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THE IMPORTANCE OF DIGITALIZATION OF THE ECONOMY IN THE DEVELOPMENT OF THE QUALITY MANAGEMENT SYSTEM OF THE LIGHT INDUSTRY OF UZBEKISTAN

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Abstract

In this article are discussed the importance of digitalization of the economy of the Republic of Uzbekistan on the development of a quality management system for the light industry.

Keywords: digitalization, Industry 4.0, quality, quality management system, light industry, transformation, cyber-physical systems.

Introduction

The light industry of Uzbekistan is one of the leading and dynamically developing industries. It plays an essential role in solving state problems and meets the vital interests of many regions. The most important direction of our internal reserves and capabilities has become a gradual increase in the depth of processing of domestic raw materials, as well as the expansion of the volume and range of production of high value-added products. On September 16, 2019, the President of the Republic of Uzbekistan adopted Decree No. PP 4453 “On measures to further develop light industry and stimulate the production of finished products” [2]. Also, on May 5, 2020, it was adopted the Decree of the President of the Republic of Uzbekistan No. PF-5989 “On urgent measures to support the textiles and garments industry” [3].

The light industry today is rightfully the leader among the branches of industrial production. Over the past 4 years, the Industry Development Strategy, approved by the Government, has yielded significant results. Industrial enterprises are involved in the development of entrepreneurship (about 8000 enterprises), employment of the population (more than 501.0 thousand employees), especially in the employment of women and youth (more than 60% of employees are women and youth), the creation of enterprises in remote areas of the regions (textiles in each district), attracting foreign investment ($3.2 billion), exporting products ($3.05 billion), developing agriculture (cotton and textile clusters and through them updating agricultural machinery over the past 30 years, increasing cotton yields , introduction of a water conservation system) [6].

Over the past years, Uzbekistan has become a center of cotton resources, and today the textiles industry has been able to create capacities for 100% processing of more than 3.0 million tons of domestically grown cotton, in addition, the import of cotton fiber from neighboring countries has begun.

The policy of Uzbekistan in the field of the textiles industry is characterized by a continuous increase in the quality and technical parameters of the products. Textiles and garments products produced by domestic enterprises are in demand among buyers, both in the domestic market and in the foreign market, and over the years it has become increasingly popular with foreign consumers. Today, the export of textiles

and garments products is carried out in over 50 countries of the world [7].

Given the importance of this area, it is necessary to consider the development of the industry at the current stage of economic development.

Solving the quality issues of products and services is now one of the most important aspects of the successful operation of individual companies and the development of the national economy as a whole. This is due to the growth and diversification of personal and production needs, the growth of competition due to the increase in the number of companies operating in the world market and the volume of products and services, the increasing role and pace of scientific and technological progress, integration processes in the global economy and a number of other factors [8].

In a market economy, the problem of quality is the most important factor in improving the standard of living, economic, social and environmental security. It is the increase in the technical level and quality of products that determines the degree of survival of enterprises in market conditions. The pace of scientific and technological progress, the growth of production efficiency, the saving of all types of resources used in the enterprise, has a significant impact on the competitiveness of domestic goods and the standard of living of the country's population.

Methods.

The theoretical foundations of the study of quality management, reproduced in the ISO 9000 series, are considered in the concepts of the founders of the theory of Total Quality Management (TQM) V. Shewhart, W.E. Deming, A. Feigenbaum, K. Ishikawa. The contribution of Russian scientists to the theory and study of the practice of quality management is reflected in the works of B.L. Benzman, V.M. Larina, I.M. Germana, A.V. Gugelev, L.S. Vereshchagina, L. Egorova, S.M. Vdovina, T.A. Salimova, L.I. Biryukova, O.Yu. Gordashnikova, V.D. Dorofeeva and others.

The impact of digitalization on the performance of enterprises (organizations) and their QMS is reflected in the studies of the HSE, McKinsey, BCG Group and the Deloitte Institute. The issues of QMS development in the condition of digitalization of the economy are disclosed in the works of A.V. Gugelev. The risks of digitalization of enterprises and organizations are identified in the works of L.A. Chaldaeva, I.V. Manakhova, D.V. Udalova. The works of M.S. Jensen, N.N. Kho, K.S. Tana, V. Versana, V.A. Vinarik, V.D. Dorofeeva, N.Kh. Croft. These authors have made a significant contribution to the disclosure of directions for the development of the quality management system.

Results. An analysis of the degree of scientific development of the indicated problem allows us to conclude that the topic of this study has already been considered in some of its aspects, but the theoretical and methodological issues of determining the specifics of the QMS in the digital economy have not been fully investigated. Existing studies do not allow taking into account the specifics of the QMS of textile industry in the Republic of Uzbekistan under the influence of digitalization processes and do not reflect the impact of QMS on increasing the competitiveness of enterprises and organizations. In this connection, this study is relevant and has both theoretical and practical significance.

Discussion. Modern quality management comes from the fact that quality management activities cannot be effective after the completion of the product manufacturing process. Quality assurance activities that precede the manufacturing process are also important. Quality is determined by the action of many random, local and subjective factors. To prevent the influence of these factors on the level of quality, an effective quality management system is needed. This requires not isolated and episodic efforts, but a set of measures to constantly influence the process of creating a product in order to maintain an appropriate level of quality [2].

Currently, one of the most important factors in the development of the economy is digitalization. Now we live in the era of the completion of the Third Digital revolution, which began in the second half of the

last century. Its characteristic features are the development of information and communication technologies, automation and robotization of production processes.

