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ORGANIZATIONAL AND MANAGEMENT STRUCTURES IN MANAGEMENT SYSTEMS OF THE ENTERPRISES OF THE INDUSTRY (AT THE EXAMPLE OF ALKOMET AD, SHUMEN)

ABSTRACT

on

DISSERTATION

for awarding the educational and scientific degree "doctor"
professional direction: 3.7. Administration and Management

Supervisor:
Assoc. Dr. Anatoly Asenov

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Compositionally, the dissertation consists of an introduction, three chapters, a conclusion, main contributions of the dissertation, literature and appendices. The literature covers 113 sources - 101 in Cyrillic and 11 in Latin. The study includes 30 figures and 2 tables.

The dissertation work was discussed and directed for defense in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria by the "Management" Department at the "D. A. Tsenov" - town of Svishtov.

The author is a self-taught doctoral student at the Department of Management.

The materials for the defense are available to those interested in the "PhD and Academic Development" office of the Academy of Economics "D. A. Tsenov" - town of Svishtov.

I. GENERAL CHARACTERISTICS OF THE DISSERTATION

The relevance of the topic of organizational-management structures in the management systems of industrial enterprises is undoubted. It is determined by two main circumstances. First of all, the rapid development of these structures in the changing face of the industry both globally and in Bulgaria. Secondly, the importance given to the targeted structures for increasing the productivity and financial results of the enterprises of the industry.

The subject of organizational-management structures in the management systems of enterprises from the industrial sector is **well developed from a scientific point of view.** However, this objective fact is not a prerequisite for a complete clarification of all problem areas. Also, modern industrial development is extremely dynamic and turbulent. This determines the need for new approaches to management and application of management science. It is an important factor for the ability to manage industrial enterprises efficiently.

The scientific and practical need of the research is indisputable. There is still insufficient knowledge of the large amount of theoretical knowledge on the problem of "design and improvement of organizational structures" (OS), which is combined with a routine approach to solving organizational problems, based on the self-confidence that the many works in this area provide sufficient knowledge. It is still not taken into account by everyone that OS design is a complex scientific and practical activity. The problems mentioned are compounded by the lack of applied developments of theoretical achievements for specific types of organizations.

The topic of the dissertation is "Organizational and management structures in the management systems of industrial enterprises (for example, Alcomet AD, Shumen)".

The object of the dissertation work is the organizational and management structures in the management systems of industrial enterprises.

The subject of the research is the organizational and management structures in the management systems of "Alcomet" JSC, Shumen.

The main goal of the dissertation work is to propose guidelines for actions in developing a model based on the study of the nature, structure, advantages and disadvantages of organizational-management structures in enterprise management systems, the achievements of scientific research and practical experience of an organizational structure that most fully corresponds to the specifics of the enterprises from the industrial sector and, in particular, to the subject of research.

Achieving the goal of the research can be realized by solving the following two types of **tasks**:

• ***Scientific-applied tasks:***

1. To review the scientific literature on the organizational structures in enterprise management systems and in particular industrial enterprises.

2. To analyze and interpret the positions of the authors about the organizational-management structures in the management systems of the enterprises from the industry.

3. To determine the main factors and principles for analysis, design and implementation of new organizational structures.

• ***Applied tasks:***

1. To assess the applicability of using theories and models for organizational-management structures in the management systems of industrial enterprises.

2. To develop a model for the design of organizational structures in the industrial enterprise by a consulting team.

3. To create a methodological basis for the formation of a program team of specialists to improve the organization and management of the industrial enterprise.

The main research thesis is related to the main aim and objectives of the research. In this connection, an attempt is made to prove that the qualities, **the way of functioning and the efficiency of the system of the industrial enterprise depend on its organizational structure.**

The research methodology is built primarily on the basis of the system approach. The system-structural approach and the situational approach were also used.

To achieve the main goal and to fulfill the tasks set in the research, the following methods are used: analysis; synthesis; modelling; logical method; method of scientific abstraction; induction and deduction; surveillance; description.

Empirical data were obtained through:

• interviews, discussions and surveys with managers and specialists both from the company "Alcomet" AD and from other industrial enterprises;

• direct observations both in the company "Alcomet" AD and in other enterprises from the industrial sector, which wished to remain anonymous;

• use of the information from the financial statements of the company "Alcomet" AD. The manual provided the information necessary for the scientific study, provided that only the results of the analysis would be presented, but not the source information, i.e. the financial statements, which is why they are not attached;

• use of information from the National Statistical Institute for industrial enterprises, which has been analyzed and systematized.

Limitations of the study

The analyzed data in the dissertation cover mainly the period 2020-2021. The choice of this period for research was dictated by the fact that it was then that Alcomet JSC was working on optimizing the organizational and management structure.

Approval

The dissertation was discussed and directed for defense by the "Management" department at the "D. A. Tsenov" - town of Svishtov. Separate parts of the dissertation have been published in specialized scientific publications. Some ideas related to the present study have been presented during participation in national and international scientific conferences.

The proposals and recommendations presented in the dissertation have been brought to the attention of the directly monitored enterprises, and some of them have been accepted and will find application when building or changing their organizational and management structures.

II. STRUCTURE AND CONTENT OF THE DISSERTATION

FIRST CHAPTER. Organizational structures in management systems - science and practice in industrial enterprises

1.1. The improvement of management systems and organizational structures is a key factor for effective management

1.2. Management systems and business systems - types, main characteristics and approaches to applying science in practice

1.3. Main types of systems and their characteristics

1.4. Basic approaches and methods of enterprise management

1.5. Structures and system-structural models of management systems

1.6. Organizational structures in management systems - nature, advantages, disadvantages and applicability in industrial enterprises

1.7. Basic factors and principles for analysis, design and improvement of OS in industrial enterprises

SECOND CHAPTER. Research, analysis and main directions for development of management systems and organizational structures of industrial enterprises - on the example of "Alcomet" JSC

2.1. Industrial production in Bulgaria - problematic situation and main directions for accelerated development

2.2. Main areas of activity and prospects for development of "Alcomet" JSC, Shumen.

2.3. Analysis of the management system and organizational structure of "Alcomet" JSC

2.4. Problem situations when changing organizational structures

CHAPTER THREE. Basic theoretical and methodological issues for research, analysis, design and improvement of management systems and organizational structures of industrial enterprises

3.1. Guidelines for the development and improvement of management systems and organizational structures - following the example of Alcomet AD

3.2. Main directions and principles for development of the management system and organizational restructuring of "Alcomet" JSC

3.3. Optimizing the organizational structure of industrial enterprises - on the example of "Alcomet" JSC

3.4. Interdependence between organizational structures and management processes

3.5. Theoretical and methodological conditions for the development, distribution and control of management decisions

CONCLUSION

KEY CONTRIBUTIONS

LITERATURE

APPLICATIONS

III. BRIEF OUTLINE OF THE DISSERTATION

FIRST CHAPTER. Organizational structures in management systems - science and practice in industrial enterprises

In **paragraph 1.1.** the improvement of management systems and organizational structures is considered - a major factor for effective management. At the modern stage of the development of society, opportunities for real scientific management are revealed. The ability to manage in accordance with the new realities is a prerequisite for sustainable and accelerated development. The growing role of scientific management is determined by the accelerated processes of globalization, the development of information and production technologies, major changes in production, trade, science, education and others. As a result of the mentioned processes, there is a complication of management structures, and this is a condition for defining management science as the main tool for effective management.

