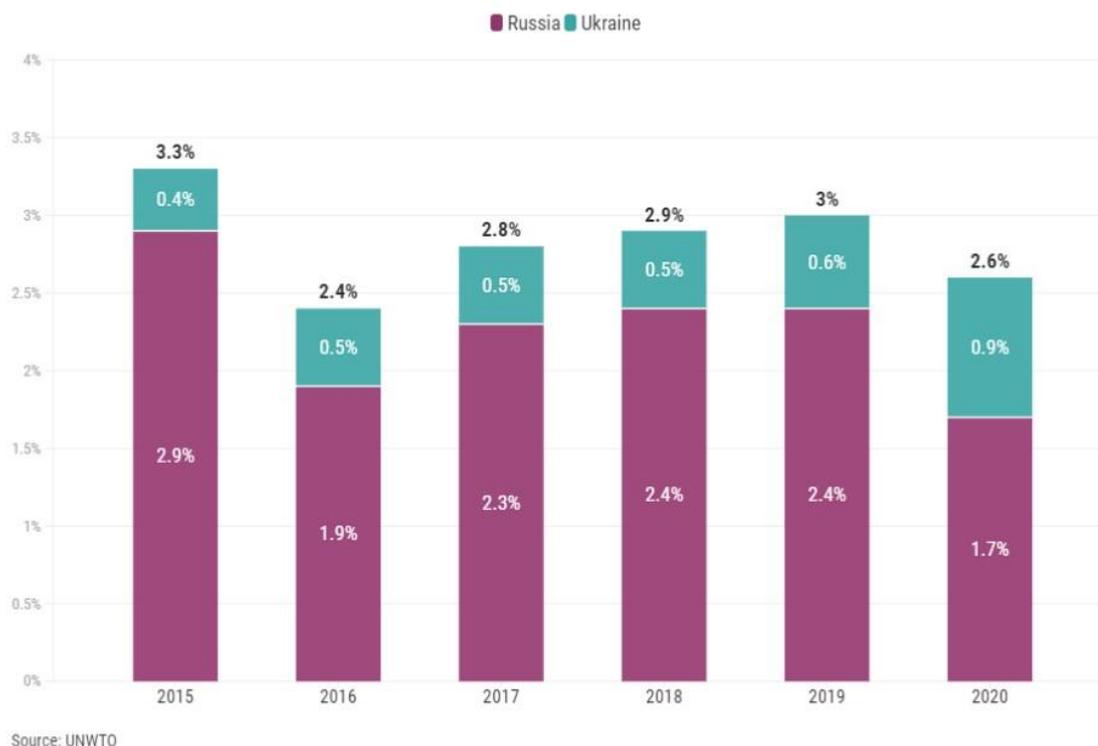


Figure 1. The expenses of Russia and Ukraine for international tourism (% from the total in the world)
Source: WTO, impact of the Russian offensive in Ukraine on international tourism, onto tourism market intelligence and competitiveness, 2022

- **Normative requirements for the personnel, employed in the hotel industry**

Due to the specifics of the activity and the nature of the work in field of tourism, there exist several normative requirements regarding the employees. According to the Regulation for the requirements to the categorized places of accommodation and places of public eating and entertainment, about the order for determining of the category, as well as about the conditions and order for registration of rooms for guests and apartments (2020), the professional and language qualification of the personnel is a norm for the determining of the category of the tourist beds. The legislator has offered the various types and categories of places of accommodation and public places of eating and entertainment and requirements for their interior design, the technological equipment and finally staffing, which aims to guarantee the comfort and security of visitors.

All the activities in the hotel industry depend on the professional knowledge and skills of the servicing personnel. Unfortunately, often in the practice, the individual level of preparation of each employee cannot be defined, and the Regulation for the categorization of tourist objects makes a provision the general manager to declare the professional and language qualification of the personnel in the object, for the observing of the norm for professional and language qualification. The requirements towards the employees become bigger, the higher the category of the place of accommodation is. The lowest category obliges the general managers to have a minimum of secondary professional education, or education and a professional qualification, or secondary education and a 3-year working experience in the system of tourism and the command of one foreign language. This to a great extent aims to guarantee a competent management of the tourist objects. For one of the basic job positions in hotel industry, namely that of an administrator-receptionist, the requirements are like the ones for the general manager. This is determined by the essence of the work, which relates to the quality servicing of the guests, the performance of the financial operations and other administrative-accommodation activities. For the chambermaid personnel a minimum of primary education is compulsory since this department in a hotel is low qualified. This requirement relates to the lack of personnel at a national level. The high categories (4 and 5 stars) are characterized with high demands regarding the personnel. A secondary education at least is necessary and a professional qualification, and higher education is required for the employees at managerial positions. In this

regard it is recommended the hoteliers to hire personnel with ready professional skills and a higher educational degree.

To summarize, the normative requirements for a professional and language qualification include the necessary criteria, which to guarantee the professional and language qualification and preparation of the personnel for the respective category. This on its part provides quality servicing of the customers and a professional management of the tourist objects from all types and categories. The Categorization regulation is a fundamental source and reference point for the definition of the categories of the touristic objects and the quality management in hotel business. Its examination results in multiple conclusions:

- It aims to differentiate all material and non-material details in the hotel industry supply. Thus it can provide high quality and standard in the separate types and categories of places of accommodation.
- The norms encompass the basic principles and components of supply for the different types of objects (construction, furnishing and equipment, servicing, offered services and requirements towards the personnel).
- The service quality is secured by the high requirements regarding the servicing, the offered services, the professional and language qualification of the personnel in the tourist objects.
- The normative framework is not adaptive and does not allow deviations from the standard. There are not any deviation percentages available. For example, in the practice it is not possible all the premises in one hotel to correspond to the sizes, defined as minimal and obligatory, which leads to subjectivism and makes the assessment invalid to a certain extent.

2. Applied skills of personnel employed in hotel industry

The skills of persons, employed in the hotel industry, are all those skills, knowledge and behaviour, which allow employees in the sector to create a positive connection between the company for which they work, and the people, whom they service. The possession of good skills encompasses the capability the personnel to be friendly and professional to the customers at any time, to anticipate and respond to the customers' needs and to be organized so, that the activities in the hotel run smoothly. The capabilities in the sphere are of substantial importance for each role in the sphere of services, including employment at hotels, restaurants, spa centers, departments for servicing of guests and receptions. Although there are many types of job positions in the hotel industry, most of them demand many of the same fundamental skills as communication and teamwork.

The work in the hotel industry demands a broad diapason of skills, most of which develop in the course of the activity itself. They could include technical skills as well, such as for example the usage of a definite computer program or an application for processing of reservations for a hotel or a restaurant. We hereby examine twelve from the most important skills for personnel in hotel industry.

- **Professionalism**

The demonstration of professionalism through the respect of the guests' and colleagues' boundaries and the keeping of a relevant emotional distance from them is an important skill for anyone, who works in hotel business. It requires the learning of what is suitable for the development of hospitable environment. Professionalism includes a constant reaching of high standards and foremost competence, knowledge, conscientiousness, respectability, respect, appropriate behavior and confidence.

- **Communication**

The clear and professional communication is one of the most important parts of the work in the hotel industry. It includes not only communication with the guests, but also with other staff members and other departments in the object, so that nothing is missed. Communication skills also include listening and understanding of the body language. With these skills the staff members can quickly understand what the customer needs, often before they have demanded a concrete thing.

- **Attention to detail**

In the industry context this means the noticing of all small details, which can influence the guest's satisfaction. This can include activities such as when a given surface needs cleaning, whether a customer is still waiting for an order, to the complete satisfaction of the consumer and their total experience during their stay. The highly qualified personnel members differ from the rest, since they anticipate all details of the customer's visit and make everything possible to improve their experience.

- **Multitasking**

It is necessary for the personnel to be able to monitor big groups of customers simultaneously, as they remember the individual necessities of every customer. They treat every visitor as their first priority. These skills are mostly developed through practice, and the improvement of efficiency could be attained for example with the preparation of control lists or visualization of the order, in which the separate tasks will be done.

- **Resolving of problems**

Often the personnel work can include identifying problems, which the guests have, and the development of methods for their resolving. This minimizes the negative effects on their overall experience. It could also include the follow-up of the customers later, to guarantee the visitors' satisfaction and the positive assessment of the personnel and the hotel.

- **Patience**

This is a key skill for every expert in customer servicing. The problem resolving is a big part from each role in hotel industry.

- **Positive attitude**

The capability to stay positive, even in difficult situations, is an important skill for the professionals in hotel business. Customers often expect to be treated kindly and with respect all the time and the positive attitude could help this to be achieved. The positive attitude could influence the other team members as well and make the work place a more pleasant environment.

- **Initiative**

The work in the hotel industry often includes the reliance on one's own knowledge and instincts, in different situations. Qualified employees in the hotel business are in the position to foresee what could be needed to be done later. This quality could impress customers and facilitate the work with other people.

- **Adaptation**

In the hotel industry, often situations appear with managing changes in the last moment or the availability of unexpected circumstances. This could include situations as a change of the shifts, customers asking questions, to which the concrete employee does not know the answer. These skills are often accumulated in the course of time and experience.

- **Teamwork**

These skills assist the efficient cooperation between the colleagues, as well as the increase of the customers' satisfaction. They allow the personnel to achieve more together, than they separately could, since each of them has different skills and capabilities. Besides, it gives the opportunity for the sharing of responsibilities, encouraging and support of the team and improvement of the communication skills.

