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DEVELOPMENT OF EXTENDED PRINCIPLES OF LEAN MANUFACTURING IN THE TRANSITION TO THE RELEASE OF AN INFORMATION-BASED ECONOMIC PRODUCT

Specialty 5.2.6. «Management»

Abstract

Dissertation abstract for an academic degree of

the Candidate of Economic Sciences

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The relevance of the research is proven by the tendency to a constant decrease in the material intensity of products, during which the material component of the economic product is replaced by informational one. At the same time, the information itself in the information society becomes an independent economic product that affects the economic efficiency of modern industrial enterprises.

To maximize economic efficiency, industrial enterprises are implementing various production systems, in particular, the concept of lean manufacturing. The purpose of this concept is to continuously improve the quality of products by minimizing material losses. Today, a number of developed modern high-tech industrial enterprises have reached the limit of reducing material losses, thereby exhausting the potential for further economic efficiency growth in this direction. Therefore, it becomes urgent to find a solution that will help industrial enterprises to enter a new round of economic efficiency growth by adapting and expanding the field of possibilities for the practical use of existing principles of lean manufacturing.

The object of the study is a modern industrial enterprise that is experienced in using the concept of lean manufacturing and its analogues as a management system for the production organization.

The subject of the study is the use of the principles of the lean manufacturing concept in the creation of an information-based economic product.

The purpose of the study is to develop a methodological approach improving the economic efficiency of the production of an information-based economic product by reducing losses in the process of its creation.

To achieve the purpose of the study, the following tasks were identified:

1. Prove the objectivity of the dynamics of reducing the material intensity of economic products in order to identify the increasing tendency of the information component in the structure of modern economic products.
2. Establish the structure of economic products considering their material and informational nature by identifying fundamental differences between different types of goods.

3. Identify the possibility of adapting and expanding the existing principles of lean manufacturing of a material economic product for the organization of lean manufacturing of a modern economic product with a prevailing information component.
4. Develop a methodological approach for applying the extended principles of lean manufacturing of an economic product and to prove the effect of its use on the economic efficiency of industrial enterprises.

The theoretical basis of the research is fundamental works in the following areas:

- Classification of goods (K. Menger, O. Böhm-Bawerk, A. Marshall, J. Schumpeter, S.N. Bulgakov, K. Marx and J.-B. Say)
- Development of post-industrial and information society (E. Toffler, D. Bell, M. Castells, K. Schwab, F. Machlup, T. Umesao, M. Porat, I. Masuda, A. De Saint-Simon, P. Drucker, V.L. Inozemtsev, S.S. Gubanov)
- Information Society (F. Machlup, M. Porat, N.N. Moiseev, V.L. Inozemtsev, D. Bell, J. Akerloff, M. Spence, J. Stiglitz, T. Stonier, A. De Saint-Simon, K. Arrow, P. Drucker)
- Organization of production and operational management (F. Taylor, F. Gilbred, G. Ford, T. Ohno, A.K. Gastev, P.M. Kerzhentsev, O.A. Ermansky, I.M. Burdyansky, N.A. Vitke, E.F. Rozmirovich, E.B. Koritsky, R. Schonberger, R. Hayes, C. Wheelwright, H. Yamashina, E. Deming)
- Works in the field of lean Manufacturing (J. Womack, D. Jones, J. Liker, S. Shingo, T. Ohno, M. Imai, M. Vader, J. Shook, M. Rother)

As a result of the conducted research, the following conclusions are submitted for defense:

1. The decreasing tendency of the material intensity, which is expressed by the ratio of the DMC (Domestic material consumption) indicator to the GDP (Gross domestic product) indicator, and the corresponding growth of the information component of the economic product, due to a significant increase

in the share of intangible assets in the financial statements of enterprises of the S&P500 list, has been identified and proved.

2. The classification of economic products based on revealed fundamental differences between material-based and information-based economic products.
3. The harmony of the production of material-based and information-based economic product has been established from the standpoint of using the principles of lean manufacturing. Consequently, expanded principles of lean manufacturing of information-based economic product have been developed, as well as a mechanism for bringing the intellectual level of transmission and perception of information to an equivalent one.
4. A methodological approach has been developed and tested for the application of extended principles of information-based economic product lean manufacturing on the example of Moscow factory of JSC Tetra Pak. Thus, the influence of the extended principles of lean manufacturing of an economic product on the indicator of economic efficiency is proved.

The theoretical significance of the conducted research lies in the developed classification of the economic product, which is fundamentally divided into material and informational one. Further, the main similarities and differences of the MEP and IEP were identified as a result of the analysis of their structure. The theoretical foundations for the creation of an information-based economic product in the concept of lean manufacturing were also laid.

The theoretical aspect of this study will be useful primarily to specialists in lean manufacturing, specialists in the study of information and analysis of the operational efficiency of industrial enterprises.

The practical aspect of the research is due to the principle of intellectual and creative reciprocity of the subject and the object of information transmission in the creation of an information-based economic product proposed by the author. For this purpose, a mechanism has been developed and tested to bring the intellectual level of the source and receiver of information transmission to an equivalent one. In

addition, to prove the impact of information losses on the economic efficiency of an industrial enterprise, the author has developed and tested a methodological approach to reducing information losses in Tetra Pak JSC. The proposed method is illustrated by the example of the developed information-based economic product "WCMCloud", that allowed the company to increase key performance indicators.

From a practical point of view, the conducted research will be useful to the top management of modern industrial enterprises that are using the concept of lean manufacturing and its analogues, specialists in the implementation of production systems, as well as specialists in training personnel of industrial enterprises. In addition, the practical results of the work can be used as part of the implementation of the national project "Labor productivity and employment support".

The work consists of an introduction, three chapters, a conclusion, a list of used sources and studies, and appendices. The dissertation is presented on 185 pages of text, includes 14 tables, 45 figures and 2 appendices. The list of references includes 146 titles.