It can be concluded that management science is a universal tool, it applies both to the management of all social systems and to the processes related to the design and construction of their elements. This means that the system approach is most effective in the implementation of modern management.

In **paragraph 1.2.** the systems and business management systems are analyzed - types, main characteristics and approaches for applying science in practice. For the practical application of science, knowledge is needed through which the business manager can determine the existence of a system, a not, for example, a mechanical set of elements or factors at his personal discretion. He must have enough information about the object he manages, which can only be complete when he analyzes it as a system, i.e. all the most important elements and factors on which good governance depends.

Based on the definitions of the term "system" found in the literature, and taking into account the specifics of industrial enterprises, the following

definition of an industrial enterprise system can be derived: An industrial enterprise is a system that determines the way of its construction, functioning and development. It is a complete formation composed of relatively independent subsystems (elements - material means and ideas for the realization of production and management processes), arranged (structured) in a certain way, which must be changed and regulated in unity. To achieve the enterprise's goals, the management subsystem must create conditions for good organization and coordination of internal production and management relationships between elements and for interaction with the external environment.

In **paragraph 1.3.** the main types of systems and the characteristics of the systems are presented. Industrial enterprises are the product of human activity and cannot function without him. In accordance with this basic position and with the listed types of systems, the most important characteristic of industrial enterprises is that they are social systems. The characteristics of social systems, including of industrial enterprises, is a problem that has been solved by scientists. The great variety of relationships and processes are the reason why enterprises as social systems are defined as large and complex, with diverse structures. For this reason, changes in them are constant, and this defines them as dynamic. Many authors define the complexity of social systems as constantly increasing. This is important for the analysis of enterprises, because this trend in them is dependent on an increase in the number of elements and connections, for example, the expansion of production, technological renewal, changes in the market and other environment, etc.

Paragraph 1.4. focuses on the basic approaches and methods of enterprise management. Methods and approaches reflect the ways in which the research will be done, the management system will be designed and management will be carried out. Their application requires knowledge, scientific systems and models. Approaches are more general than methods and

are related to general characteristics of phenomena, for example, that they should be considered as whole system entities. Through them, general tasks related to the development, the tasks of research, analysis and design of the system as a whole, or of its main elements, for example the organizational structure, are solved. The methods are applied to specific processes and individual parts of the research object. From the point of view of management, the approach is an expression of the attitude of the subject of management to the managed object. The applied methods and their use in practice are determined by the chosen approach. In accordance with it, the technology for carrying out certain management actions is determined, and the technology itself is implemented with certain methods. For the purposes of design in the improvement of a specific organizational structure of a certain industrial enterprise, the approaches and methods should be presented with their advantages and disadvantages. In this way, important managerial problems are solved, including the choice of the best approach for the study of industrial enterprises. The chosen approach must correspond to the characteristics of the enterprise and be applied effectively as a means of studying the problem situation, designing the organizational structure and managing all processes.

The approaches described in the literature and applied in practice are numerous. For this reason, only those that are most important according to the research objectives are presented in the dissertation. Accordingly, and according to the classification criteria, the main approaches are as follows. **According to the time of origin and accordingly according to the scientific schools.** In this aspect, the approaches are contemporary and classic. **Approaches related to the basic elements of systems.** The most popular approaches from this group are: the functional, structural, technological, structural-functional, program-target, economic, informational and others, which are applied according to the view that through the correct management of one of the most important elements of the system can good governance is achieved.

The systems and situational approaches are defined by the authors as the approaches of the future. **The Situational approach** is applied in so-called horizontal OSs. It is effective in a rapidly changing environment. The systems approach can be a continuation or alternative to the situational approach. The basis for this claim is that a systems approach is also effective in a 'changing environment'. For the application of the situational approach, it is necessary for the organizational structure to be flexible, for the staff to know the change of internal and external processes and, in accordance with this, to regulate the change in management actions and the possibilities of adaptation in the new conditions. Systems theory is developed to solve the problem of comprehensively encompassing the multiple processes in control objects. For this reason, as a scientific theory, it is the result of the unification of different knowledge, through which the characteristics of different systems are studied, including and production enterprises. **The Systems approach** is applicable and effective for managing systems of great complexity and dynamism, i.e. and for the enterprises of the industry, which are also systems with such characteristics. These characteristics apply entirely to other social systems. For this reason, different approaches are applied in terms of content, which are declared to be systemic. The problem is that no attention is paid to the adaptation of the theory for the purposes of the specific organization, and therefore this task is one of the most important to be solved in the dissertation work.

In paragraph 1.5. the structures and system-structural models of management systems are described and interpreted. The structure and the organizational structure formed by its elements can be considered as a model of the systems. The construction of management systems, including of industrial enterprises, can be carried out effectively on the basis of previously developed models of the structure. Subsequently, and depending on the goals and functions, the organizational structure is formed. The organizational structure ensures the management of the system, and the way the elements are arranged in

it creates conditions for one or other results. This means that the management results are directly dependent on the way the organizational structure is built.

Based on these conclusions, **the system-structure relations** can be determined: The systems and their elements, incl. OS, always develop and change as a whole; Organizational structure is always the structure of a particular system. For this reason, it is its main element, and its change leads to a change of the whole system; The structure and organizational structure determine the nature of the processes in the system and its relations with the environment. These conclusions confirm the long-established position that the design and construction of OS is an extremely important task on which the good management of any business organization depends. The task is to make a selection of the best elements from the set that are "available" in the structure of which the system consists. This is necessary because the design and construction of an OS can be done on the basis of a limited number of elements that cover the most essential processes and through which management can be carried out.

