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DIGITAL PLATFORM – THE BEST WAY TO ACHIEVE EFFECTIVE RESULTS IN THE TEXTILE INDUSTRY

ЦИФРОВАЯ ПЛАТФОРМА – ЛУЧШИЙ ПУТЬ К ДОСТИЖЕНИЮ ЭФФЕКТИВНЫХ РЕЗУЛЬТАТОВ В ТЕКСТИЛЬНОЙ ПРОМЫШЛЕННОСТИ

L.N. YESMAKHANOVA, R.D. DZHANUZAKOVA, M.K. ZHANKUANYSHEV, K.M. MUKHATOVA, B.S. NURZHANOV

Л.Н. ЕСМАХАНОВА, Р.Д. ДЖАНУЗАКОВА, М.К. ЖАНКУАНЫШЕВ, К.М. МУХАТОВА, Б.С. НУРЖАНОВ

(Taraz State University named after M.Kh. Dulaty, Republic of Kazakhstan)

(Таразский государственный университет имени М.Х.Дулати, Республика Казахстан)

E-mail: laura060780@mail.ru

Digital transformation in the textile industry promotes the use of a wide range of technologies, software, solutions and services to extend the concepts of digital thinking to the entire industry, expanding work and technological processes in order to increase efficiency and develop new competencies. The proposed approaches can be useful in achieving their goals of increasing industrial productivity. Thanks to the transition to a digital platform, employees in the textile industry are beginning to focus on their main tasks, without spending their resources on non-core activities.

Цифровая трансформация в текстильной промышленности способствует использованию широкого спектра технологий, программного обеспечения, решений и услуг для распространения концепций цифрового мышления на всю промышленность, расширяя рабочие и технологические процессы в целях повышения эффективности и развития новых компетенций. Предложенные подходы могут быть полезными в достижении их целей по повышению производительности промышленности. Благодаря переходу к цифровой платформе сотрудники текстильной промышленности начинают концентрироваться на своих основных задачах, не тратя свои ресурсы на непрофильную деятельность.

Keywords: transformation, automation, infrastructure, control, technologies.

Ключевые слова: трансформация, автоматизация, инфраструктура, управление, технологии.

New digital revolution changes todays methods of manufacturing, supply chains and value-added chains. Digital technology is one of the drivers of industry digital transformation, it presents concept of work organization, where additional value is provided by integration of physical objects, processes and digital technologies, whereby physical processes aremonitored in online mode, decentralized implementations are set, as well as the interaction of machines between each other and people is taken place. End-to-end digitalization of all physical assets and their integration creates the basis for transition from mass production to mass individualization, flexibility of production rises, time for mastering of new products grows down resulting in realization of new business-models and apply personalized work approach with the customers. All that in substantial way improve the effectiveness and competitive capacity of production enterprises.

Implementation of “Digital Kazakhstan” Program is intended to follow the aims of Republic of Kazakhstan Government Program. The aims of this program are the acceleration of Republic of Kazakhstan economy development rate and improvement of population life quality using digital technologies in the medium term period, as well as the arrangement of conditions for transition of Kazakhstan economy to conceptually new development pathway, which enables the establishment of digital economy of future over the long term. It is known that at the present time behind the activity of any large enterprise production infrastructure that ensures reliable and effective performance of operation the system is hidden, in most cases it is automated, which controls this infrastructure. The core of such system is electronics. Outage of any of its’ element can wholly or partially shut down controlled infrastructure and thereby devote enterprise to significant financial losses. Causes of control system failure can be different factors, for example, failure of normal operation of such systems of the building critical services like heating system or cold-water supply system [1].

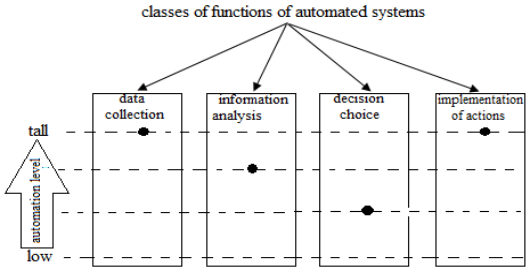

Fig. 1

Interaction between man and automated system changes from high to low, as shown on fig. 1.

