Forecasting the release on the line of variously aged long haul vehicles in Russia

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Abstract

© 2018 The Author(s). At the process of purchasing vehicles, carriers usually choose up between brand new and used vehicles. Essential delays on loading-unloading goods dramatically affect the intensity of long-haul transportation in Russia and in East European countries, stimulating carriers to purchase used vehicles, which generally need replacement on much frequent basis. In case of purchasing long-distance haulage vehicles, it is essential to have evidential information regarding its possibility for sustainable long-term usage, including maintenance constraints and possible financial loses. As an indicator of maximum number of days in operation per year, the potential coefficient of the released vehicles on the line is proposed. The coefficient was performed also in relation with dependence of truck age. As a practical result, for VOLVO tracks in Russia, the optimal 5-year exploitation period for vehicles has been determined.

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Keywords

fleet utilization, long haul vehicles, optimal exploitation period, potencial for use

References

- [1] Hedvall K., Dubois A., and Lind F. Analysing an activity in context: A case study of the conditions for vehicle maintenance Industrial Marketing Management 58 2016 69 82 doi:10.1016/j.indmarman.2016.05.016
- [2] Hedvall K., Dubois A., and Lind F. Variety in freight transport service procurement approaches Transportation Research Procedia 25 2017 806 823 doi:10.1016/j.trpro.2017.05.459
- [3] Ansaripoor A.H., Oliveira F.S., and Liret A. A risk management system for sustainable fleet replacement European Journal of Operational Research 237 2 2014 701 712 doi:10.1016/j.ejor.2014.02.006
- [4] Vujanović D., Momčilović V., Bojović N., and Papić V. Evaluation of vehicle fleet maintenance management indicators by application of DEMATEL and ANP Expert Systems with Applications 39 12 2012 10552 10563 doi:10.1016/j.eswa.2012.02.159
- [5] Parthanadee P., Buddhakulsomsiri J., and Charnsethikul P. A study of replacement rules for a parallel fleet replacement problem based on user preference utilization pattern and alternative fuel considerations Computers & Industrial Engineering 63 1 2012 46 57 doi:10.1016/j.cie.2012.01.011
- [6] Zheng S., and Chen S. Fleet replacement decisions under demand and fuel price uncertainties Transportation Research Part D: Transport and Environment 2016 doi:10.1016/j.trd.2016.09.001
- [7] Goryaev N.K. The effectiveness of long-distance haulage in the context of market reforms in Russia Procedia Social and Behavioral Sciences 54 2012 286 293 doi: 10.1016/j.sbspro.2012.09.747.
- [8] Yakunin N., and Myachkova S. Requirements for trucks fleet rational structure substantiation of automobile transport enterprise Transport of the Urals 27 2010 36 40

[9]	Redmer A. Optimis Transportation doi:10.1016/j.tre.20	sation of the expl Research Part 009.04.015	oitation period E: Logistics	of individual vo and Transpo	ehicles in freigl ortation Revi	ht transportatio ew 45 6 200	n companies 9 978 987