DEVELOPMENT AND IMPLEMENTATION OF MANAGEMENT SYSTEM OF QUALITY - MAIN FACTOR FOR SUSTAINABLE DEVELOPMENT OF PRODUCTION SYSTEMS

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Abstract: *Quality management systems based on the International Standards ISO (International Organization for Standardization) is a revolutionary way to increase the competitiveness of Bulgarian companies in the energy sector on the European and international energy market. The implementation of international standards and management systems is becoming a major tool to reduce production costs, increase productivity, reduce the cost of manufactured products and services through the creation of optimal models of governance and organization of the key processes in the energetic sector companies. Development and implementation of management systems, good manufacturing practices and achieving product compliance with European and international standards is a promising trend. In proposed authors post after presentation of the International Organization for Standardization ISO is studying and analyzing systems applied quality management in projects in the field of energy development.*

Keywords: ISO (International Organization for Standardization), INTEGRATED OPERATIONAL MANAGEMENT SYSTEM, STRATEGIC MANAGEMENT, QUALITY.

1. Introduction

In the rapidly changing business environment as a result of expressed in the global financial and economic crisis, many Bulgarian companies reorient medium- and long-term development strategies, looking for new ways and mechanisms to safeguard the market position by changing the product portfolio, reduce costs and eliminate inefficient business processes.

In these conditions, the implementation of international standards and management systems is becoming a major tool to reduce production costs, increase productivity, reduce the cost of manufactured products and services through the creation of optimal models of governance and organization of the key processes in the business of enterprises. Development and implementation of management systems, good manufacturing practices and achieving product compliance with European and international standards is a promising trend. Businesses in Bulgaria, following this trend, continuously strive to improve management activities by applying models of planning and use of resources that enable effective and efficient organization of business, improving products and services and expand market presence in the long-term satisfaction the needs and expectations of end users.

In today's world, economic development and competitiveness of a country depends on many indicators - implemented innovations, energy efficiency, consumed resources, production facilities and human resources, the national transport system and others. The possibility of free movement of people, goods and services within the European Union (EU) contributes to acquire economic benefits at each Member State. Solving economic national plan requires long-term investment, clearly aware of the low level of return on the funds for the initial period. Methodologies of national and international organizations indicate guidelines and general principles governing project management. The application of standards in each case requires compliance with national legislation and customer requirements. Every successful project is one if not only met the criteria in the charter, but if through him achieve customer satisfaction, improve public scheme and gaining economic advantage.

Implementation of strategic management in organizations is becoming more popular and significance, evaluated through the prism of intense globalization processes and dynamic environment. In times of economic instability make business decisions often have strategic character, even if not so designed. The reasons for this are different, but most often the reaction of business organization in her attempt to adapt or to anticipate certain and expected of her events. Management is a complex and dynamic process, the results of which depend on the action of objective and subjective factors [1]. In this dissertation the focus is on identifying the scope of the international management standard ISO (International Organization for Standardization) and different methods of decision-making in strategic management and planning. In the exhibition offers an interpretation on the review of scientific literature by offering the author's view on the peculiarities of management decision and the types of problems in the organization. Submit the appropriate management methods and said their degree of applicability of the various stages in the process of strategic management.

In proposed authors post after presentation of the International Organization for Standardization ISO is studying and analyzing systems applied quality management in projects in the field of energy development. Based on thorough analysis concludes that the implementation of ISO standards is the main tools of sustainable production systems.

2. International Organization for Standardization

International Organization for Standardization (English International Organization for Standardization) or ISO (from the Greek ίσος - equal) is the largest international body for developing and publishing standards, composed of representatives of 148 national standards organizations (data from the end of 2004.). Founded in London on February 23, 1947 delegates from 26 countries. Central Secretariat of the organization is located in Geneva, Switzerland. Published by the (far more than 13,700 in number) industrial and commercial standards are used by all countries. It is a worldwide federation of national standards bodies (bodies - members of ISO) from different countries. ISO develops voluntary standards

ISO standards.

The ISO organization develope only required by the market standards. This is done by experts from industry sectors that have requested standards and which will subsequently apply them.

