Approaches to constructing probabilistic models of industrial supply system processes in order to assess its reliability

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Due to the high cost of downtime, high-tech production requires highly reliable material supply. Calculation of supply system reliability should consider non-deterministic phenomenon occurring in material-technical process. The most reliable information about these phenomena is the statistics of the processes that make up the system. It is necessary to consider the relevance and the lack of information available, when constructing probabilistic models of the processes involved in the calculation of reliability, which is based on the probable model of the supply system,.

The article considers methods of constructing probabilistic models of supply system processes with account of the above-mentioned shortcomings in the available data. Attention is paid to the work with information on functioning of the existing procurement system and its updating due to improving logistics processes. These methods will be useful for companies which lack an analytical solution of the problem of estimating the supply system reliability, but for the constituent processes of this system there is information about their functioning.

Keywords: *reliability, supply, logistic support, organization of production, statistics approaches, Monte Carlo method.*

REFERENCES

[1] Omel'chenko I.N. *Metodologiya, metody i modeli sistemy upravleniya organizatsionno-ekonomicheskoi ustoichivostyu naukoemkogo proizvodstva integrirovannykh struktur* [Methodology, methods and models of managing organizational and economic stability of high-tech manufacturing integrated structures]. A.A. Kolobov, ed. Moscow, Bauman MSTU Publ., 2005, 240 p.

[2] Shraibfeder D. *Effektivnoe upravlenie zapasami* [Effective inventory management]. [in Russian], 2nd ed. Moscow, Al'pina Business Books Publ., 2006, 304 p.

[3] Klimenko V.V. *Logistika segodnia — Logistics today,* 2012, no. 01 (49), pp. 12–20.

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