Collection of data should be carried out automatically so to provide quick collection of information and reduce the risk of receiving wrong and undue data. Information analysis is carried out by both automated system and human being: automatic calculation reduces the list of optional versions and helps to operator

to take correct decision, the choice of which he usually accomplish without assistance. Execution of actions can be fully automated but it should be controlled by man.

Ambitious enterprises thoroughly understand the need for development and growing number of entities perceive that they need to be open to fast-paced digital sphere so as to achieve the best production indexes and maintain it. Companies that invest in technologies and services of Industrial Internet of Things achieve remarkable financial benefit for business considerably decline the costs for annual services. The great profit to the companies are also provided by technologies that are capable to give a notice of possible failures of critical equipment in advance, it allows to do its' repair in proper time or replace it. So it is possible to prevent great losses in production.

Lots of manufacturing and refining industry companies understand that can achieve performance indexes of upper quartile level by means of digital transformation of their activities.However, there are still surprisingly few of those, who could pave the way toward this goal. In many cases subdivision of operational technologies and information technology functioning apart, there is no effective cooperation. Without consensus about what kind of technologies and strategies should be implemented, or at least a general idea of how success should be expressed, it is difficult for a company to understand whether it is on the right track.

Digital transformation of the company can start at any point of its activity. It is possible to start small at one facility – from resolution of key issues such as correct function of the pump or personnel safety. It is possible to spread out corporation-wide, affecting definite areas (for instance: equipment reliability). It is possible to come to a higher level and develop general organizational strategy in all aspects of production and enterprise activity for the most comprehensive business transformation [2].

Preventive maintenance is based on collection and analysis of data about equipment condition. Online condition monitoring is widely utilized for main equipment such as turbine motors, compressors, pumps and ventilators allowing execution of preventive measures, protection and full-time control of equipment. Previously theoretically predicted failures make it possible to better plan and execute the tasks on maintenance long time before activation of alarm at operator.Carrying out of scheduled maintenance usually twice less costly than unscheduled as well as improvement of available resources efficiency.

Digital technologies ensure gaining the widest access to the informationacross entire plant. Received data should be transformed into insight, which allows to take better and faster decision increasing maintenance efficiency and productivity of operating business. Persons in charge should get required data no matter where they are located – nearby, at another facility or out of the enterprise. From this perspective the mobile software platforms are created for increase in performance, which combine predictive analytics and information about automation elements condition for the purpose to have full picture of equipment work.

Digital converters transfer equipment condition data to convenient and clear for user format, immediately and securely send it to the person in charge, wherever he is. Cooperation of subdivisions accomplished due to association of technical specialists, engineers and plant management allows quickly and effectively achieve the right solution, ensuring security and profitability of enterprise. In addition, using standard industrial communication protocols it is possible to share data with software of computerized learning and analytics tools for predicting of future results. As a result, new strategies for effective equipment control and promotion of reliability are created.

Source and data flow at enterprise level amazingly complicated. At different sites deferent software and hardware solutions can be used that leads to fragmentation of information sources, limited interoperability and failure to utilize integrated operating process enterprise-wide. In response to this problem Emerson developed the package of software applications PlantwebAdvisor: Plantweb Health Advisor, Plantweb Performance Advisor и Plantweb Energy Advisor. By means of these applications industrial and manufacturing enterprises can monitor the overall equipment condition,

receive advance warnings about wearing out to prevent leakages, fire and emissions, reduce repeated equipment failure, bring down unscheduled maintenance costs, carrying out only required service, improve the process of prompt decision making in different subdivisions and receive immediate information for quick detection of non-routine situations. I.e. with these apps it is possible to achieve the escalation of productive capacity load for 1,2%, cost reduction for maintenance in the amount of 14% and energy usage reduction for 10%.

Digital technologies in the textile industry can generate data on the critical state of an enterprise's equipment and processes, but many companies do not have the internal resources to analyze this information potential.

In contemporary world when every second counts the measure of user's work productivity is one of the most important characteristics. Digital technologies reduce the time required for a user to complete a specific production task.

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