- **Emotional intelligence**

The use of empathy and compassion for the understanding of the feelings of other people is an important skill of the hotel industry personnel. It is often possible to work with difficult customers and it is important to understand the main problem, which they face, for it to be resolved in the most appropriate way. Compassion allows the adaptation of behavior and actions to the separate customer.

- **Cultural conscience**

The work in hotel industry relates to a continuous and daily current of people. They could be of a different age, different origin and possess their own culture, beliefs, values, personalities and expectations. The regarding of these differences secures the comfort and good experience of the customers as well as the team.

The challenges in hotel industry have always been an activity of balancing the care for employees and customers. The global Corona virus pandemic however adds another layer of complexity to an already nuanced sector. The hotel industry might not be unique in its dependence on customer servicing, but a few other sectors in modern economics are so closely connected with it. Most organizations in the dynamic and competitive space depend on their ability to effectively take care of the continuously changing requirements of dynamic customers' purposefulness.

Some of the problems, with which general managers in the hotel sector deal, are connected with intercultural management, the empowerment of people and the provision of people, as all of this is very important in order to guarantee, that employees fulfill their duties and provide quality service to the customers.

Even in the complex economic and geopolitical situation, one of the most serious problems, which hotel industry continues to face is the lack of personnel. The circumstances are similar in the city places of accommodation, as well as the vacation ones. But still, this problem is not characteristic of Bulgaria only. For example, research of eHotelier (2018), shows, that in hotel business and education in field of tourism in the United Kingdom, they suffer from a multitude of political, economic and financial impacts, which have an adverse effect on personnel recruiting. This is not only a permanent problem with recruiting of personnel, but there are additional difficulties with the enrollment of students in courses and training in hotel industry at colleges and higher education institutions. What is also surprising, is that for an industry in which 1 of every 13 people works in Great Britain, the traineeships in hotel industry represent just less than 2% from the total number, and 98 % from the total number start working in other industries (Figure 2), as the starting personnel in accounting are more than the ones in hotel business (Figure 3).

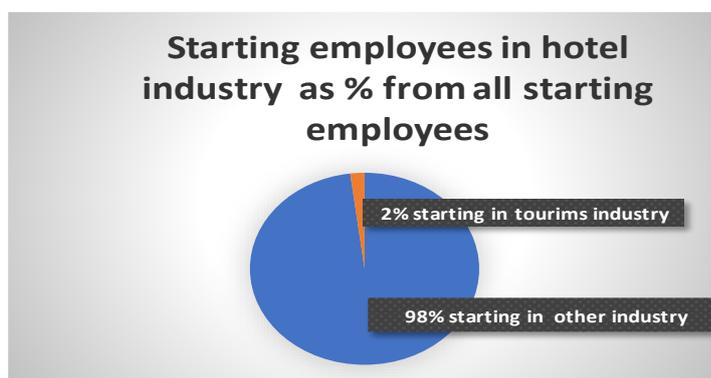


Figure 2 Starting employees in hotel business as % from all starting employees in Great Britain /
Source: eHotelier, UK hospitality education – in decline, 2018

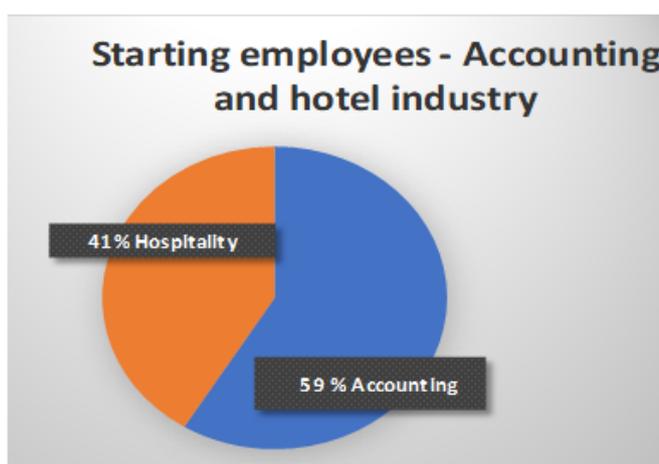


Figure 3 Starting employees - Accounting and hotel industry in Great Britain
Source: eHotelier, UK hospitality education – in decline, 2018

At a global level, hotel industry aims at innovations such as hotels with diminished personnel, the mass introduction of robots or contactless operations. Despite that these solutions are not applicable everywhere, since in most cases travelers and especially guests of high category hotels expect a definite level of service and personal attitude.

Hotel business is a sector with a seasonal character, which on its part has a negative impact on the stability of the work force. As a partial solution of the problem usually the redirecting happens, of personnel from summer to winter resorts and the other way about. This redirection has a weak efficiency, since it creates

difficulties for the employees regarding the continuous travel and the lack of stability and a settled way of live. After the Covid pandemic in more and more cases cadres avoid employment in the hotel sector, due to the direct contact with customers. The industry has still not found an overall resolving of the situation. The work is often perceived as fit for students, people without a "convertible" education or immigrants. They either use the job positions in hotel industry as a stepping-stone to a better work, or a temporary work, to earn additional money.

The difficulties in retaining quality personnel do not make a difference between enterprises and industries. They are always harmful, destructive and expensive for the business, expressed in resources, as well as efforts. The loss of employees for almost any reason is an expensive endeavor due to the time and finances, necessary for the hotels to find, interview, hire and train new members of personnel. In hotel industry however, the fluctuation and low levels of retention are particularly disastrous, since employees are the face of the hotels and they constantly interact directly with visitors. Some of the main reasons are:

- Unclear work expectations;
- Inefficient communication;
- Minimal growth opportunities;
- Interrupted connection with managers.

The working time is long and includes night shifts, as well as shifts on the weekend and/or during holidays. The salaries are usually lower for employees, working in the hotel business. Because of the pronounced seasonality, that new employees are appointed at the peak periods of the year and are discharged in the periods out of the seasonal overload. Although these problems contribute for the growth of this factor, bad management is often the biggest culprit. Often in the hotel industry managers manage departments with many employees. That often as well, managers are not correctly trained to be efficient, but are rather put at a managerial position without experience or adequate skills. The untrained or inexperienced managers can lead to a whole department of inefficient, displeased employees. If they do not know what their work includes, they could be disappointed and counterproductive, creating a negative effect at the workplace. A manager has to have skills for work with people, in order to be able to work with the employees and the customers as well. They also must have experience at a leading position, so that they feel comfortable managing and leading the personnel. The mere promotion of a employee of many years to a leading position and the expecting from them to know how to be a manager does not work.

Similar to many industries, which are service oriented, employees usually experience high levels of stress, which combined with ineffective decision-making by the managers make fluctuations inevitable. The unsatisfied employees with a low moral simply do not have the stimulus to go beyond the expectations of neither the managers, nor of customers. Such circumstances are particularly dangerous in the industry, since the service with a lower quality influence directly the customers' satisfaction and finally the brand reputation. Having in mind the importance of social influence on contemporary market, the negative reviews and low assessments can undermine the business promptly.

Employees in the industry besides, find themselves often in dangerous situations as a part of their work. The management has to realize the importance of observing the rules for work safety, in order to avoid injuries and court proceedings. In spite of that, many employees discover, that their hotel or restaurant has no introduced safety rules, or that the introduced rules are not observed. With so many possibilities of injury - in staircases, in the kitchen, the breaking of glass, cleaning chemicals and many others - the guaranteeing of the observing of safety rules turns into a serious concern for the hotels. This can not only create confusion for the members of personnel but can also cause problems with the health and safety in the object.

The unethical business practices and unhealthy culture will inevitably harm the hotel sector, the work force and the future vitality of the industry. For the industry, where the competition is fierce and the customer base is unstable, the conclusions, collected by feedback, could be the difference between a stable organization which surpasses the others in customers' servicing, and such, which only struggles to remain in the market.

Certainly, the insufficient training and development also play a considerable role for the high levels of quitting of employees. The low levels of personnel retention leave the management with less possibilities for choice and often lead to insufficiently trained and poorly prepared employees, appointed at critical for the business job positions without the necessary skills and knowledge. This comprehension sounds to be true for the roles in customer service, as well as for the managers. The overall lack of preparation and professionalism in the end will have a cascade effect, which exercises influence on the customers' satisfaction.

3. Recommendations

In Bulgaria the problem with the lack of work force is resolved partially by the hiring of personnel from other countries. The situation would improve, if the visa regime is facilitated and the possibilities of

hiring foreigners for 9, 12 and even 24 months, in order to fill the vacant working positions in the seasonal and all year-round tourist destinations. Possibilities could be sought besides, for the attracting of personnel from countries such as Turkey or countries in Asia such as India and the Philippines

The high levels of fluctuation evidently demand a constant inflow of new cadres, in order to adequately fill all available positions. In spite of that, the industry experiences difficulties with the continuous personnel recruitment with skills, necessary for success even with workplaces at an initial level, because of:

- Insufficiency of skills;
- Constantly high levels of fluctuation;
- Ability for the retention of good employees

The implementation of an efficient feedback system is a recommendable instrument for the organizations for the continuous monitoring of the satisfaction levels in the hotel industry. The frequent research and different forms of surveys can secure to the management a much better understanding of the employees' experience and in each moment and in real time. Such feedback can be used for the direction of the management's decisions and the minimizing of the devastating effects from the fluctuations of personnel.

