Digital Tools to Improve the Manufacturing Process

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key words

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We have described the use of digital tools to improve manufacturing processes, in particular digital twins and digital models. As an example, we considered a machine-building enterprise for the production of lifting equipment with a revenue of 300 million rubles and a low degree of automation.

As a zero stage, a functioning QMS was introduced at the enterprise based on a process approach. This made it possible to quickly move on to creating a digital model of the production process. In this model, special attention was paid to control points, for which a table of defects was compiled indicating the causes of their occurrence and ways to eliminate them. Corrective actions were provided for each CP when building the process.

To describe the processes, we used the BPMN notation, which allows not only to graphically depict the process, but also to conduct simulation modeling with the ability to identify problem areas. Collected and prepared data were entered into the graphical model of the process, actually reflecting the existing situation at the enterprise, and if the result of the model did not match the real process, changes were made.

The use of modeling allowed to reduce time and financial costs at all stages of development and implementation, and also had a positive effect on the decision of the owners about the need for the proposed changes. As a result, the entire transition to a new production process, including the development of a solution, did not exceed 10 months.

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