The difficulties in this direction are related to the fact that the structure includes an infinite number of elements, and together with that there are no criteria for choosing the most essential ones. Thus, during the construction of the OS, there is a danger of including non-essential elements and the deviations from the necessary organizational structure will be large, and the management - ineffective. To overcome these difficulties, scientists develop general models of the structure of systems. They include the most important elements that have the most general (universal) characteristics. This is the reason why a number of authors define them as "universal models" of the "integral structures" of the systems, on the basis of which different systems can be analyzed and designed.

It is important to dwell on the problem of what general structural models of systems are needed for. First of all, the general theoretical model determines the methodological basis for choosing the main (most important) elements of

the organizational structure. It should include items that have common characteristics of a large number of "less important" items. This is a complex, primarily scientific task, which is the subject of another study. For this reason and for the purposes of the dissertation, we will define the elements that make up the system model as first-level elements, and the rest as second-level elements. The models composed of the elements of the first level are structures that reflect the general characteristics of the systems – system-wide structures. The elements of the first level are defined according to the system-wide feature and form models of structures that apply to all systems. These are elements that apply to all systems, regardless of their specifics. They are the basis for determining the most essential elements for the management of the specific object according to the subject. Items by subject of activity are second, third, and so on. level, according to the specific work processes in the specific organizations, for example industry, construction, transport, education and others.

The system consists of elements that define internal relationships and processes, as well as relationships with the environment. By determining and analyzing the most important elements, their correct arrangement (structuring) and change is ensured. This is also one of the important ones contributions of representatives of general systems theory. In addition, the positions of scientists regarding the main elements are still extremely diverse. These differences also have an impact on the application of scientific methods in practice. The views related to the main elements of systems are varied and can be summarized as follows: *The large number of elements that comprise any control object that is analyzed as a system. To manage effectively, however, a manager can regulate a limited number of processes related to one element or another; *The criteria for determining the elements are also varied. This procedure can be implemented in accordance with the target or functional features, from which, if analyzed in detail, many additional criteria will be obtained; *On a cybernetic basis, the

elements were already defined by the creator of cybernetics, Norbert Wiener. They are: input-output, feedback and black box.

Based on the main elements selected in the survey (goals, management functions, OS, technologies, innovations, production processes, markets, marketing, trade, financial resources and personnel) and the analysis for the goals - building an effective OS, we propose **a system model for the management of industrial enterprises** with the following basic elements: **organizational structure**, the effective construction and functioning of which depends on: **the goals**, including strategic and tactical; production and management processes; **the functions** at production and management level; **innovations** and the periodicity of renewal of production facilities (the innovation cycle); **the resources**. The indicated elements are represented graphically in **Fig. 1**.

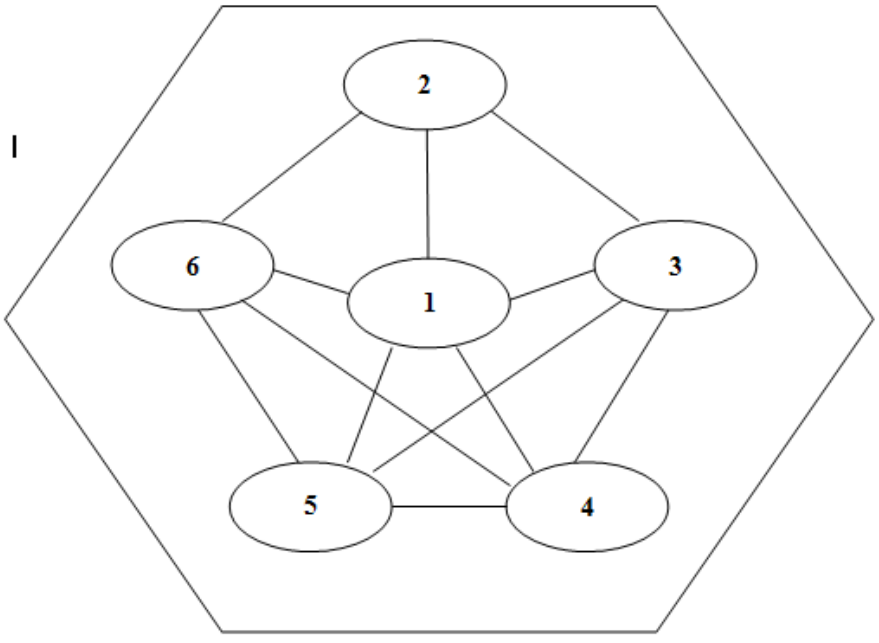

Fig. 1. Basic elements of a model of the management system of an industrial enterprise - applicable to the construction of optimal OS

A legend

1. Organizational structures.
2. Objectives (strategy and tactics).
3. Processes (production and management).
4. Innovations in production and management.
5. Functions (production and management).
6. Resources.

In paragraph 1.6. attention is focused on organizational structures in management systems - nature, advantages, disadvantages and applicability in industrial enterprises of the main types of organizational structures. From the analysis of the definitions and described qualities of OS, we can make the following more important findings. First: The definition of the organizational structure as a way of arrangement in time and space of a certain set of elements, or as a way of arranging the elements together with the connections and ongoing processes between them, is the most widespread; Second: The notion of organizational structure of the control system must be considered in the analysis of "dynamic artificial systems" such as industrial enterprises; Third: The various production, commercial, management, social, economic and other processes take place simultaneously, and this determines the need for the OS to provide conditions for parallel regulation of the processes. An organizational structure with such qualities can only be one that is designed in accordance with the systems approach; Fourth: With the way of organization of the management bodies in time and space, the great species diversity of OS is connected, as well as the need to analyze the qualities of each type, which is established in

management practice; Fifth: Described in the scientific literature and applied most often in practice are the following types of OS: linear; functional; functional-linear; line-staff; matrix; program-targeted; cybernetic (block); project of; situational; functional-block; by subject of activity and others that are a combination of the above.

Based on the review of the literature sources, the following working definition of OS in industrial enterprises can be derived, namely: **The organizational structure in industrial enterprises is a way of organizing (arranging) the bodies for managing production, the realization of products and other dynamic processes , on which the efficiency and sustainable development of the enterprise depend. The definition and formation of the main management bodies, their functions and the nature of the internal and external connections is the result of the analysis of the processes that are basic to the functioning and efficiency of the enterprise.** The working definition is consistent with the objectives of the dissertation and the main characteristics of the object. It does not reject the cited definitions. Our position is that they reflect the complex of OS characteristics and in this sense we accept the working definition as a complement to them.