It is important the people to perceive their work in the hotel industry as an attractive step in their career development. It is recommended to focus on the fact, that it develops the communicative skills, and the ability to communicate is essential in almost any other profession and especially the ones, connected with sales. It is necessary to emphasize on what the possibilities for development in personal and professional relation in this field are.

In addition to the communicative skills, the hotel professions cultivate a number of other qualities and skills, which are applicable in different fields. The ability to take fast decisions in stress situations, knowledge of the cultural peculiarities of the different peoples, the possibility of learning and improving foreign languages - the list could be continued, but the basic idea is clear - in their communication with potential employees, hoteliers should accentuate on the "added value", which this vocation brings as well.

The ability to make a fast choice during unfavorable circumstances, information about the social characteristics of the different nationalities, the skills of learning foreign languages are favorable factors for hotel industry as a place for career development. In their communication with prospective personnel members, it is necessary for the hoteliers to emphasize the additional opportunities, which are connected with the work in hotel industry.

Another method for stimulating the personnel is the granting of additional benefits, in addition to the usual increase of salaries. Examples for such activities is the granting of money bonuses for the implementation of an assigned task, bonuses for sales in the reception department, team building, vouchers for sport, shopping vouchers, free food and flexible working hours. The idea is the message to be transmitted, that the sector appreciates and rewards loyal employees.

A recommendation for the solving of the problem with fluctuation, is the hotels to start organizing various courses and programs for qualification and training of personnel. A big part of the employees seeks a professional development, which offers development of new skills and growth. An example of such an activity is a given hotel to give an opportunity for the bellboy to become a receptionist, concierge or a front office manager.

The online training is an efficient way for employees' development in the hotel industry, especially in the moment. It is useful for the workers in the following ways:

- Videos are a more engaging way for training in comparison to the reading of documents or articles;
- A return of the investment can be secured to the employers;
- People prone to learn online are several times more in comparison to other media channels;
- This is more advantageous for the employers.

It is visible, that the benefits from investment in the development of employees in hotel business are winning for the organizations as well as for themselves. When managers in the hotel industry invest in the future of their employees, they invest in the future of business.

For the guaranteeing of a safe working environment there has to be a scope of written standard operative procedures, so that the employees know what is expected from them. Hotels bear the responsibility to inform their employees about the necessary safety procedures. The performance of training at the workplace helps to guarantee, that the staff knows what to do in a case of accident or an emergency situation.

The organizing of professional training and education is recommended, as well as the provision of safety at the workplace. This includes a well differentiated regulation for the internal labor order, a positive professional atmosphere, good communication and financial security.

Another important moment is to give the personnel the opportunity to take decisions. When the employees lack self-confidence and trust in the management, the hotel has to rely on more human resources, in order to overcome problems, which in reality could be resolved easily. Through the increase of skills, the

personnel will feel more confident to take these important decisions and to cope with problems, which will then lead to the removal of problems and successfully manageable situations. Finally, a hotel is as strong as the ones who manage it, so the industry has to get assured, that it has the best and the most qualified personnel.

Everywhere, where the hotel business cannot meet the needs of its activity of human resource, it could cover the lack with quality software. It on its part could rationalize and automatize the processes, freeing the time of the personnel, who can deal with more important issues, such as the provision of first class servicing and experience for the customers.

Another method for retention and perfection of the personnel is the provision of courses and seminars for the development of the so called "soft skills". According to Psychological centre S.O.V.A (2021): Soft skills include our capabilities to negotiate, to manage our time, our way of communication, our ability to listen, our empathy, our skill to maintain relationships, etc. They are this kind of "human" knowledge which does not relate to that if we have technical expertise or knowledge in a definite field. Soft skills are fundamental at work with a team or customers, but they are important not only in the professional sphere - but these are also skills which suppose success in any situation, in which we have to interact with other people. For the hotel industry important soft skills can be communication skills, creativity, initiative, and ability to work in a team, conflict-solving, the building of trust, skills for prioritizing of tasks, decision-making, and negotiations. The greater part from these capabilities are not taught at schools or universities, but are at the same time sought and valued in the industry, and at work with people as a whole. The creation of programs for training would assist the comprehensions about work in the sphere to change from just work or seasonal employment to comprehensions about a real career, providing an all-embracing personality and professional development.

4. Conclusion

The hotel industry has always had to balance the challenges of the care for its employees and the care for its customers at the same time. The constantly changing aspects impact the whole business and the employees. The industry was affected besides, by the pandemic of Covid-19 and now by the continuing military operations in Ukraine.

Human resource management is a critical and decisive component in any organization, moreover for organizations in the hotel sector, which flourish in the servicing of customers and other services. It is a key function in the sector, bearing in mind that hotels depend on their employees as sources of distinctive competitive advantage. Consequently, personnel management has to be practiced by applying all possible good practices, in order to guarantee the commercial vitality of companies in the sector.

The elaboration examines some of the most important challenges which the hotel industry faces, including the current business environment and human resources. One of the best ways to overcome the problems is the investment in human resources. The finding of qualified personnel, which is capable of managing a hotel is the most certain way to guests' satisfaction and their retention. This at the same time is one of the most important challenges for the hotels since employees are the face of the business.

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Theoretical and practical aspects of the annual close of the accounts

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Abstract. The purpose of this article is to study the problems arising at the stage of the annual closure. The object of the study is both the theoretical formulations and the practical aspects of the annual closure of accounts. An attempt is made to consider the stages of completion in their completeness and comprehensiveness, which determines the originality of the study. The methodology proposed in the study for annual closure of accounts, could, after some adaptation, be applied in real practice. The practical applicability of the results of the study is for accountants that have to choose the appropriate methods to close their accounts.

Key words: annual closing of accounts, stages of the annual closing of accounts, financial result, enterprises and applicable accounting standard

Received: 29.11.2022

Revised: 21.12.2022

Accepted: 26.12.2022

Published: 30.12.2022

1. Introduction

The fair presentation of information in the financial statements is one of the main challenges facing an enterprise at the end of the reporting period. Through this information, users can establish the state of the enterprise, and on this basis, make forecasts and make decisions. The information is obtained based on the annual financial statements of the enterprise, which are compiled because of the annual closure of accounts. Every trader is obliged to keep accounts in which he reflects the movement of the property of his enterprise. The objective of financial statements is to present the financial position, performance and cash flows of an enterprise and the results of the management of resources entrusted to management. Information in the financial statements must be presented truthfully, fairly, clearly and comprehensibly, which requires a fair presentation of the effects of transactions, other events and conditions in front of the financial statements.

2. Literature review

The enterprise (or Company within the meaning of the Commercial Act, 2019) as a set of rights, obligations and factual relations is a complex system that should be properly organized. Accounting as a separate system in the enterprise is also subject to organization. To create a proper accounting organization, it is necessary to comply with several general and specific requirements such as: compliance with the legal framework in the field of accounting and management requirements in the enterprise, knowledge in detail of the peculiarities of the business activity of the enterprise, development of well-founded accounting policy, etc. (Todorov 2005).

Observing the requirements of the current accounting framework, the activity of enterprises should be reflected continuously through current accounting and, subsequently, periodic consolidation of reporting data. The information is summarized and presented both about the status and changes in assets, liabilities and equity, as well as about the results of the overall activity of the enterprise. To form a financial result from the activity of an enterprise, it must be operational and have a good organization of accounting for the proper implementation of the reporting process. Observing the requirements of the current accounting legislation, enterprises organize the annual closing of accounts at the end of the reporting period, i.e. as of December 31, but covers thyroid from 01.01. to 31.12. of the current year. It is carried out in compliance with procedures specified by the enterprise, which are interrelated and have strict consistency. Rupska (2012), Todorov (2005), Genov (2016), Stefanov

(2015), Oresharov (2012) and Dosev (2014) have a similar view on organizational procedures, but with a different structural presentation that will be specified.

Through the annual closure procedures, undertakings shall develop an internal timetable for the activities, clearly indicating the deadlines for carrying out the individual activities related to the completion stages and the responsible activities. We support the opinion of St. Stefanov (2015) that the plan is usually secret in nature and should be proposed for confirmation by the head or a person authorized by him. The approved traffic should be strictly applied by the responsible persons after conducting a briefing. This preparatory stage ends within a deadline set by the management, but it is advisable to be earlier than December of the current year.

The annual closure covers a multitude of diverse stages with different temporal manifestations.

1. In the event of a change in the status of the enterprise, the composition and number of owners (e.g. new; or old, but with a change in their shareholding; or left the enterprise) or the amount of the registered capital, which should be reflected during the reporting period (Dosev 2014).
2. Carry out timely control of the documentation of the business operations carried out during the year - collection/issuance, check for omissions and errors, according to the regulatory framework, as well as check the correctness of the coatings/accounts on the synthetic and analytical accounts, and/or lack of the latter, etc.

