

DIGITAL TRANSFORMATION OF MACHINE-BUILDING COMPLEX ENTERPRISES

S V Novikov and A A Sazonov

Moscow Aviation Institute

(National Research University)

ncsrn@mail.ru

Abstract: The article is devoted to the analysis of the digital transformation of machine-building complex enterprises. In the theoretical part it is determined that the development is possible due to the effective and qualitative renewal of existing production and business processes on the basis of comprehensive introduction of advanced innovations. There are key business objectives of the technological concept «Industry 4.0» in the article. There are also factors influencing the indicators of competitiveness of Russia in the implementation of the concept of technological breakthrough. In the research part of the article the influence of digitalization processes on the competitiveness of products in the digital production is determined. The «roadmap» is made in accordance with the provisions of the program «Digital economy of the Russian Federation» and «Digital engineering». As a result of the analysis, it was determined that in the developed program, the main importance, of course, is the development of special standards necessary for the qualitative development of the digital architecture of the enterprise. In conclusion, the authors shown that it is necessary to have certain competencies of employees working at the enterprise, as well as the management should understand the growing need to create new jobs for highly qualified specialists processing and analyzing production information within the production enterprise for a competent digital transformation.

ICMSIT-2020

Krasnoyarsk

Russia

The enterprises of the machine-building complex are a key component for the domestic high-tech industry, and they determine the technological independence, economic potential, and defense capability of the Russian Federation. The transfer and adaptation of Japanese approaches, as practice has shown, have results, but only partial ones. «Industry 4.0» is a tool for transforming an enterprise's business model to a new level of efficiency, i.e. transition to a fully automated digital production controlled by intelligent systems in real time in constant interaction with the external environment, going beyond the boundaries of one enterprise, with the prospect of combining things and services into a global industrial network. The development of digital transformation by enterprises of the machine-building complex involves the effective and high-quality updating of production and business processes based on the comprehensive introduction of advanced innovations. An important step in the development process is the need to adapt updated business processes to the key requirements of the digital economy. The task of digital transformation takes into account the fundamental foundations of the work of various intersectoral systems and technological chains, which means that it is almost impossible to efficiently solve it within the same industry. Therefore, the only right way will be to create a single integration center, as well as a platform for finding optimal solutions, on which all participants of the digital transformation will be presented without exception.

Strengthening the non-digital foundations of the economy (including digital leadership), providing flexible and supportive regulatory environment, and supporting economies of various levels to adapt to the digital world

Strengthening the digital fundamentals of the economy, creating scalable, smart, and secure infrastructure that can adequately respond to the expected explosive growth of it

Strengthening the interaction, integration, and harmonization of the functioning of the digital ecosystem both horizontally (between industries and economic sectors), and vertically at all levels of government to support innovation and enable technological breakthrough by 2035