The dissertation presents some of the most used types with their characteristics, advantages, disadvantages and objects of application. This is a sufficient condition for revealing the rich experience and possible combinations in the construction of the organizational and management structures of various systems. A comprehensive review of the sources on the types (types) of OS has not been made, because they have been established for a long time, and most of the authors do not indicate their characteristics. We will indicate only three sources in which there are uniform positions on the species and their characteristics. In the literary sources, as well as in practice, the following **types of organizational-management structures are confirmed:** According **to their structure**, they are hierarchical and horizontal, centralized and decentralized;

According **to the way of arrangement and functional characteristics of management units** are linear, linear-functional, linear-staff, matrix, program-target, functional-block, project, product and situational; According to the scope, they are central and sectoral (local), national, global, regional, territorial.

The transformation of OS from one type to another is determined by factors depending on the development of the enterprise in which they are implemented. Along with its development, the characteristics of the organizational structure necessary for its effective management also change. Changing the number of elements (processes, connections, the means of production and others) and the dynamics of their change leads to the need to implement more complex OS. In practice, the increase in the complexity and volume of the enterprise necessitates the need for a new way of arranging (organizing) the management units and changing their number. This means that managers must know well the type of OS that is most appropriate at each stage of the enterprise's development.

In paragraph 1.7. the main factors and principles for analysis, design and improvement of OS in industrial enterprises are considered. We accept the thesis that the systematic direction in science is established as a source of the most effective methods for analysis and improvement of management systems. In this situation, the analysis of OS transformations from one type to another should include the factors that have a direct impact on the development of the entire system. The change in the elements of the enterprise, viewed as a system, inevitably leads to a change in organizational and management relations. In this regard, the need for a new way of organizing the elements of the system, respectively the management structures, has the importance of regularity.

In **Fig. 2** schematically presents **the life cycle of OS in control systems.** The OS life cycle is dependent on the change of both the external and internal environment of the enterprise. Its analysis is necessary to predict the future state and time of change of all elements of the system. On the graph presented, the

author has shown the unity and interdependence between the degree of development of the external environment and the OS of a certain specific system. The analysis of this process can only be done by comparing the state of the elements of the environment and those of the system, which implies the application of the system approach. Thus, managers will ensure the construction of good projects and sustainability, that is, a longer life cycle of the OS within certain changes in the environment.

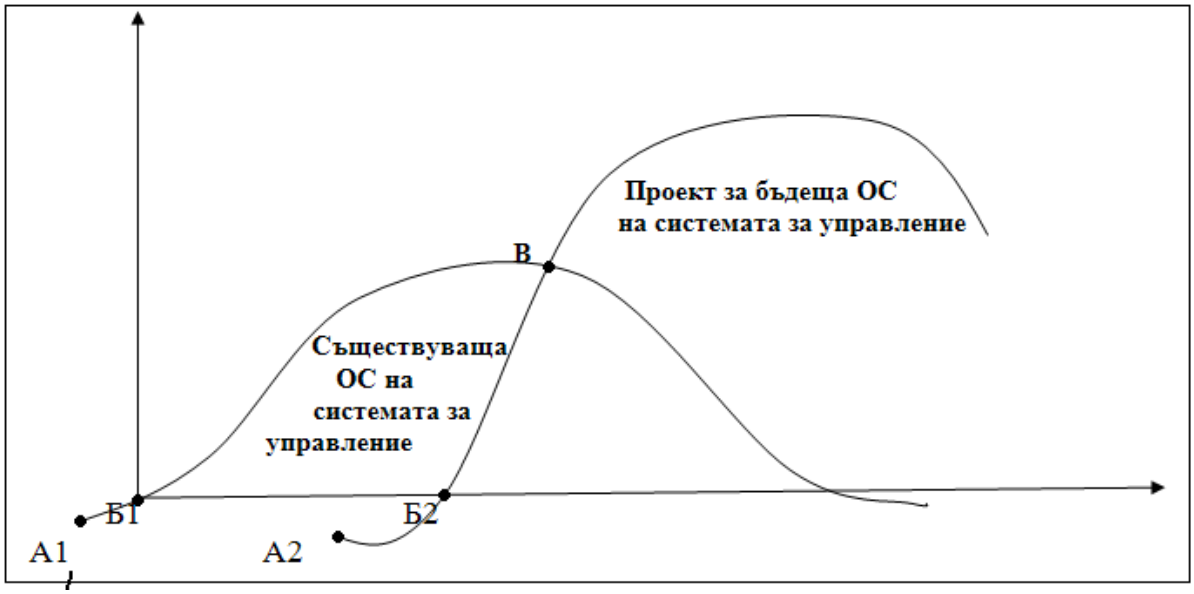

Fig. 2. Life cycle of organizational structures

Legend:

T – Time; A 1, A 2 – beginning of OS design; B1, − OS implementation;

B2 – Implementation of elements of the new OS; C – Final OS build

CONCLUSIONS. Regarding the first chapter "Organizational structures in management systems - science and practice in industrial enterprises", the following conclusions can be drawn:

1. For the purposes of this study, the industrial enterprise is defined as a system that determines the manner of its construction, functioning and

development. It is a complete formation composed of relatively independent subsystems, structured in a certain way, which must be changed and regulated in unity.

2. The system approach is most effective in the implementation of management. At the same time, it is not possible without research, analysis and interpretation of the organization and structuring of management bodies.

3. Based on a survey and analyzing its results, a model of a management system for industrial enterprises is proposed, containing specific main elements.

4. A working definition of OS in industrial enterprises is given as a way of organizing (arranging) the bodies for managing production, the realization of products and other dynamic processes on which the efficiency and sustainable development of the enterprise depend.

5. Some of the most used types of organizational structures with their characteristics, advantages, disadvantages and objects of application are presented.

SECOND CHAPTER. Research, analysis and main directions for development of management systems and organizational structures of industrial enterprises - on the example of "Alcomet" JSC

In paragraph 2.1. the industrial production in Bulgaria is studied - a problematic situation and main directions for accelerated development. During the years of transition, there was a complete change of concepts and approaches regarding the production and product structure of the industry and the role of the state. The policy of a sharp transition from an active role of the state and planning to "free market relations" led to a complete withdrawal of the state and, accordingly, to the elimination of economic and trade mechanisms to support industrial producers.

The general economic crisis and the new market and competitive environment have an important share for these results, but along with this, the removal of the industry from the list of strategic priorities has an important role. It is obvious that the announced priorities - tourism and agriculture are important, but they are not enough to ensure the dynamic development of the country. In both sectors, for objective reasons, productivity and, accordingly, added value are lower. Another important result of this is low employment, because even without analysis it is clear that for the significant number of industrial workers, a large part of them with high specific qualifications, the necessary jobs cannot be provided. As a result of the chaotic restructuring of the national economy, a number of sub-sectors of the industry have been closed. This led to a sharp change in the production structure of the industry and disruption of production, technological, organizational, market, innovation and overall economic relations. The state withdrew and removed economic and commercial incentives in production.

