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DEVELOPMENT OF INTELLIGENT METHODS AND TOOLS OF PREVENTIVE MAINTENANCE OF TECHNICAL OBJECTS

The realities of any production, as well as individual business sectors, are based on the high requirements to the quality. Quality is an essential requirement for any kind of objects (entities of different subject areas) such as equipment for large factories, household items, or simply services provided to consumers in various service industries. Quality assurance is often the

most expensive item for various businesses, and it determines the reputational dividends in the long-term perspective.

The ability to proactively prevent equipment breakdowns, to detect calculation issues or simply identify which process is causing quality degradation is a huge advantage for any business, which provides possibilities of minimizing resource costs (manufacturing defects), production downtime and efficient competitive fight [1].

Modern technologies for collecting and processing Big Data make it possible to achieve previously inaccessible opportunities in the field of preventive detection of failures in production or other business processes [2]. At the moment, there are a large number of methodologies, models and methods that are used in a particular industry, but none of them gives correct predictability without a preliminary analysis of a specific subject area. It is the adaptation of solutions to specific requirements that is the first critical step in building systems for proactive problem detection and maintenance.

An analysis of literary sources shows that in most modern solutions there is a storage of information for analysis, known as Big Data. The number of sources from which data comes, the reliability and variability of incoming data, the speed of data delivery and analysis, and the ability to aggregate data from different sources are key requirements for incoming data processing and decision-making systems.

One of the most effective methods of processing Big Data is based on machine learning and in some cases uses artificial intelligence systems [3]. Additionally High-Performance Computing cloud technologies became the gold standard for most modern solutions [2][4].

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