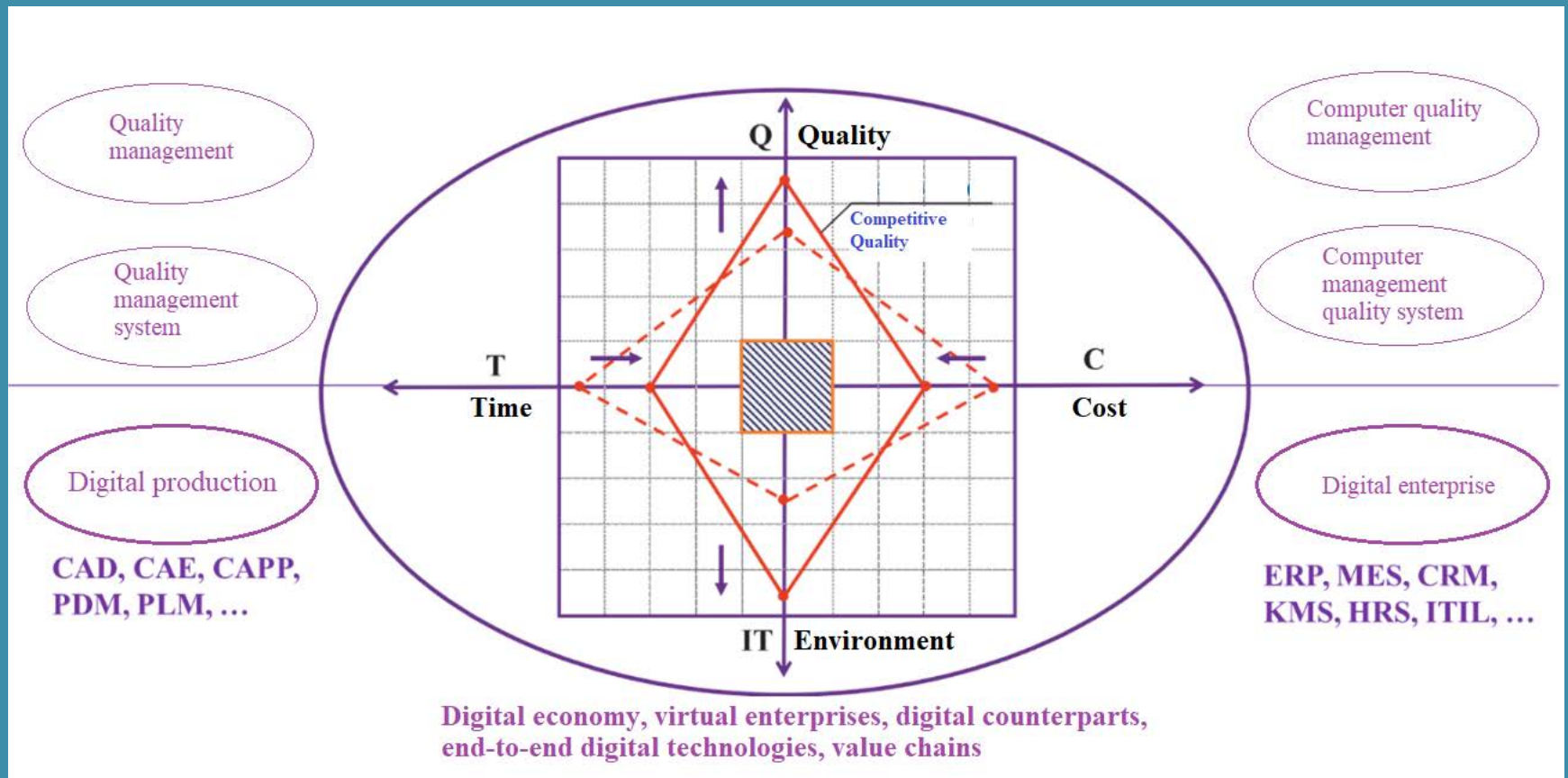
Digital skills development and the emergence of highly qualified staff

Establishing integration between digital development, introducing culture of open innovation, changing traditional governance structures, and related changes in society



INCREASING GLOBAL COMPETITIVENESS OF RUSSIA BY ACCELERATING THE RATES OF DIGITAL TRANSFORMATION

Factors affecting the competitiveness of Russia in the implementation of the concept of technological breakthrough



Factors affecting the competitiveness of Russia in the implementation of the concept of technological breakthrough

The digitalization process of high-tech industrial and economic systems has quite diverse forms of manifestation. Most of the domestic enterprises have a fairly high degree of automation of existing production processes, and some of them are already building unique data processing centers and are gradually introducing cloud solutions for storing a huge amount of data. The transformation should be carried out under the scrutiny of management, experts, and specialists and should not be limited in resources. A competent digital transformation requires certain competencies for employees working at the enterprise, and management must also understand the growing need to create new tasks for highly qualified specialists who process and analyze production information within the manufacturing enterprise.

The effective use of key digital technologies in the domestic industry will require substantial modernization of the current regulatory framework. Proper clarification and subsequent adjustment of the legislative framework is necessary to create the level of trust and legal certainty for all areas of industry. Digital technologies are characterized by high development speed, therefore it is very important to ensure that the legal framework is always updated taking into account current technological development trends. In the future enterprise management will need to include issues related to the cybersecurity of industrial systems in its field of vision. Comprehensive data protection should be one of the main principles for pushing high-tech enterprises to advanced developments implemented in the field of personal data protection.

Thank you for your attention!