The main stages of the annual closing of accounts can be presented in the following sequence

1. Carrying out an annual inventory of assets and liabilities and reporting its results.

Within the meaning of the Accountancy Act (2021), enterprises carry out an annual inventory of assets and liabilities during each reporting period. The law does not define inventory. This concept is not defined in the applicable standards, but inventory as an accounting method and as a means of control is established in theory and practice. It establishes the actual state of assets and liabilities, which is a prerequisite for the preparation of reliable annual financial statements. The materially responsible persons are not members of the committee because they are an interested party in carrying out the inventory. This order of the manager specifies the time limits within which the inventory should begin, end, as well as the time-limits within which the information should be presented in the accounting. The actual state of inventory assets is established by their weighting, measurement, census, etc. Inventory assets are described by location and by material responsible persons, and in the inventories, they are individually indicated by inventory number, name and value.

As a result, shortages and surpluses of assets can be established and if there is a causal link between them, they can be compensated. The applicable regulations do not define the concepts of lack and surplus. The Labour Code (2022) regulates who is responsible for the lack of property and its amount when there is a proven fault of a particular person for the lack. When there is no proven fault of a specific person, the deficiencies are accounted for as an expense (loss) for the enterprise.

The accounting of missing assets in the enterprise is based on inventories and inventory records. Missing assets should be written off from the composition of the enterprise's assets in a decrease, which in different cases is reported differently:

When inventory is found lack, it can be:

- because of natural wastage, thefts, accidents and catastrophes for which the responsible persons do not have and the lack will be accounted for as a cost (loss) for the enterprise.
- caused by natural disasters - the absence of non-current and current assets is accounted for as an expense for the enterprise. In cases where these assets are insured, then the accounts shall also record the claims to be received by the insurer. In the financial statements, insurance benefits are reflected as Other operating income.

In the inventory in the enterprise, surpluses can be established. Surpluses lead to an increase in assets, which will lead to an increase in equity and should be recorded as revenue. Uncompensated surpluses in the enterprise should be accounted for as Other operating income and assets should be measured at their fair value and included in the entity's property.

Assets and liabilities are subject to inventory, namely:

The entity owns non-current assets that are subject to inventory. They can be distinguished as assets by:

- Material nature: lands, buildings, facilities, machinery and equipment, vehicles, computer equipment, office equipment, others. Assets that are in the process of being acquired can also be added to the group. Subject to the requirements of applicable standards and internal rules, all non-current assets are subject to inventory. The verification shall assess whether they meet the criteria for assets in accordance with the applicable accounting standards. If they do not meet the criteria for assets, they should be written off from the property of the enterprise. The shelf life of non-current tangible assets at the end of each year should also be reviewed and, if significant deviations from future expectations for the life of the assets are identified, adjusted accordingly. The useful life should be determined depending on the physical wear and tear of the asset, the specificity of the equipment

and the assumed obsolescence. Subject to the applicable Standards, transactions should properly classify assets as depreciable and non-depreciable because depreciation is an expense for the enterprise and that expense affects the realised financial result.

- Intangible nature - in order to inventory intangible assets, the requirements of the applicable standards must have been met beforehand, i.e. they must be measured initially at cost. The composition of the intangible includes internally and externally created intangible assets, licenses for the use of software products, trademark rights, licenses, etc.

The initial valuation of externally generated intangible assets upon acquisition shall be measured at cost which includes purchase price, import duties, non-refundable taxes and costs of preparing the asset for its intended use. The direct costs are: costs of preparing the site (the place where the asset will be used), costs of initial delivery, installation costs, costs of fees to persons associated with the project, non-refundable taxes, etc.

Intangible assets created in an enterprise are measured at cost resulting from the direct and indirect costs of producing the product at the time when the asset first meets the criteria for its recognition as an intangible asset. The initial measurement does not include administrative costs and other costs that are not directly related to the acquisition process. Intangible assets are recognised if they satisfy the definition of such set out in paragraph 18 of IAS 38. In case of immaturity to meet the criteria, they are counted as an expense.

- Acquired licenses are indicated by historical value. Depreciation is charged depending on the term specified in the license.
- Software and rights of use of software products. The acquired licenses for software products are capitalized based on the costs necessary for the acquisition and commissioning of the specific software product. They are depreciated during the period of their expected useful life.

We can share that the rule of reviewing the useful life of assets applies here and whether depreciation methods are subject to change. In addition, assets likely to be phased out over a period of time and subsequently reintroduced should be reviewed. Gains or losses arising on recognition of these assets are included in the financial statements.

For current assets held, an entity shall comply with the requirements of applicable standards and classify them as current assets provided that it intends to market them and sell or use them in its operating cycle; expects to realize them within twelve months after the end of the reporting period, etc.

Material stocks - are current assets:

- materials which are acquired mainly by purchase and are intended for use in the production process for the purpose of producing products or services, but can be sold when judged by the enterprise;
- production resulting from a production process in the enterprise and intended for sale;
- goods acquired principally by purchase and intended for sale.
- work-in-progress - mainly work in the process of production;
- inventories that are consumed in the production process or in the provision of services (materials, raw materials).

An entity's accounting policy should include information that inventories are measured at lower cost (cost) and net realisable value.

Enterprises have the option to choose the method of consuming/describing inventories provided for in the applicable Standards, which is an element of accounting policy. Any subsequent change to the method should be made at the beginning of the new reporting period, which in turn results in its disclosure in the financial statements.

Receivables – represent the entity's unconditional right to receive remuneration. The right is unconditional when the only condition for this is that the payment of the remuneration becomes due, with the expiration of a certain period. Receivables are classified as and should be presented in the financial statements at their possible fair value.

An entity's receivables and loans are classified as assets arising from the direct provision of goods, services, cash or cash equivalents (trade receivables and credits). The accounting of these assets is carried out according to maturity, namely at a fixed one at their amortizable value, and without maturity - at cost. In cases where there are prepaid (advance) amounts to suppliers that affect subsequent reporting periods are presented in the statement of financial position as "Other receivables".

The inventory of receivables can be carried out through a factual check of each receivable according to its actual collection. It is carried out by reviewing the accounting records, by sending official letters with attached references or statements from the accounts of all counterparties - with a request to confirm the amounts concerned. Counterparties should confirm or reject information on amounts.

At the end of the reporting period, management makes an estimate of losses from uncollectable receivables. Impairment of claims occurs when there is objective evidence that the Enterprise will not be able to recover the full amount on them, under the terms of the claims, such evidence is considered: the establishment of significant financial difficulties of the debtor on the claim, the likelihood that the debtor will enter bankruptcy or other financial reorganization proceedings, default or default in payment - more than one year. In the case of write-down of claims, the precautionary principle should be respected. In this regard, different types of impairments can be indicated (Genov, 2016):

- individual impairments - each receivable should be assessed according to the client's circumstances, etc. Facts. After initial recognition of receivables can be:
- indisputable (regular) - the debtor pays at maturity. The valuation in the financial statements is their nominal value; doubtful
- paid after the agreed deadlines. The valuation in the financial statements is the recoverable amount; uncollectable;
- impairment based on the percentage of sales expected not to be collected; Impairment based on age analysis of receivables and
- Combined method. The impairment value is the difference between the carrying amount of a claim and the present value of the estimated future cash flows.

Cash (cash and cash equivalents) - enterprises have cash that includes cash and current accounts, and cash equivalents - short-term deposits with banks. For the correct preparation of the statement of cash flows, cash receipts from customers and cash payments to suppliers are presented gross and interest (in respect of bank loans granted) is presented as payments for financing activities. Funds that are blocked for collateral in court proceedings, bank guarantees, etc. should be reflected in a statement of financial position as part of cash and equivalents.

The inventory of cash is carried out by location and materially responsible persons. The documents are compared with the cash available in BGN and foreign currency by counting all cash, securities, etc. in the cashier. The funds and other valuables established in the cash inventory that have not been received in the treasury on a legal basis remain at the expense of the enterprise until proven otherwise. The documentation of the results is carried out based on a Cash Availability Act, in which there are mandatory requisites such as: the date of the inventory, the full names of the members of the Commission and the cashier, the grounds for carrying out the inventory, the actual balance and the balance according to the accounting, on the day of the inventory. The inventory of the balances on the bank accounts in BGN and foreign currency is carried out by checking the balances on the accounts with the balances of the statements (bank boarder) on the bank accounts.

Other assets, such as deferred costs, based on documents when they are incurred.

Liabilities inventory: An inventory of the equity of the enterprise is carried out on its constituent parts fixed capital, reserves and financial result. The inventory shall be carried out based on the documents for registration and re-registration of the capital and the decisions taken by the general meeting of partners/shareholders, for the distribution of the financial result, for the formed reserves and their reduction, and the changes in the capital. The inventory of payables is analogous to receivables, i.e. in the inventory of the relations of account, with dispatch, resp. receipt of letters is checked and ascertains the actual amount of the undertaking's liabilities. It can be summarized that the inventory of assets and liabilities, documentation of its results, the proposals of the inventory bodies (commissions) to the management of enterprises (in protocols specially designed for this purpose), the evaluation and accounting of the results of an inventory.

2. The initial measurement of the assets and liabilities of the enterprise.

Measurement is the process of determining the amounts at which an entity's assets and liabilities, income and expenses at the balance sheet date are reflected. In the applied basis of accounting are known:

- Historical cost - this is a valuation that is made at the time of the transaction, when the assets are acquired or the assumption of liabilities. For assets, the current accounting valuation may be: the price of the surplus (when buying from outside) - when acquiring assets, at cost - for the assets created/produced in the enterprise and the fair price. For the assessment of liabilities - is the nominal value of what is due when they are repaid. This value reflects past events.
- Present value is a measurement that reflects the fair value of the net cash flows expected from the use of an asset or necessary to settle a liability. It shall apply at the date of the annual close and the annual financial statements to the assets, liabilities, income and expenses presented therein, if an accurate assessment can be made.
- Net realisable value is the amount at which an asset (or use) is realised on sale. This value reflects the future benefit of the enterprise.