The Digital economy (digitalization) is an economic activity, the key factor in the production of which is data in digital form, and contributes to the formation of the information space, taking into account the needs of citizens and society in obtaining high-quality and reliable information, developing the information infrastructure of the Republic of Uzbekistan, creating and using information and telecommunication technologies, as well as the formation of a new technological basis for the social and economic sphere [9].

One of the main priorities of the Republic of Uzbekistan is the development of the sphere of communication, informatization and telecommunication technologies. This is confirmed by the adoption of the Strategy "Digital Uzbekistan-2030" and measures for its effective implementation, approved by the Decree of the President of the Republic of Uzbekistan dated October 5, 2020 No. DP-6079 [1].

The Fourth Industrial revolution means more and more automation of absolutely all processes and stages of production: digital design of a product, creation of its virtual copy, collaboration of engineers and designers in a single digital design office, remote adjustment of equipment at the factory to the technical requirements for the release of this particular "smart" product, automatic ordering of the necessary components in the right quantity, control of their delivery, monitoring the path of the finished product from the warehouse at the factory to the store and to the end customer. But even after the sale, the manufacturer does not forget about his product, as it was before in the classical model: he controls the conditions of use, can change settings remotely, update software, warn the client about possible breakdowns, and at the end of the use cycle, accept the product for disposal.

In the condition of digitalization, the functioning of the quality management system necessitates the development and application of qualitatively new management technologies, as well as fundamentally new production technologies based on various approaches and concepts, in particular: robotization, unmanned, paperless, mobile, biometric technologies, cyber-physical systems, 3D printing (additive manufacturing), open production technologies, neurocomputer technologies. These technologies must be adapted to the conditions of application in the organization and the products created.

In the Republic of Uzbekistan, there is an average level of development of the QMS for enterprises and organizations. It has been established that the degree of development of the QMS is different for enterprises with different organizational characteristics. Private, foreign and large enterprises (organizations) have the highest marks in their classification group [7].

In Uzbekistan, more than 1,300 textile enterprises operate in accordance with international quality standards. This figure is expected to reach 1650 in 2022. Currently, international standards and certificates such as ISO 9001:2015 have been implemented in 1100 enterprises, 45 - OEKOTEX, 12 - BSCI, 6 - GOTS, 7 - SEDEX [4].

Currently, taking into account the requirements of the State standard for quality management systems (ISO), the following main directions in the digitalization of the quality management system are observed:

- Digitalization of design and development of products (services).
- Digitization of production.
- Digitalization of metrological support.
- Digitalization of analytical activity [5].

World development experience shows that the QMS in the condition of digitalization should perform the following functions:

- to optimize the functional and organizational structure of the organization in terms of activities, composition of structural units, number and composition of personnel, depending on the mission, strategy, policy and goals adopted by the management of the organization;

– to manage the processes of creating products and providing services using technologies that are optimal for the Digital economy;

– in online mode to receive, analyze, structure, process information from the external and internal environment, develop and offer managers of different levels of the organization options for possible solutions to emerging situational problems;

– to ensure the safety of production processes, as well as manage discrepancies and changes;

– to manage risks, analyze and use opportunities for the development of processes and the organization as a whole;

– to ensure the effectiveness and efficiency of processes, monitor and continuously improve the management system required.

– to establish links and create conditions for efficient and effective interaction with stakeholders in a single process of creating the final product.

Currently, there are difficulties in the digitalization of the QMS, in particular:

- problems in financing. The transformation of the enterprise and its implementation in Industry 4.0 requires huge investments in software, technology, research, etc. In order for the enterprise not to go bankrupt after such expenses, it is necessary to calculate the budget in advance and plan the gradual introduction of innovations.

- the need to create a unified "digital" register of issued electronic certificates of conformity;

- problems in staffing: lack of qualified specialists in the analysis of complex multi-level systems and specialists;

- psychological resistance of the organization's personnel, which manifests itself in the rejection of "transparent" systems.

It should be noted that the latest technologies may entail new problems, such as:

• online integration will create big risks of information leakage. Cyber attacks on businesses and even cyber theft are possible. Such a massive problem would cost manufacturers a lot of money and could negatively affect their reputation in the eyes of consumers. The only solution is private and collaborative research into data encryption.

• The employment system must change with Industry 4.0 at the global level. Part of the workforce at the enterprise will be reduced as unnecessary (after all, processes are being automated), while others will need a different set of skills. An impressive sector of the labor market will have to come into line with the new principles of production. The solution is the organization of a new education system, which will allow us to quickly adapt to new technologies.

• In the fourth industrial revolution, safety becomes not only a problem for manufacturers, but also an important aspect for the customer. The collection and analysis of data from the consumer - and this is absolutely necessary for the enterprise to develop - can be perceived as a threat to privacy from the point of view of customers. The transparent environment required of business will find expression in the consumer realm.

• An unstable link, a misconfigured service network, or an incorrect command can undermine the robustness and stability of technologies. For the continuity of work, it is required to take into account all possible difficulties with configurations and networks [6].

Conclusion. Despite the list of possible problems, Industry 4.0 remains a revolutionary approach to the organization of industry, in particular the improvement of QMS in the 21st century. Cyber-physical systems are the future, as they help optimize production and bring industry to a new level of service. Industry 4.0 also opens up new economic benefits, so it would be foolish to abandon it only because of shortcomings. It is much more useful and more important to systematically solve difficulties and achieve a smooth

transition to a different system of production.

Industry 4.0 is already beginning to change the world, and the onset of a new industrial revolution is inevitable. It carries with it significant risks, since global changes always weaken the stability of society. But if timely respond to acute social challenges, introduce innovations gradually, integrating them with existing solutions, then many problems can be avoided.

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