Etymology: The organization is usually referred to simply as ISO ("ISO"). This name is often wrongly deciphered by an international standardization organization or something. It should know that in fact the word ISO is not an acronym, but came from

the Greek word ίσος (Issos), meaning the same. The English name is International Organization for Standardization (IOS), while French is the Organisation internationale de normalisation (OIN). It was difficult to establish a common acronym, so the founders chose ISO as the universal short name of the organization. However, it should be noted that ISO in its documents identify themselves precisely as International Organization for Standardization.

Hystory, structures and activity

The organization known as ISO, was established in 1926 as the International Federation of National Associations of standardization (ISA). Activities and halted in 1942 and during World War II. After the war, ISA (Industry Standard Architecture) is approached by a coordination committee of the newly created United Nations Organization (United Nations) and the standards functioning her UNSCC (United Nations Standards Coordinating Committee), a proposal for the formation of new global standards together one NGO. In October 1946, delegates from 25 countries of ISA and UNSCC met in London and decided to join forces to create a new international organization for standardization. The new organization officially became operational on February 23, 1947 under the name International Organization for Standardization official languages English, French and Russian. The organization is based in Geneva, Switzerland, and from 2013 worked in 164 countries.

ISO standards contribute to the development, manufacture and supply of safer and environmentally friendly products and services that facilitate international trade and make economic actors impartial[2]. Standards help to transfer technology to developing countries. They protect users and consumers and make their lives more secure.

Fig. 1 *Global distribution if ISO standards*

ISO standards management system should not be confused with product standards.

The creation of standards done by specialists of member countries organized in almost 200 number of technical committees (Technical Committee, TC), formed in various areas of industry and services. Examples:

• TC 1 - Screw threads (thread);
• TC 68 - Financial services (Services in the field of Finance);
• TC 193 - Natural gas (natural gas);
• TC 228 - Tourism and related services (tourism and services in the field);

A specific case is the formation of the **Common Technical Committee** of ISO and IEC standardization activities in the enormous volume of information technology. The Committee is the first and only of its kind at the time and is called **ISO/IEC JTC1** (Joint Technical Committee 1). His work is distributed between **18 subcommittees** (Sub-Committees, SC).

Each ISO standard has name and the format is „ISO HHHH: yyyy Name" where „HHHH" is the number of standard „yyyy" is the year of issue, „Name" describes the object of standardization. For example: **ISO 9000: 2000 Quality management systems - Fundamentals and vocabulary** (Systems of quality management. Basic principles and vocabulary) [3].

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Bulgaria became a full member of the International Organization for Standardization on January 1, 1955 On May 1, 1958 our country took part in the International Electrotechnical Commission (IEC) as well as full member.

3. Analysis of applied systems for quality management in projects in the field of energy development.

After the accession of Bulgarian economy to the European Union is particularly relevant question to increase its competitiveness. In the Bulgarian management theory problem for the certification of enterprises in the field of energy under international ISO standard is not enough depth studies and world practice shows fairly good results. The study of this problem and its application in business practice are especially relevant, given this and that today in a global economy and a strong turbulent environment of the competitiveness of individual companies depends on the successful development of the national economy as a whole.

In the present publication have been studied and analyzed 14 sites in the field of energy development, which are distributed as follows: 3 with international participation, three are of strategic importance for the Republic of Bulgaria, 8 were from the distribution network. In all embedded objects function integrated IMS. The survey was conducted in accordance with the sampling method for conducting audits inner. From the analysis it is found that the total number of tested sites only 8 (57%) are very well integrated operational management system. Of these 6 (43%) sites were found slight discrepancies in mandatory procedures of ISO 9001: 2008 and BS OHSAS 18001: 2007.

The research and analyzed data relied on reports of past and internal control audits for the 2009-2013 year. Conducting audits made by teams of external auditors (consultants) and representatives of the relevant systems in facilities with adequate competence. Only 3 of the 27 sites is unappreciated and unproven competence of the auditors in the energy sphere.

Continuous improvement is provided by the management of 27 sites and the sites of the teams who have realized the need to continually improve efficiency the integrated system of quality management and health and safety at work. The managements of the 27 sites take actions aimed at improving the quality policy and objectives quality and safety, audit results, analysis of the data, corrective and preventive actions and improving processes in their management, but experienced some difficulty in updating quality policies and actually set achievable targets and the quality control and safety at work[4].

