

## Development of Automated Quality Management System for the Management of Heat Networks

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**Abstract :** Any business needs a stable operation and continuous improvement, therefore it is necessary to constantly interact with the environment, to analyze the work of the enterprise in terms of employees, executives and consumers, as well as to correct any inconsistencies of certain types of processes and their aggregate. In the case of heat supply organizations, in addition to suppliers, local legislation must be considered which often is the main regulator of pricing of services. In this case, the process approach used to build a functional organizational structure in these types of businesses in Kazakhstan is a challenge not only in the implementation, but also in ways of analyzing the employee's salary. To solve these problems, we investigated the management system of heating enterprise, including strategic planning based on the balanced scorecard (BSC), quality management in accordance with the standards of the Quality Management System (QMS) ISO 9001 and analysis of the system based on expert judgment using fuzzy inference. To carry out our work we used the theory of fuzzy sets, the QMS in accordance with ISO 9001, BSC according to the method of Kaplan and Norton, method of construction of business processes according to the notation IDEF0, theory of modeling using Matlab software simulation tools and graphical programming LabVIEW. The results of the work are as follows: We determined possibilities of improving the management of heat-supply plant-based on QMS; after the justification and adaptation of software tool it has been used to automate a series of functions for the management and reduction of resources and for the maintenance of the system up to date; an application for the analysis of the QMS based on fuzzy inference has been created with novel organization of communication software with the application enabling the analysis of relevant data of enterprise management system.

**Keywords :** balanced scorecard, heat supply, quality management system, the theory of fuzzy sets

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