The applicable standards regulate how specific assets and liabilities are initially valued.

On initial acquisition, non-current assets are valued at cost (cost), which includes the purchase price, including customs duties and any direct costs necessary to bring the asset forward. Undertakings should provide for a materiality threshold, subject to tax law, below which acquired assets, although they have the characteristic of a fixed asset, are treated as a current expense at the time of acquisition.

- Upon acquisition of property, plant and equipment under deferred payment, the purchase price is equivalent to the present value of the obligation, discounted on the basis of the interest level on credit resources borrowed by the Company with similar maturity and purpose. Borrowing costs for business construction or acquisition by outsourcing property, plant and equipment are capitalised only if they qualify for capitalisation under IAS 23 Borrowing Costs. Non-current assets that are built for future use are recognised as assets under construction and presented at cost until they are completed.
- Measurement of inventories - their initial measurement is at the lower of cost and net realisable value. It should be borne in mind that the cost of inventories is the sum of all costs of purchase, processing, and other costs incurred in delivering them to their present location and condition.
- Long-term investments in enterprises can be estimated as follows:

Long-term financial assets: An entity shall comply with IAS 27 Separate Financial Statements with respect to accounting for its investments in subsidiaries, joint ventures or associates, i.e. cost in accordance with IFRS 9 Financial Instruments and the equity method in IAS 28 Investments in Associates and Joint Ventures. Businesses may have the following long-term investments:

Investments in subsidiaries - in accordance with the provisions of IFRS 9 in the accounting policies of entities, it is provided that long-term investments representing shares in subsidiaries are presented in the annual individual financial statements at cost (cost). The cost is the fair value of the consideration paid, including the direct cost of acquiring the investment. Investments in subsidiaries are not traded on stock exchanges or stock market sales are minimal in size. This circumstance does not make it possible to provide quotations of market prices in an active market that sufficiently express the fair value of these shares. When buying and selling investments in subsidiaries, a trading date (conclusion of the transaction) applies. Investments in subsidiaries are written off when the legal grounds for this occur, e.g. when the rights arising from them to others are transferred upon the legal basis for this and the loss of control over the economic benefits from them. Microsoft® Translator

The accounting for the investment should be shown in the Investments in subsidiaries account. Some of the enterprises in which they have a capital participation may be in the same territory and the rest may be abroad.

Investments in associates: When investing in units or shares, an entity acquires an asset that allows it to acquire an influence in the other entity of 20 % or more of the voting power of the investee, that investor shall be deemed to have significant influence. As required by associates, the investment is primarily accounted for using an equity method, namely that the investment is initially entered at its cost and the carrying amount is increased or decreased to recognise the investor's share of the investee's profits or losses after the date of acquisition. The investor's share of the investee's profit or loss is recognised in the investor's profit or loss. Income received through distribution by the investee reduces the carrying amount of an investor.

Income earned through distribution by the investee reduces the carrying amount of the investment. The accounting of the investment may be reflected in the Investments in Associated Companies account. Analytical reporting for these companies quantitatively (number of shares) and value should be created to the synthetic account. The financial statements shall present the proportion of the performance of the associate. If there is a change that is recognised directly in the equity of the associate, the Company shall recognise its share of those changes and, where applicable, disclose them in the statement of changes in equity. The financial statements of an associate are prepared for the same reporting period as those of the Company.

For all other assets and liabilities, the initial measurement is at historical cost.

3.Ex-post valuation of assets and liabilities. The subsequent valuation of assets and liabilities is provided for in different accounting standards according to the type of assets and liabilities. Non-current tangible and intangible assets are measured ex post (after acquisition) at the initial measurement less the depreciation charged to the financial statements date. IAS 16 also provides for the reverse option by recognizing it for profit or reward.

In accordance with IAS 16, when the carrying amount of an asset is reduced because of a revaluation, the decrease is recognized as a gain or loss. However, the decrease is recognized in other comprehensive income to the extent of an existing credit balance in the revaluation reserve in respect of that asset. The reduction recognized in other comprehensive income reduces the amount accumulated in equity under the item Revaluation Reserve. Standard enables the entire class of equipment to be revalued to which the particular asset belongs when a property, plant and equipment is revalued. In this regard, enterprises should provide in their accounting policies that they will revalue their assets as follows:

- For lands, buildings, etc. An entity prefers to apply the revaluation model. Revalued amount less subsequent accrued depreciation and any accumulated impairment losses. Revaluation of land, buildings, etc. is carried out by licensed assessors usually over a period of 5 years. A revaluation may take place in shorter periods when their fair value changes continuously and materially at shorter intervals.
- For all other classes of non-current tangible assets, the cost model is applicable to the enterprise.

The effects of revaluations shall be recorded in the financial statements for the year in which they are made. In cases where the new fair value of the assets exceeds their carrying amount, the difference between the values of the assets forms a new component of the revaluation reserve. Conversely, the difference between the two amounts is reported in the statement of comprehensive income, provided that no revaluation surplus has been established in prior periods. If it is formed, the difference shall be treated as a reduction in this reserve. The difference may exceed the amount of the reserve, whereby the excess is included as an expense in the statement of comprehensive income. On recognition of revalued assets, the revaluation surplus accumulated for them shall be transferred to undistributed profits. The carrying amount of non-current assets is subject to impairment review when there are events or changes in circumstances that indicate that the carrying amount could exceed their recoverable amount. The impairment is then included as an expense in a statement of comprehensive income. Investment property after initial valuation should choose one of two valuation models: cost or fair value

- Inventories, the amount of any write-down to net realisable value and any losses on inventories, are recognised as an expense during the period of impairment (or loss). The impairment is recognised as an expense and is shown under Impairment of assets in a statement of comprehensive income.

Provided that there are irrecoverable receivables, in case of legal grounds for this, the impairment of the receivables is accrued as other costs in correspondence with a corrective account for each type of receivable. The receivable may be written off at the expense of the formed corrective.

4. Estimation and accrual of provisions for liabilities Provisions are liabilities with an unspecified maturity or amount. Provisions are recognised for constructive and legal obligations arising from past events as required by IAS 37 Provisions, Contingent Liabilities and Contingent Assets. A legal obligation is an obligation arising from:

- contract /according to its explicit clauses and by default/;
- legislation; or
- other operation of law.

A constructive obligation is an obligation that arises from the actions of an enterprise when:

- on the basis of an established trend of prior practice, published policies or a sufficiently specific current statement, the entity has shown other parties that it is prepared to accept certain responsibilities;
- as a result, the entity creates in other parties a certain expectation that it will discharge these responsibilities.

A provision is recognised when (IAS 37, 2021):

- the entity has a present obligation (legal or constructive) as a result of past events;
- it is probable that a flow of resources embodying economic benefits will be required to settle the obligation; and
- a reliable estimate of the value of the obligation can be made.

If these conditions are not met, a provision is not recognised. They are recognised at the best estimate by the entity's management at the end of the reporting period for the costs necessary to settle the present obligation. The amounts recognised for provisions are reviewed at the end of each reporting period and are restated to reflect the best current estimate.

5. Account for the due part of deferred financial and non-financial income and expenses in the current year.

Subject to regulatory provisions, an entity prepares its financial statements on an accrual basis. Thus, the effects of transactions and events are recognized at the time of their occurrence and included in the financial statements for the period to which they relate, i.e. current rather than in a subsequent or prior one. Recognition of the cost does not depend on making a payment to the supplier or receiving it from the customer. It is recognized in the financial statements when there is a decrease in future economic benefits associated with a decrease in an asset or an increase in a liability that can be measured reliably. Transactions and events that affect more than one reporting period are not treated as a current expense but as a consideration expense. It will be recognized as a current expense only when the income or benefits will be received in a future period. The opposite also applies to the recognition of revenue.

In most cases, businesses incur costs that they incur for a subsequent period. Deferred costs include the following operating costs, which are principally for a period of one year, such as:

- Insurance - enterprises have separate departments related to market research. They mainly conclude insurance contracts for the transport of cargo delivered by land, air and sea transport.
- Prepaid fees - for brokerage services, brokerage fees, renewal or certification of the relevant ISO certificates, etc., which may be current.
- Subscriptions - for specialized literature.
- Fixed asset rents - The foreign assets that enterprises use primarily under a lease that are represented by - accounts and items.
 - Other deferred costs are deferred for recognition as a current expense for the period in which the contracts to which they relate are performed. These costs include financial costs, which consist of interest expenses, including bank charges, bank guarantees, etc., as well as interest payments on financial leasing. (Conceptual Framework for Financial Reporting, IASB, 2018). Upon repayment of financial lease obligations, the future finance expense is reduced in a certain proportion, ie interest that is treated as a current finance expense and should be included in the Consolidated Statement of Comprehensive Income, not offset against the item Financial Charges. The remainder of outstanding contracts continues to be presented in the statement of financial position.

6. Establish and allocate the due part of the financing income recognized as current in the financial result for the reporting period.