There are also positive characteristics and trends in the development of the Bulgarian industry. The share of industry that produces goods with high added value is significant. It also forms a large percentage of Bulgarian exports. In addition, although from a low base, an accelerated development of the innovative industry and an increase in the share of high-tech exports are noticeable.

Industrial production should be identified as a national priority for development. This is a dynamic condition growth, quality and competitiveness of the Bulgarian economy. A strategic goal in this direction is the revival and development of a qualitatively new high-tech type of industry.

In paragraph 2.2. the main areas of activity and prospects for development of "Alcomet" AD, the city of Shumen Alcomet "AD is a joint-stock company registered in Bulgaria under the Commercial Law, with its headquarters and management address in the city of Shumen. "Alcomet" AD is

registered as a public company in the Public Register of Commercial Companies, according to the decision of the Commission for Financial Supervision from July 1, 1998. The company's shares are traded on the Bulgarian Stock Exchange, Sofia. The company was founded with the company "Alumina" EAD and was 100% state property.

The subject of the company's activity is the production of rolled aluminum, pressed and rolled products from aluminum and aluminum alloys, trading with these products on the national and foreign markets and providing services. The plant is unique for Bulgaria, as it includes a complete production cycle and has production capacity for a wide variety of products (about 1,800 profiles). Founded in 1981, Alcomet AD is a leading Bulgarian manufacturer of aluminum products. The company has successfully developed as one of the largest aluminum producers in the Balkans and as a reliable partner on both international and domestic markets.

The share capital amounts to BGN 17,952,959, divided into 17,952,959 non-available voting shares with a nominal value of BGN 1.00 each. The structure of the company's share capital at the end of the research period includes 48 legal entities with a share capital of 98.7% and 2510 individuals with a share capital of 1.3%. The shareholders owning more than 5% of the company's share capital are "Alumetal" AD 73.25%, "FAF Metal Sanayii VE Ticaret" AS 16.86%.

The main markets of the company are the countries of the European Union, the Balkan countries and the countries of North Africa. The Company manages its capital to ensure its functioning as a going concern, while at the same time seeking to maximize shareholder returns through optimization of the debt-to-equity ratio (return on invested capital). The purpose of management is to maintain the confidence of investors, creditors and the market and to ensure the future development of the company. In this aspect, the team monitors the capital structure based on the ratio of net debt to equity.

The HR policy is based on retaining experienced workers, and staff optimization is mainly done by releasing temporary workers after the expiration of their contracts and retiring workers for insurance length of service and age. The company has implemented a system for the selection and appointment of personnel, which is in line with the organizational structure. This procedure was implemented after a preliminary analysis of the functional duties of each of the units in the OS. As a socially responsible company, Alcomet AD supports various non-profit initiatives. Social responsibility towards society is embedded in its business strategy.

The management team of the enterprise works in accordance with the modern achievements of management science and practice. The modernization of the management and production system subsystem is implemented in synchrony, and as a result, sustainable development has been achieved.

In paragraph 2.3. the management system and the organizational structure of "Alcomet" AD are analyzed. In the process of developing the dissertation work, the necessary research and discussions were carried out with the leading collaborators from the enterprise's teams. The discussion was done according to the principles of the "brainstorming" approach to provide information about the "problem situation and alternatives for solving management problems." Management problems are analyzed and the main directions for organizational restructuring are indicated. In parallel with this, the organizational structure and the possibilities for efficiency of the management of "Alcomet" AD in the modern economic conditions have been analyzed.

The main goal of the study is to give a general assessment of the state of the management system, the problems related to the organizational structure, the main tasks for its improvement. An additional study was carried out through surveys of randomly selected specialists from the company. Comprehensive information has been gathered on the problematic situation regarding economic status, production and management. Due to limitations in the volume of the

dissertation work, the detailed analysis of the results of the conducted empirical research is not presented. The analyzed information is presented only in summary in the form of the following **main conclusions**:

- The company "Alcomet" AD has long-standing traditions in the industry. It has well-trained specialists mainly at the production and technological level. This is a guarantee of success in the implementation of the new product and marketing policy.
- Management teams are motivated to adopt new approaches in management and even when a complete change of management policy is required in accordance with the dynamic change of the organizational and market environment. Managers and leading technological specialists have well-founded views and concepts, first of all, about the technological renewal of production facilities, to increase the quality of production and reduce the cost price.
- Issues related to organization and management are discussed with significantly lower activity. The analysis shows that the reasons for this are:

✓ The lower level of competence of specialists;

✓ The understanding that organizational restructuring is the task of top management only;

✓ The relative stability of OS in the company;

✓ The conviction, which also stood out in the surveys of a large number of other companies, is that without an answer to the question "what to do?", no flaws are sought.

- This information is the basis for the conclusion that the organization related to the increase of knowledge and, accordingly, of innovative creativity, related to management science and practice, lags behind the preparation for production and technological processes. The problem is that production and

management are directly linked, and this lag can cause problems to arise. At this stage, this is compensated by the more active efforts of senior managers.

- The state of the material and technical base provides an opportunity to expand production. The problems in terms of technology are primarily related to the outdated concepts of the technological restructuring of the capacities for the "separate" production processes. Nevertheless, with a new management policy, the base can provide more dynamic reproduction. This is an important condition because it enables a reasonable investment policy and reduces financial risk.
- The relatively short period for modernization in this branch is possible, since the production is a combination of traditional experience and the opportunities to implement fundamentally new technologies in the new conditions. This has a direct impact on the structuring of the OS, and for this purpose, the tendency to attract prepared specialists in the field of innovation is confirmed in the company, and thus – to strengthen the organizational direction in this aspect.

Main recommendations: As a result of the conducted empirical research and the analysis of the accumulated information, we recommend that the following principles be observed when proceeding with a change:

- The change of the organizational structure should be implemented in well-founded stages. They should be determined after analyzing the changes in the main factors on which OS sustainability depends. On the basis of this analysis, adopt a concept (model) for the final form of OS and the most important goal of the restructuring. This approach is required for the following reasons:

• Management teams do not always take into account the risk of rapid change of management and production procedures and the need for the related analysis of the need for changes;

• Science-based integrated models for process impact analysis are not applied. When there are many of them, a number of difficulties arise regarding new changes to the OS;

• In the majority of companies, no follow-up system has been built to describe the change of the main management functions, on which the new organizational projects largely depend. This is an important condition for rapid staffing in accordance with changing functions;

• Related to the above is the problem of the lack of continuity of management personnel when changing activities in production subsystems.