Although all sites developed systems in internal checks made at the expert level, most of them were identified significant gaps. For the purpose of the study was developed with the program plan and a questionnaire that preliminary were agreed with the management of companies. In the process of study and conducting internal audits it was estimated up to date an embedded system.

The scope of the study includes information and evidence of compliance with all requirements of ISO specifications included in IMS:

- Monitoring, measuring, reporting and reviewing progress against the objectives and related key tasks performance indicators;

- Operational control of key processes;
- Management responsibilities for policy at all sites;
- The links between the basic requirements, policies, goals and objectives for achieving compliance;
- Legal requirements, responsibilities and competence of staff, according actions and procedures;

The analysis is the study of existing models Management System (QMS) ISO 9001: 2008 27 energy facility, which was built system and there is realized voluntary certification.

We will separate the energetic sites in two groups:

- Energy projects with perceived need for quality management, which are implemented, maintained and certified integrated systems;
- Energy projects that meet the statutory requirements in energy regulations;

Analyze the risks have been assessed risks identified in critical control points and monitor the critical limits. Only 8 of the 27 sites is created procedure and monitor the ongoing processes to their subsequent analysis. Based on the conclusions from the observations recommended the management of objects continuation of embedded IMS meeting the requirements of ISO 9001: 2008 and BS OHSAS 18001: 2007.

General requirements for the documents in the 27 sites developed and implemented IMS according to the requirements of ISO 9001: 2008 and BS OHSAS 18001: 2007 are covered with some exceptions in 7 projects.

Management of documents and records is governed by the order determined in mandatory procedures of ISO 9001: 2008 for management of documents and records. For these clauses is not acceptable to have major discrepancies in identification documents and records[5].

Based on the extensive research we can conclude that this is a prerequisite for the low quality of the product to maintain IMS and inability of understanding and that there will be systemic problems with product quality controlled by IMS.

Hazards identified in the risk assessment and the measures envisaged to limit, control and prevention are complied with only 19 of the auditees.

After identifying opportunities to improve corporate governance and increase technological readiness and competitiveness of Bulgarian energy companies, by way of their certification standards ISO (International Organization for Standardization) is needed in each building, implementation and certification of IMS / integrated system / control, to reach a higher level of competitiveness. Integrated system management of the business to be based on the requirements of international standards BS EN ISO 9001: 2008, BS EN ISO 1401: 2004 and BS OHSAS 18001: 2007[6].

As a summary of the research we can say that the requirements of ISO 9001 can be interpreted elastic. This allows each project to IMS according to ISO 9001: 2008 and BS OHSAS 18001: 2007 to migrate in the direction and at the EMS System (environmental management) ISO 14001: 2004.

This means that the integrated management systems IMS purposefully can bring in as much as possible a large number of sites and the requirements of ISO 14001: 2004 can analyze and develop a new model of integrated system.

4. Conclusion

International standards have strategic tools and guidance that help companies respond to some of the complex challenges of modern business. They ensure that business operations are possible - effective, increase productivity and help companies reach new markets. ISO International Standards ensure that products and services are safe, reliable and of good quality. For businesses, they are strategic tools that reduce costs by minimizing waste and errors and increasing productivity. They help companies to access new markets and create a level playing field for developing countries and facilitate free and fair world trade.

Advantage of international standards is that they are carriers of technological, economic and social benefits. They help to harmonize the technical specifications of products and services of the industry to more effectively remove barriers to international trade.

Business international standards are strategically tools and guidance that help companies to deal with some of the most complex challenges of modern reality. They ensure that business operations are as efficient as possible, to increase productivity and help companies gain access to new markets.

Following the successful model implemented an integrated management system for quality is achieved improvement of quality management in the company, meeting the requirements of customers, suppliers, partners and regulatory requirements. To be competitive in the European, Bulgarian companies have to meet a number of requirements related to the quality and safety of products, introduction of new technologies, environmental protection, safety, quality control and others.

Apart from raising serious competitiveness, implementation and effective use of quality standards leads to lower production costs, increase productivity at a reduced cost, increase profits and eliminate inefficient business processes.

Using of Management systems, are a tool for increasing the efficiency of operations in Bulgarian enterprises and their sustainable development.

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