In accordance with IAS 20 Accounting for State Grants and State Aid Disclosure, government grants are sometimes referred to by other names, e.g. subsidies, grants or premiums. Grants may relate to assets and revenues. Government funds related to assets, including non-monetary grants at fair value, are presented in the balance sheet either by presenting the grant as deferred income or by reducing the grant until the carrying amount of the asset is reached (24 of the IAS). At the end of each reporting period, accrued revenue is recognized to the extent that it is relevant to the current interim period and to the extent that it can be measured reliably.

Complying with IAS 20 for government grants, a grant shall be recognized in profit or loss on a systematic basis during the periods in which an entity recognizes as an expense the related costs that the grant is intended to compensate.

When an expense is expected to arise during several reporting periods and the relationship of expenditure to revenue can be determined only generally or indirectly, the expenditure is recognized based on procedures of systematic and rational distribution. Distributions as current expense are recognized in the statement of comprehensive income when the expense does not create a future economic benefit or when, and to the extent that, future economic benefit does not qualify or no longer qualifies for recognition of an asset in the statement of financial position. Expenditure shall be accounted for on an accrual basis and comparability with reported revenue.

7. Relate the accumulated expenses of the group to Expenses by economic elements by purpose under the accounting for Operating Expenses and Ancillary Activity Expenses, if this has not already been done on an ongoing basis (Milanova, Oresharov, 2012)

In cases where the expenditure accounts are not currently closed, they should be assigned to the activities concerned. If they are distributable, they must be properly allocated based based on their allocation provided for in the accounting policy. They are carriers of information about the type of costs from which the cost of the produced production or the service performed is formed. They are reflected in the statement of comprehensive income in determining the financial result.

8. Reflection of the services performed by the ancillary activities depending on their functional purpose in the accounts of the town of 61 Expenses for the activity and the accounts of group 70 Sales revenue - presented as a separate stage (Todorov, 2005).

Businesses must be registered to carry out specific activities such as: internal and external trade; research development; construction, service and repair services; commercial representation and intermediation; commission transactions; licensing deals; intellectual property transactions; leasing, etc.

For the calculation of the cost of services, the calculation account "Ancillary Activity Costs" should be completed

9. Establishing the balances (starting and ending balances) of the Production Account, the Goods and Services Account, the Principal Activity Expense Account and the Ancillary Activity Expense Account to establish the impact of the value of work in progress in the financial statements.

After the inventory has been carried out to establish the stocks (quantitatively and valued) of Production and their reflection in the inventories, a comparison is made through the comparative water bridges with the data reflected by accounting in the Production account. And value is added to a warehouse with a warehouse receipt, by types of products, by material-responsible persons, by warehouses, etc. A document that can be used in the coming of the production is a scale note in the production of the product, etc. The write-off of the output at its consumption is carried out by one of the methods provided for in the applicable standards, namely: recommended approach - the specified value, the first input - the first output (FIFO), the weighted average value, and if this approach cannot be applied, an alternative - the last input - first output (LIFO) value is applied.

The realization of the production through sale is documented with, which may be accompanied by a bill of lading, an order for shipment, a protocol for acceptance and delivery, a road transfer receipt, etc.

It is important to note that output as part of the inventories of enterprises is subject to write-down to net realizable value. It is recognized as a current impairment expense in the current year of occurrence and disclosed under Impairment of assets (Cost of sales) in the statement of comprehensive income. In a subsequent period, the impairment of the already impaired Output (if it is still in the enterprise) can be reversed, and this adjustment should be reflected by reducing the expense already reflected through an adjustment account to the Output account (resp. inventories).

Particular attention should be paid to the inventory of work in progress (in the case of manufacturing and service enterprises) with a view to correctly establishing the cost of production and sales or services. It is essential that the inventory prepared for specific products indicates their degree of readiness (completeness). Based on the data from the inventories, computational actions are carried out to establish the value of work in progress in total, by type of costs and by degree of completion, excluding materials that are not used in production or waste materials. The ascertained value of the pending proceedings may be at actual cost or at unchanging value. When it is not possible to determine the costs at a given time or to simplify the accounting process, the cost is reported invariably (planned, regulatory or similar).

The results of the calculation of the cost of production are established from the calculation accounts - costs for basic or ancillary activities.

Production is reflected as a current asset at actual cost, but it is also possible to be earned at indicative cost. The presentation of output is in the financial statements. The correct accounting presentation of this value is to adjust it to the actual value after its establishment. The correction is expressed in terms of a decrease, respectively, an increase in the value accounted for by a reversal, respectively. A complementary accounting article.

The accounts for recording expenses for main and ancillary activities may remain with a balance. The balance on these accounts is the sum of the non-finished products at a given time, which should be reflected as a current asset in the statement of financial position, even though it does not meet the definition of an asset at the time. Finished products are an asset that is an economic resource produced by an enterprise, and non-finished products are a resource that has the potential to produce economic benefits.

Where work in progress is not available, expenditure accounts are closed with revenues generated from the sale of production.

The calculation of the cost of the services may also be on some of these accounts, with the difference that the costs of performing them are compared with the revenues from sales of the services rendered to customers.

10. Establishment of turnover in accounts Administrative expenses and Sales Expenses and their closure according to the criteria, indicators and basis for allocation to accounts from the city 70 Sales Revenue.

The two types of costs are formed by the allocated costs by economic elements. These accounts shall include expenditure which cannot be attributed directly to the principal and ancillary activities. The closure of expenditure accounts is carried out currently, permanently and does not depend on the volume of production and its production cost. From these, the full and commercial cost can be ascertained. The debit turnover from these accounts is reflected in the statement of comprehensive income

11. It is possible to provide for "preparation of advance trial balance before the closure of profit and loss accounts" (Genov, 2016).

This is done to specify, in general, which expenses and income are expected to be recognised in the current period.

At this point, all documents must be accounted for in the enterprise with the management bodies of the enterprise all the above possible events. Before it comes to the closure of most accounts, a review of the available trial balance and, the balances and turnovers are checked and compared with the total turnover balance. Control is exercised about the pairs of draws in the synthetic trial balance.

The accounts reporting income and expenses for deferred periods are subject to close review. Provided there are costs, respectively, revenue relating to the current period should be recognised as current in the relevant

revenue and expenditure accounts. Such costs can be from prepaid rents, insurance, prepaid fees, subscriptions, etc.

Finally is the verification of accounts with estimates of value added tax.

12. Closure of the accounts of the Operating Income group to the Profit and Loss of the current year.

Income arises in the ordinary course of an enterprise and is designated by various names, including sales, royalties, interest, dividends, royalties and rents (Conceptual Framework for Financial Reporting, IASB, 2018)

The sales revenue group may include revenues from the sale of products, goods, services and other operating income such as materials and surplus inventories, lawsuits, fines, penalties, as well as income from participations - dividends, income from foreign exchange operations, etc. This also includes interest income, including interest from affiliated enterprises and other interest. All these objects accounted for through transit income accounts are closed without balance, are reflected in the statement of comprehensive income.

In recognition of non-current assets, disposal gains and losses, such as sale proceeds (disposal), are reduced by the carrying amount of the asset and the costs associated with the sale. Indicate net to Other operating income (Other operating expenses).

On the sale of inventories, their carrying amount is recognized as an expense in the period in which the relevant revenue is recognized. The gain / loss on the sale of materials is determined by reducing the proceeds from sale by the carrying amount of the asset and the costs associated with the sale. Should be indicated net to Other operating income.

All income accounts in the group remain without balance after their closure with Profit and Loss from the current year. After their closure, it is possible to identify a financial result a profit or loss that is presented in the statement of financial position with a positive or negative sign.

IFRS 15 provides that revenue is recognized under the concept of transferring control of goods or services to the customer. This Standard provides for five stages for the recognition of revenue, whether for goods or services. An essential factor in recognizing revenue according to the degree of satisfaction of the performance obligation over time or at a given time.

Upon sale of a returnable asset, an adjustment is made to the recognized sales revenue for the period. An entity's promise to accept a returned product during the period during which the good can be returned is not accounted for as a separate performance obligation in addition to the refund obligation.

An entity shall apply an estimate of variable consideration in determining the amount of consideration to which the entity expects to be entitled. For all amounts received (or receivable) to which the entity does not expect to be entitled, it does not recognize revenue on the transfer of products to customers but recognizes those amounts received (or receivable) as a liability to refund. At the end of each reporting period, the estimate of the amounts to which it expects to be entitled in exchange for the transferred products is updated and makes a corresponding change in the transaction price and the amount of revenue recognized. The amount of the obligation for the refund is also changed to reflect its new amount. An entity recognizes the corresponding adjustments as an increase or decrease in revenue. The return asset is presented separately from the recovery obligation.

13. Accounting for the impact of exchange rates (Rupska, 2014) presents them as a separate stage of the annual closure of accounts.

Reflected as expenses and income related to foreign exchange operations and their closure. At the end of each reporting period, all foreign currency items are translated at a closing or exchange rate (IAS 21 The Effects of Changes in Foreign Exchange Rates). In the positive currency differences that have arisen, they are presented to the item Other operating income, and in the case of negative ones, they are presented to the item Other operating expenses.

14. Closing the accounts of the Financial Expenses group and the Financial Income group with the Profits and Losses account of the current year.

Financial charges include borrowing costs when not capitalized, the interest expense of finance leasing, incl. bank charges and other direct costs of loans to financial and non-financial institutions and bank guarantees. Interest expenses from affiliated enterprises may also be included here.