There is also a lack of readiness to monitor and accordingly implement the new achievements of management science and the practical experience of leading companies in this direction. For this reason, it was found in the discussions that innovations are mainly considered to be those related to production. Innovative creativity and readiness are considered a priority only of the top management.

In general, **the OS of "Alcomet" AD can be defined as hierarchical in combination with clearly expressed horizontal connections at the second and third level.** According to the conditions for the implementation of the main management processes, OS has predominant characteristics of a linear-functional type with a transition to a product at the organizational-management level "plants".

In **paragraph 2.4.** problem situations that accompany the change of organizational structures are analyzed

The following are the main areas of problematic situations when changing the OS:

First: It is very often not understood that a complete OS change cannot be based only on changes in, for example, economic conditions or a change in production technology. Exceptions can only be changes in the Commercial or other basic law, which regulates the problems regarding the management of industrial enterprises.

Second: When there are no major changes in the internal and external management environment, the necessary action of managers is to improve the OS. In this case, the principle of continuity and complementation of the management bodies should be observed only with the need to perform the new management functions. This principle is a guarantee that in each subsequent model of the OS, the necessary controls from the old control system are preserved.

Third: When fundamentally new internal and external conditions are not present, the development of enterprises and the complication of their economic, production, technological and market relations in national and international terms necessitate the application of the latest scientific achievements in management science. Under these conditions, OS change can be effective only through comprehensive design of models and development of the capacity of companies for organizational-structural modeling. This is a mandatory condition for effective management and implementation of scientifically based organizational projects. This problem has not yet been solved and companies lack well-prepared personnel for the development and management of organizational projects.

CONCLUSIONS. Regarding the second chapter "Research, analysis and main directions for the development of management systems and organizational structures of industrial enterprises - on the example of "Alcomet" AD" the following conclusions can be drawn:

1. In practice, the design and construction of management systems, including of the OS, is carried out mostly intuitively, without specialists

prepared for the purpose. A change in this regard is needed to achieve effective results. Specialized consulting teams should be used

2. The organizational structure of "Alcomet" JSC can be defined as hierarchical in combination with clearly expressed horizontal connections at the second and third levels of management. It has more than two management levels and well-defined vertical subordination relationships, as well as a good separation of functions, clearly defined vertical connections and communications, and a high degree of coherence and coordination in management decision-making.

3. The models for changing the organizational structure must be consistent with the company's development strategy, expected changes to the product nomenclature, markets, new technologies, international economic policy, as well as the peculiarities of the internal and external environment.

CHAPTER THREE. Basic theoretical and methodological issues for research, analysis, design and improvement of management systems and organizational structures of industrial enterprises

In **paragraph 3.1.** the main directions for the development and improvement of the management systems and organizational structures are examined - on the example of the company "Alcomet" AD - a general methodological setting. The evolution of organizational structures depends on the factors that have the greatest influence on the development of the general management system. In perspective, the change in the number of departments in the OS for management or the number of workshops and plants creates new characteristics of connections and leads to a change in management processes. This determines the need for a new way of organizing the management structure.

As a result, the nature and number of relationships and functions, the movement of information, powers, responsibilities and, accordingly, the making

and implementation of management decisions change. The extent of the changes may be related to a complete change in the way management is implemented and the related results and control for their reporting. For a correct assessment of the need to change the OS, one must take into account the fact that it cannot be the result of individual changes, for example, of economic conditions or a change in production technology.

In this aspect, the managers of "Alcomet" JSC must comply with the following **basic provisions**: The degree of centralization and decentralization and, accordingly, the way of making and implementing management decisions are always in accordance with the complexity and characteristics of the management object. In "Alcomet" JSC there is a sustainable development and regardless of the dynamic environment, a sharp change of these characteristics of the OS is not necessary; The trend of retaining features from the past should continue in each subsequent model. This development affirms certain management relationships, and new ones should be implemented carefully; The company's management system is complex, and for this reason, competent consultation by specialists must be provided for any change and implementation of new OS; The main future task of the company's managers is the analysis of the life cycle of the OS. It is dependent on the change of both the external environment and the development of the system itself.

In paragraph 3.2. the main directions and principles for development of the management system and organizational restructuring of "Alcomet" AD are analyzed. For the purposes of the study, a discussion was additionally conducted on the "Problem situation and alternatives for solving management problems". Management problems are analyzed and the main directions for organizational restructuring are indicated. In parallel with this, an analysis of the organizational structure and the possibilities for management efficiency in the new economic and organizational conditions was made.

As a result of the discussion, it was established that after the expansion and change of the product structure, "Alcomet" AD works in new economic and institutional conditions. This requires changing the inherited management approaches and methods and the institutional, organizational, economic and operational interaction between the structural units in the company, with competitors and potential customers, as well as with state and regional government authorities. The organizational structure is sustainable and, as it became clear in its analysis, ensures management efficiency. Nevertheless, it was found that a number of changes had taken place, on the basis of which the main directions in which the company should work in the future were outlined.

Regarding the general state of the company and the prospects for its development, it can be summarized that "Alcomet" AD is a company with long-standing traditions in the industry. It has well-prepared specialists, mainly at the production and technological level, which is a guarantee of success in the implementation of the upcoming new product and marketing policy.

The management team is motivated to establish a new approach in management and a complete change of the market policy. Managers and leading technological specialists have well-founded views and concepts on the technological renewal of production facilities, to increase the quality of production and reduce the cost price.

The state of the material and technical base provides an opportunity to expand production. The problems in terms of technology are primarily related to the outdated concepts of construction and the spatial-technological structuring of the capacities for the "separate" production processes. Nevertheless, under a new management policy, the base can provide "normal" reproduction and the opportunity for the management team to carry out the next technological upgrade in stages, in a horizon of 5-10 years ahead. This is an important condition because it provides an opportunity for a reasonable investment policy, which, spread over time, reduces financial risk. The relatively long period for

modernization in this branch is possible because the production is resource-intensive, with a relatively long production cycle and, in principle, new technologies are implemented relatively slowly.

In paragraph 3.3. emphasis is placed on the main directions for research and improvement of OS of industrial enterprises - on the example of "Alcomet" JSC. A general assessment of the state of the management system and of the main tasks related to its improvement is made by analyzing the compliance of the management system with the basic requirements and principles for assessment of management systems presented in point one. In order to fulfill the task, research was done through surveys with the key specialists of the company and with the management team. Comprehensive information has been collected about the economic situation and above all in the production-technological and management aspects. Based on the results of the analysis of the collected information, the content of a task for research and development of an OS improvement project can be most precisely indicated, regardless of whether it will be implemented by an external consulting team or by a program team of the enterprise.