Financial charges are disclosed in the financial statements at the time of their inception and, for the period to which the Accounts relate, for reporting financial charges at the end of the reporting period are closed in correspondence with the Profit and Loss account of the current year.

The closure of accounts concerning financial revenues is similar. The effect on the financial result is positive.

15. After the closure of the accounts at the synthetic level (including income and expenses) and the establishment of the accounting financial result, a provisional trial balance shall be drawn up.

There are a second ones who note that from the preliminary and aggregated data in the trial balance is drawn up the profit and loss account, respectively for the comprehensive income, the establishment of the accounting financial summary and from there the preparation of the annual tax return.

The phased closure of the accounts is to attribute to the purpose and the income from economic elements to Expenses by Activity or to Income from Activities according to the approved accounting policy. Where necessary, costs are allocated on a specific basis defined in the accounting policy and then assigned to the activity. The basis for allocation may be to a specific area occupied, based on quantity or value, because of a specific type of expense in proportion to operating income, etc.

Under the Framework, only items that meet the definition of an asset, liability or equity are recognized in the statement of financial position. The same applies to items that meet the definition of income or expense but are recognized in the statement of comprehensive income. This simultaneous recognition of income and related expenses is called the comparability of expenses with revenue. However, the comparability requirement is not an objective of the Framework for Financial Reporting (IASB, 2018). Comparability between income and expenditure is provided for in national common standards. Expenditure is recognized in the financial statements when it establishes a direct link with revenue realized, resulting from the same transaction. The comparison of income and expenses forms the financial result, which may be profit or loss.

16. Development of the statement of comprehensive income and the statement of financial position before tax accrual.

The statement of comprehensive income - presents in a concentrated form the information about income, expenses and financial result during the reporting period. It is compiled based on information reflected in the accounts for expenses and revenues incurred during the reporting period, cost of sales, net results from the sale of property, plant and equipment, etc. It is compiled in thousands of leva, and its values from two consecutive reporting periods can be Compared. In preparing it, the principle of accrual accounting should be respected - certain transactions or events should be included in the financial statements for the period of their occurrence. The content and methodology in its preparation are regulated in the international accounting standards.

Statement of financial position - for its compilation is applied the method of economic grouping and aggregate reflection in monetary valuation of assets, liabilities and equity at a certain time.

Of course, there is an exception, i.e. when the entity presents all assets and liabilities by the degree of liquidity. In this regard, the assets of the enterprise are distinguished in the statement by degree of liquidity, with rapidly liquid, still current assets, those that are expected to be sold or held for trading purposes to be realized within 12 months. Current liabilities are those that are expected to be repaid within 12 months of the reporting date. All other assets and liabilities that do not meet the above conditions are treated as non-current.

The report is drawn up since information on the balances of the asset and liability accounts, capital and the expense and income accounts for future periods at the end of the reporting period (31.12). It does not specify balance sheet items for which accounting information is lacking. The items (balance sheet items/items) in it are shown by book value (book value – corrective) in the different groups by degree of materiality. It is compiled in thousands of leva and for two consecutive reporting periods, which allows the values to be compared.

17. Analysis of expenses and revenues and identification of all unrecognized ones in accordance with the requirements of the Corporate Income Act), which adjust the accounting financial result in the direction of increase and decrease.

The Conceptual Framework of Financial Technologies defines the concepts of costs and revenues. An entity shall distinguish when an expense/income arises to correctly reflect information in its financial statements.

The enterprise complies with the frameworks provided for in the Corporate Income Tax Act in respect of unrecognized accounting expenses and income. The tax law provides for restrictions on the accounting expenses and income that the enterprise incurs. They can be divided into two categories:

- Expenses and income that are concerned only in the current period and do not affect subsequent periods.

These accounting expenses and income are not recognized as an expense / income from the point of view of tax law and increase / decrease the accounting financial result.

Unrecognized expenses include any of the following: identified shortages of non-current and current assets, unless they are due to force majeure (e.g. natural disaster or theft), shortages of goods arising from commercial activity; expenses which are not documented within the meaning of this Act; expenses for accrued fines, forfeitures and other sanctions for violation of normative acts, interest for overdue public state or municipal liabilities; and others.

Unrecognized revenue includes some of the following: income for tax purposes; income from interest on unduly paid or collected public liabilities, as well as on non-refunded value added tax, charged by state or municipal authorities, etc.

The accounting financial result shall be adjusted for tax purposes by those so-called. constant differences in the year of expense accounting. These movements can lead to a change in the result, that is, from positive to negative.

- Expenses and income that arise in the current period and affect subsequent periods are not recognized as an expense / income in terms of tax law and increase / decrease the accounting financial result.

18. Transforms the accounting financial result and determines the tax base for charging tax.

Preparation of annual tax return and determination of the corporate tax due

IAS 12 Income Taxes provides an explanation of when deferred tax assets and liabilities arise, namely when income or expense is included in accounting profit for one period and taxable profit for another period. The resulting deferred tax is recognized in profit or loss. At the end of each reporting period, an entity reviews unrecognized deferred tax assets. It recognizes deferred tax assets not recognized in a prior period to the extent that it is probable that future taxable profit will permit the recovery of a deferred tax asset.

Tax financial result is the accounting financial result, which is transformed in the direction of increase and decrease. It can be:

- The positive tax financial result is tax profit.
- The negative tax financial result is a tax loss.

It should be noted that the tax base for determining the corporate tax is the tax profit. Formed extra-accounting in the annual tax return.

19. Accounting reflection of the effect of temporary differences and charging of the tax due on the profit for the year. Closing of the Profit and Loss account from the current year and establishment of the balance sheet profit / loss for the year

The accounting reflection of the effects of temporary differences will cause a change in the debit and/or credit of the Profits and Losses account from the current year. There will also be a change in it from the accrual of current tax expenses. The account is closed and the final balance is established the balance profit / loss for the year.

20. Preparation of the final trial balance.

After the comparison of expenses and revenues in the statement of comprehensive income and the formation of the accounting financial result (profit or loss) of the enterprise, as well as the preparation of the Annual Tax Return, which determines the magnitude of the taxes on profit, the final trial balance is prepared. In its preparation, the changes in the preliminary turnover of accounts and the changes resulting from the accounting entries for determining corporate tax and deferred taxes (assets and liabilities) are reflected in its preparation.

After the closing operations, all analytical and synthetic accounts should be prepared with a trial balance (synthetic and analytical), through which a synthetic and analytical level check should again be made and it should be established whether there are incorrect amounts by dimensions. In case everything is checked and is true, one copy of the synthetic (and analytical) trial balance should be prepared and printed. They are kept final, i.e. trial balance after completion and before tax and should be signed by the accounting officer.

21. Preparation of a Statement of Financial Position, Statement of Cash Flows for the Period, Statement of Changes in Equity for the Period, Appendices and a Report on the Activities as at 31.12 of the current year

All actions by an entity shall comply with all IAS/IFRS Strictly comply with national and international regulations related to their activities and meet the requirements of international conventions.

The parent prepares consolidated financial statements that include the Company and its subsidiaries (collectively referred to as the Group) and the Group's participation in associates and jointly controlled entities. Those statements shall systematize information on transactions carried out by an entity during the year and other events (which are identified as such) and their impact on the entity's financial position and financial performance during the period. The information contained in them interests users both inside and outside the enterprise.

The financial statements, other than the statement of cash flows, are prepared on an accrual basis. They meet the general needs of most users, but do not provide all the information users may need for business decisions, as they largely reflect the financial effects of past events and do not necessarily provide non-financial information.

The statement of financial position - in addition to the above, the changes in some of the accounts related to taxes on profit, deferred taxes and financial result are reflected in its preparation. After their accounting, the statement should be equal/balanced, i.e. the assets should be equal to the equity plus liabilities.

The statement of comprehensive income - the second stage of its preparation is after the preparation of the Annual Tax Return, determination of the tax expense and the financial result after taxation.

Total comprehensive income consists of all components of profit or loss and other comprehensive income.

Cash flow estimates - cash flows from operating activities are accounted for using the direct or indirect method. Companies primarily accept in their cash flow accounting and presentation policies to be prepared using the direct method because it provides information that may be useful in predicting the cost of future cash flows. It reflects the main groups of gross cash receipts and gross cash payments. Cash flows are classified as cash flows from:

- Operating activity - the main activity of the enterprise that generates income, as well as other activity that is not investment or financial. Here you can attribute proceeds from customers and trustees, payments to suppliers and trustees, paid and refunded taxes, payments and receipts of dividends, payments on labor remuneration, etc.
- Investment activity - covers the acquisition and sale of fixed assets and other investments not included in cash equivalents. To these may be added loans granted/refunded to/from related parties, payments for the acquisition of investments, etc. Presented separately in the Statement indicates what future income or cash flows the enterprise will have from the acquired resources.
- Financial activity - an activity that leads to changes in the amount and composition of the paid-in equity and borrowed funds of the enterprise. These include cash receipts from the issuance of shares or other equity instruments, repayments of money to owners for the acquisition or redemption of shares of the enterprise, cash proceeds from the issuance of bonds, loans, credits, notes, mortgages and other short-term or long-term borrowings.

It is possible to include cash flows that are classified in two different activities, such as repayment of a loan (repayment of principal and interest), principal may be classified as a financing activity and interest as operational.

The cash flow statement provides information not only to internal users (mainly shareholders), such as receiving dividends, but also to external users such as investors, creditors and others in order to make the right economic decisions. Investors in financial markets are interested in information about the cash flows of various public companies to find those in which they can invest their funds.

Statement of changes in equity - information on the compilation of individual equity items at the beginning and end of the period, as well as on changes in each of them during the current reporting period. The information is taken mainly from the balances of the accounting accounts for equity accounting, which includes:

Fixed (acationary) capital - The company reports its fixed capital at the nominal value of the shares registered in court. And the Charterers are liable for the obligations of the Company up to the amount of their shareholding in the capital and may claim the return of this participation only in liquidation or bankruptcy proceedings.

Reserves - formed mainly from profit distribution and include distributed amounts to the Reserve Fund and additional reserves formed from the distribution of profits realized by the Company in previous periods.

The revaluation surplus is formed by the positive difference between the inflated carrying amount of property, plant and equipment and their fair values at the dates of the revaluation. The revaluation surplus - transferred to accumulated profits at the end of each accounting period with the amortized cost representing the difference between depreciation based on the revalued book value and depreciation based on the cost of the Acquisition. It may be from a revaluation of the hemi, buildings, etc.

Retained earnings/losses - mainly include Total Comprehensive Income for the period and retained earnings/losses from historical periods.

Financial result for the current period - The company recognizes all items of income and expense during the period in profit or loss unless an IFRS requires or permits otherwise.

The note to the financial statements - its purpose is to provide analysis and analysis of the information specified in the relevant parts of the AFS. It discloses details related to amounts not disclosed in the main elements. They contain information about:

- which is required by the applicable SS;
- for the accounting policies applied, and in the event of a change, the reasons are disclosed;
- additional information not presented in some of the AFS elements;
- the amount of guarantees, contingencies, pension liabilities, to affiliated and associated undertakings, contingent liabilities, etc.
- for the methods of estimating the assets, liabilities, equity, income and expenses presented in the FO.
- on methods of calculating impairment losses, changes in non-current assets by preparing a statement on fixed assets, etc..

The Conceptual Framework of Financial Statements focuses on the presentation and disclosure of information as means of communication. The effective transmission of information in the financial statements makes that information more relevant and contributes to a fair presentation of the entity's assets, liabilities, equity, income and expenses. To present information in the financial statements, it is necessary:

- it should focus on the objectives and principles of presentation and disclosure rather than rules;
- be presented and grouped by similar elements, separately from the different elements;
- summarizing it in such a way that it is not hidden by either unnecessary detail or excessive generalization.

With respect to the objectives and principles of presentation and disclosure of information in the financial statements, an entity needs to be balanced in flexibility in providing appropriate information that represents its assets, liabilities, equity, income and expense faithfully and accurately, that information being comparable as for two reporting periods for the reporting entity. and in one reporting period for all enterprises.

For information in the financial statements to be effective, information specific to the entity must be presented in it and there should be no recurrence of information in different parts of the financial statements or unnecessary information because it may become incomprehensible.

22. Detailed information shall be provided to the management for the development of reports and for making the right decisions

The enterprise aims to continue to operate as a going entity, to provide a corresponding return on invested funds to shareholders as well as business benefits to other stakeholders and participants in its business, and last but not least to maintain an optimal capital structure. The information needs of interested users are constantly growing, but some of them (e.g. external users – shareholders, suppliers, customers, lenders, etc.) have limited access to information related to the activity of the enterprise (Hristov, Dimitrova, 2014). The main information source for these persons is precisely the financial statements that provide them with the necessary information about the results achieved by the enterprise (profitability), its property and financial status, as well as an assessment of the ability of managers to effectively use their resources to achieve pre-set goals (Filipova, 2012).
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The management of the enterprise needs information about the property and financial condition of the one entrusted to it at a certain time, as well as about the reasons for their change. This information is obtained by aggregating, grouping, vaulting data in order to obtain aggregated indicators that are formed in the process of current accounting. The aggregated data from the current accounting are used to obtain aggregated indicators for the needs of management. The periodic report is characterized by the fact that it has an important information significance in relation to the summarized reporting and economic information. It is applied at the close of accounts periodically, i.e. it summarizes the information through the trial balances that is used to prepare the financial statements. It controls as errors and omissions are identified. Managerial management actions cover in general:

setting the objectives, organizing the execution of tasks, reporting and regulating performance. Aimed at the present, it is always looking to the future, which requires to anticipate development, to work with perspective (Bonev, 2018).

This aggregate information, which is used in management to make management decisions as well as to monitor their implementation, must be timely, relevant, truthful, clear and accurate.

23. Exercising control over the observance of the accounting policy, as, if necessary, the management shall approve its change, as well as that of the individual chart of accounts

Enterprises shall develop accounting policies in accordance with accounting and tax legislation, which are related to the activity of the enterprise. The development, implementation and control shall be carried out by the persons who have developed and approved the accounting policy. The legal framework stipulates that the presentation and classification of items in the financial statements of the accounting policies and measurement methods are maintained and applied consistently over more than one reporting period in order to achieve comparability of accounting data and financial statement indicators, i.e. the principle of consistency of presentation and comparative information should be respected. An important factor is also the possibility of comparing with similar information about other enterprises and with similar information about the same enterprise, but for a different period and at a different date. Even if this possibility exists, such full comparability cannot be achieved since alternative options exist in the current accounting basis for the accounting treatment, measurement and disclosure of similar reporting objects, events and transactions. In this regard, if there are more reliable and appropriate alternatives for accounting for assets, liabilities, equity, income and expenses in the financial statements, an entity may not continue to treat those items in the manner provided for in accounting policies but should change them by changing its accounting policies. Such changes shall be disclosed in the Annexes to the annual report and the nature of the change and its consequences. The main objective is to make the information in the financial statements more reliable and relevant. In the provisions of the applicable accounting standards, a change is allowed not only at the beginning of the reporting period, but also at other times when required by law or by an accounting standard, or if the change will lead to a more accurate presentation of events or transactions in the financial statements, because the accounting policies of the enterprise always evolve adequately to the evolution of the productive forces and production relations (Jeliazkov,

Kostova, 1995). It can be said that in a period of pandemic these changes are particularly relevant because the state provides enterprises with state grant aid, which should be accounted for in accordance with the regulations of IAS 20 and other accounting nominative acts.

In addition to consistent application of accounting policies, it is important that the responsible authorities monitor its proper application, monitor principles and conditions, and annually analyses it for the purpose of presenting financial information reliably and appropriately and to influence decisions made by users.

24. Identification of events after the end of the reporting period

Between the date of the statement of financial position as at 31.12 of the reporting year and the date on which the financial statements are authorized for issue. Events that occur are corrective and non-adjusting events occurring after the end of the reporting period. Taking into account the provisions of IAS 10 Events After the Reporting Period in Adjusting Events, an entity shall adjust the amounts recognized in the financial statements; or recognizes items that were not previously recognized, some being: a decision after the reporting period of a lawsuit; ascertaining, after the reporting period, the amount to be distributed from profit or bonus payments if the entity had an existing legal or constructive obligation at the end of the reporting period to make such payments events prior to that date (IAS 19 Employee Benefits). These and other adjusting events are accounted for and reflected in the annual financial statements to reflect the change they entail. The reason for this is that conditions for their existence were in place even before the balance sheet date, and only their finalization took place in the next reporting period.

Other non-adjusting events are also foreseen in IAS 10, such as: the loss of an entity's assets after the date of the annual financial statements; the adoption of a plan for discontinuing or restructuring operations for a period after the date of the annual financial statements; initiating important litigation arising solely from events occurring after the date of the annual financial statements; etc.

Adjusting events may also be called favourable events for an entity because they demonstrate conditions that existed at the end of the reporting period and are unfavourable (non-adjustable) that are indicative of conditions that arise after the reporting period.

Past period errors are omissions or misrepresentations of an entity's financial statements for one or more prior reporting periods that result from the non-use or misuse of reliable information. It may have been available at the time the financial statements were authorized for issue and could have been considered in the preparation and presentation of those financial statements. For this period.

They may be mathematical, misapplication of accounting policies, oversight or misrepresentation of facts and/or fraud. Within the meaning of IAS 8 Errors may arise in relation to the recognition, measurement, presentation or disclosure of components of the financial statements.

Errors that relate to the current period and are detected in the current period are corrected before the financial statements are approved for issue. Errors may be detected in a subsequent period and those prior period errors are corrected in the comparative information presented in the financial statements for that subsequent period.

An entity retrospectively corrects the material errors of prior periods in the first financial report authorized for issue after they are.

25. Verification, certification, presentation and publication of the annual accounts (Oresharov, 2012)

According to the requirements of the regulatory framework, the prepared financial statements, which are subject to independent financial audit, are subject to inspection and certification by a registered auditor, and then approved by a decision of the General Assembly by the owners and published.

3. Conclusion

The annual closing of accounts is the final stage of the reporting process in the enterprise. During closing, a grouping and systematization of the data is carried out to obtain indicators characterizing the economic and financial position of the enterprise, the realized financial result, the changes in cash flows and equity for the reporting period. Its course goes through several successively related stages, taking into account the specifics of the industry in which the enterprise carries out its activities. Based on the indicators obtained in the course of annual closing, the annual financial statements are drawn up, from which all interested parties receive information on the basis of which they can make economic decisions.

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