The need to identify key elements for analysis and design purposes is related to managers' ability to determine the factors that are important to OS performance. Through the main elements, the content and thematic scope of the analysis of the interdependencies between the OS and these elements are specified. This is how the basic principles for designing effective OSes are defined.

The important principles that can be a basis for determining the content of the research and design are related to the derived basic elements and the formed system model. For **the practical application of science** in the design of the OS of "Alcomet" AD, it is sufficient to indicate the main directions of the analysis related to the interdependence of the OS and the main elements of the control system. It is a principled statement established in science that the analysis of the

interdependencies between elements enables the best organizational structuring of each system object. This is possible because, in accordance with the model developed in the first chapter, the analysis of the influence and interaction of the OS with the main elements in the model will give sufficiently complete information about the entire system. This position, including and the limitations regarding the volume of the dissertation, it is justified, first, to present an exemplary version of the main problems for the study and analysis of three of the main elements, and second, to determine the principle of unity, interaction and interdependence between the elements as a basic design factor and restructuring of management systems.

For the analysis at a general methodological level in order to evaluate the organizational structure, the following studies should be done: analysis and evaluation of the goals and the degree of their realization; the strengths and weaknesses in their implementation by the relevant OS bodies; the extent to which the mission, strategy and general, tactical and operational objectives are being realized at all levels and for all activities in the organization.

In paragraph 3.4. the interdependence between OS and management processes is analyzed. Analysis of the unity between OS and management and production processes is a complex and voluminous task. It is not by chance that in recent years a separate branch of management science has developed, defined in the literature as process or process management. Taking into account the specific features of "Alcomet" AD as an object of management, we can point out that in the future, the solution to problems of this nature will be necessary only in case of very large changes in production and the market environment. With a partial restructuring, the team can successfully solve even complex organizational problems, because it has a good base, given the well-built OS and the qualities of the personnel. In the performance of this task, the team must observe a process of transition from "clearly" arranged goals, through the

system relevant for the enterprise for determining and grouping the functions for their implementation, to the formation of the structural units of the OS.

Research has shown that much of the good results in the enterprise are related to the unity between the creative efforts and capabilities of the collaborators, their qualifications and their functional duties and sharing of common goals. In contrast to some of the investigated enterprises, a good balance between regulations and creative freedom was found in "Alcomet" AD. The bottom line is that the complete absence of unregulated connections is not possible and not even necessary because it can lead to low activity.

In this regard, the management team must monitor informal relations and their compatibility with the goals and even stimulate informal ideas that are potential for new ideas and innovations in management. This must be combined with good coordination, functional coherence between units and no duplication of units and personnel for the implementation of functions. Alcomet JSC has the potential to build temporary "pulsating" units on current issues, which will make the OS even more flexible and adaptable.

In paragraph 3.5. the main theoretical and methodological conditions for the development, distribution and control of management decisions are studied and interpreted. Systems for making, implementing and controlling management decisions are part of the overall activity of improving the organization and management of companies. A prerequisite for its design and implementation in specific parameters is to restructure the management structure in order to make it sustainable. The duration of its persistence, i.e. the time during which no major changes will be made to the management bodies and their configuration in a hierarchical and horizontal aspect depends on the strategic and tactical objectives of the enterprise.

The starting point when making a management decision to design and implement a system for making, implementing and controlling management decisions is the paradigm that OS is a determining factor for the effective

management and functioning of the entire enterprise. For the preliminary preparation when developing the system, a package of documents should be developed that reflect its content. These preconditions are described in a task that is to the greatest extent a reflection of the management bodies in the existing OS, together with the organizational and management relationships between them, the main processes that are regulated by management decisions, and the corresponding structural posts in which specific rights and responsibilities are delegated. In the event that no changes occur to the existing structures, they can be used directly when implementing the system. Even if they need to be supplemented and reworked, these procedures will be minor and will not significantly change the design for the system.

A fundamentally important problem is to achieve a distribution of decisions by levels and thus to ensure speed and efficiency in the implementation of management. With any management system, according to the specifics of the company, management decisions should be made at three levels: 1. At the level of direct operational management of the production process (heads of production units and departments); 2. Management decisions ensuring the overall reproduction process of the company and reflecting the functional, production, resource provision and operational connections between the units; 3. Management decisions with long-term operational and strategic importance, such as planning, design, marketing and contracting, commercial and foreign trade activity, periodic reporting, production and management restructuring, privatization and a number of purely production tasks with long-term implementation technology. For this purpose, a **package of basic documents** (sample forms) should be developed to reflect the content, levels and order of making, implementing and controlling management decisions. After their completion and discussion, the sequential order for making the main decisions, their implementation and control by groups of decisions and structural units is determined.

Alcomet JSC **has implemented a document management system**. It is a good basis for integrating the two systems, with a large part of the attached forms being the basis on which the elements of the decision-making and control system are built. When developing the integrated model for decision-making and control, the basic information from the document flow management system available in "Alcomet" AD can be successfully used. For this purpose, it is necessary to mutually agree on the main parameters of the two subsystems, to adapt the documents and, on this basis, to designed the new system. The two systems will function in parallel and complement each other. Thus, the decision-making and control system will be more effective, because it will be based on document flow management and will be successfully supplemented with information, especially when making management decisions and their movement in the organizational structure of the enterprise.

CONCLUSIONS. Regarding the third chapter "Main theoretical and methodological problems for research, analysis, design and improvement of management systems and the organizational structure of industrial enterprises", the following conclusions can be drawn:

1. As a result of a discussion, it was established that after the expansion and change of the product structure, "Alcomet" AD works in new economic and institutional conditions, and the organizational structure is sustainable and ensures management efficiency. It is recommended that future changes to the organizational structure be implemented in stages determined after analysis and adoption of a concept of the final form of the structures and the general goal of the restructuring.

2. Guidelines for actions in developing a model of organizational structure that most fully correspond to the specifics of the enterprises from the industrial sector and, in particular, the subject of research, namely "Alcomet" AD, are proposed.

3. The organizational management structure of "Alcomet" JSC was studied and recommendations and guidelines for actions in its improvement were given.

4. An important condition for designing and implementing a specific system is to restructure the management structure in order to make it sustainable. The starting point is the paradigm that OS is a determining factor for the effective management and functioning of the entire enterprise.

CONCLUSION

In the course of the research, it was confirmed that the topic of the dissertation "Organizational-management structures in the management systems of industrial enterprises" is current and has important theoretical and practical significance. This was proven by the analyzes that were made, both of the main enterprise ("Alcomet" JSC), and of the enterprises that we investigated through surveys and discussions.

In **chapter one**, attention was directed to the problem of organizational structures in management systems - science and practice in industrial enterprises. It was found that management science is that universal mechanism that can be the tool for managing social systems, including industrial enterprises. We proposed a model of a management system of industrial enterprises with separate elements.

In **the second chapter**, the main directions for the development of management systems and the organizational structures of industrial enterprises were studied and analyzed - on the example of "Alcomet" JSC. It was established that the main condition for the competitiveness of the Bulgarian economy is the revival and development of the Bulgarian industrial production. Based on the research done, it has been proven that the models for changing the

organizational structure of the industrial enterprise must be taken into account with many factors - the development strategy, the changes in the offered products, the peculiarities of the markets, the constantly changing technologies, the politics, the environment - internal and external.

In chapter three, attention was directed to interpreting the main theoretical and methodological problems for research, analysis, design and improvement of management systems and organizational structures of industrial enterprises. As a result of the analysis, a general methodological formulation of the main directions for development and improvement of management systems and organizational structures was developed - on the example of the company "Alcomet" AD, as well as the main directions for research and improvement of OS of industrial enterprises - on the example of same enterprise. The main theoretical and methodological conditions for the design and implementation of a system for the development, distribution and control of management decisions have been synthesized.

The author does not claim to be comprehensive in relation to the researched problems in the dissertation work. We believe that the scientific and empirical research done and the analysis of their results are sufficient evidence to claim that the set goals and objectives of the research have been successfully fulfilled. In this regard, **we assume that the main research thesis we raised, namely that the qualities, the way of functioning and the efficiency of the system of the industrial enterprise depend on its organizational structure, has been proven.**

In the course of the research, certain problems were highlighted. One of the important problems is the lack of an established theoretical model to be applied in the analysis, design, construction and improvement of organizational structures. This is also the reason for the various practical approaches that are applied in solving these tasks. In this case, we supported the position that a systems approach is best suited for OS design and construction. To overcome

the mentioned problems, a hopefully successful attempt has been made to define a model applicable to the OS. It is the result of the study of the theory and practical experience of the studied enterprises and by describing the main characteristics of OS in industrial companies.

The present study does not fully solve the problem of the overall design of the OS based on the systems approach, but we believe that it is an important step towards validating this modern approach in practice. Future research will focus on developing a comprehensive technology for the practical application of an OS design model. The topic can be the subject of a separate comprehensive study. Directly related to the stated research and results is the derivation of guidelines and recommendations for increasing efficiency in organizational restructuring in enterprises.

In the process of the research, it was found that the problems described in the present paper are of increasing importance. It is confirmed that research in this direction should continue. Based on this, we can define the topic as important and promising. Management teams of enterprises do not devote the necessary attention to applying the results of scientific research in practice. The reasons for this are complex and some of them are indicated in the dissertation. However, the fact reinforces the truth of the conclusion that work in this direction should be done on an even broader basis.

Modern development is extremely dynamic. This determines the need for new approaches to management and application of management science. By its very nature, it is an important enabler for industrial enterprises to be managed effectively. This conclusion is confirmed by the importance of scientific management and its growing role. The role of knowledge-based management is growing and it is no coincidence that it is one of the strategic directions for development, both of the Republic of Bulgaria and of the European Union as a whole.

IV. MAIN CONTRIBUTIONS TO THE DISSERTATION

The following **scientific-applied and applied contributions** can be derived from the problems developed in the dissertation:

Contributions of a scientific and applied nature:

1. The theoretical and practical approaches used for the management of industrial enterprises have been studied, and their positive and negative aspects have been brought out.

2. Definitions of both the industrial enterprise as a system and the organizational structure of the industrial enterprise are derived.

3. On the basis of a comparative analysis, the characteristics, advantages, disadvantages, objects of application and methodological problems of the types of organizational structures are derived. The factors with which the models for changing the organizational structure must be considered have been investigated.

Contributions of an applied nature:

1. The main elements of a model of the management system of an industrial enterprise are derived - applicable to the construction of optimal OS. It can be defined as a basis for determining the main steps in OS analysis and design.

2. The organizational structure of "Alcomet" AD was studied, and recommendations were given for its modification and improvement. Key management problems of industrial enterprises are identified and recommendations are made for their organizational restructuring.

3. Guidelines are given for actions in developing a model of organizational structure that most fully corresponds to

the specifics of the enterprises from the industrial sector and in particular of "Alcomet" JSC.

4. Recommendations have been made for the development of a package of basic documents (sample forms) that reflect the content, levels and order of making, implementing and controlling management decisions, which are valid both for industrial enterprises and for "Alcomet" AD.

V. PUBLICATIONS RELATED TO THE THEME OF THE DISSERTATION

1. **Nikolov, H.** Organizational structures in management systems - science and practice in industrial enterprises. // Electronic magazine "Dialog", Svishtov, *https://dlib.uni-svishtov.bg/bitstream/handle/10610/4680/325346ac3d2f3b7275d35dad403c853f.pdf?sequence=1&isAllowed=y*, issue 1, 2022, p.82- 100. ISSN: 1311-9206

2. **Nikolov, H.** Types of organizational-management structures - applicability, advantages and disadvantages. // Collection of reports from a national scientific conference with international participation on the topic "Education, Science, Society", Smolyan, November 3-4, 2022, UI "Paisiy Hilendarski", 2022, pp. 804-817. ISBN 978-619-7663-43-3.

3. **Nikolov, H.** Organizational and management structures. // Collection of reports: International scientific and practical conference "The circular economy in the context of the rebation industry 4.0 - society 5.0", Svishtov, October 21-22, 2022, AI "Tsenov", 2022, p.614-618. ISBN 978-954-23-2249-8.

V. DECLARATION OF ORIGINALITY AND AUTHENTICITY

by **Hristo Nedyalkov Nikolov**

In connection with the conduct of the procedure for the acquisition of an educational and scientific wall "doctor" in a professional direction: 3.7. Administration and management, scientific specialty "Social management", I declare:

1. The results and contributions in the dissertation work on the topic: "Organizational and management structures in the management systems of industrial enterprises (for example, Alcomet AD, Shumen)" are original and are not borrowed from research and publications, in which the author has no involvement.

2. The results obtained, described and/or published by other authors are duly and extensively cited in the bibliography.

town of Svishtov DECLARATOR:…….