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Criticality evaluation to support maintenance management of manufacturing systems

I.S. Lopes, M.C. Figueiredo, V. Sá

ALGORITMI Centre, Department of Production and Systems, University of Minho, Campus of Azurém, 4800-058 Guimarães, Portugal

References

- Fernandez, O., Labib, A. W., Walmsley, R. and Petty, D. J. (2003), "A decision support maintenance management system: Development and implementation," International Journal of Quality & Reliability Management, Vol. 20 No. 8, pp. 965–979.
- [2] Ab-samat, H., Jeikumar, L. N., Basri, E. I., Harun, N. A and Kamaruddin, S. (2012), "Effective Preventive Maintenance Scheduling: A Case Study" in Proceedings of the 2012 International Conference on Industrial Engineering and Operations Management, Istanbul, pp. 1249–1257.
- [3] Xiao, L., Song, S., Chen, X. and Coit, D. W. (2016), "Joint optimization of production scheduling and machine group preventive maintenance," Reliability Engineering and System Safety, Vol. 146, pp. 68–78.
- [4] Manzini, R., Accorsi, R., Cennerazzo, T., Ferrari, E. and Maranesi, F. (2015), "The scheduling of maintenance. A resource-constraints mixed integer linear programming model", Computers & Industrial Engineering, Vol. 87, pp. 561–568.
- [5] Hijes, F. and Cartagena, J. (2006), "Maintenance strategy based on a multicriterion classification of equipments," Reliability Engineering & System Safety, Vol. 91, No. 4, pp. 444-451.
- [6] Khanlari, A., Mohammadi , K., Sohrabi, B. (2008), "Prioritizing equipments for preventive maintenance (PM) activities using fuzzy rules," Computers and Industrial Engineering, Vol. 54, pp. 169-184.
- [7] Stadnicka, D., Antosz, K. and Ratnayake, R. M. C. (2014), "Development of an empirical formula for machine classification: Prioritization of maintenance tasks," Safety Science, Vol. 63, pp. 34–41.
- [8] Rastegari, A. and Mobin, M. (2016), "Maintenance decision making, supported by computerized maintenance management system," In 2016 Annual Reliability and Maintainability Symposium (RAMS), IEEE, pp.1-8.
- [9] Guo, Y.-Z. and Dong, J. (1997), "The application of fuzzy clustering analysis in process equipment importance classification," International Journal of Pressure Vessels and Piping, Vol. 71, pp. 175–179.
- [10] Jaderi, F., Sa'idi, E., Anvaripour, B. and Nabhani, N. (2012), "Criticality analysis for assets priority setting of Abadan Oil Refinery using AHP and Delphi Techniques," International Journal of Engineering and Innovative Technology, Vol. 2 No. 6, pp. 48–53.
- [11] Azadeh, A., Ghaderi, S.F., Ebrahimipour, V. (2007), "An integrated PCA DEA framework for assessment and ranking of manufacturing systems based on equipment performance," Engineering Computations, Vol. 24, No. 4, pp.347-372.
- [12] Taghipour, S., Banjevic, D. and Jardine, A. (2010), "Prioritization of medical equipment for maintenance decisions," Journal of the Operational Research Society, pp.1–22.
- [13] Campbell, J. D. and Jardine, A. (2001), Maintenance Excellence: Optimizing Equipment Life-Cycle Decisions, CRC Press, New York.
- [14] Bevilacqua, M. and Braglia, M. (2000), "The analytic hierarchy process applied to maintenance strategy selection," Reliability Engineering & System Safety, Vol. 70 No. 1, pp. 71–83.
- [15] Labib, A. W. (2004), "A decision analysis model for maintenance policy selection using a CMMS," Journal of Quality in Maintenance Engineering, Vol. 10, No. 3, pp. 191–202.
- [16] Shahin, A. and Attarpour, M. R. (2011), "Developing decision making grid for maintenance policy making based on estimated range of overall equipment effectiveness," Modern Applied Science, Vol. 5 No. 6, pp. 86–97.
- [17] Velasquez, M. and Hester, P. T. (2013), "An Analysis of Multi-Criteria Decision Making Methods," International Journal of Operational Research, Vol. 10, No. 2, pp. 56–66.
- [18] Li, L., Ni, J. (2009), "Short-term decision support system for maintenance task prioritization," International Journal of Production Economics, Vol. 121, pp. 195-202.
- [19] Saleh, N., Sharawi, A., Elwahed, M., Petti, A., Puppato, D., and Balestra, G. (2015), "Preventive maintenance prioritization index of medical equipment using quality function deployment," IEEE Journal of Biomedical and Health Informatics, Vol. 19, No. 3, pp. 1029-1035.

- [20] Singh, R. K. and Kulkarni, M. (2013), "Criticality analysis of power-plant equipments using the Analytic Hierarchy Process," International Journal of Industrial Engineering & Technology, Vol. 3, No. 4, pp. 1-14.
- [21] Qi, H.S., Alzaabi, R.N., Wood, A.S. and Jani, M. (2013),"A fuzzy criticality assessment system of process equipment for optimised maintenance management," International Journal of Computer Integrated Manufacturing, Vol. 28, No. 1, pp. 112-125.
- [22] Jagtap, H. P. and Bewoor, A. K. (2017), "Use of Analytic Hierarchy Process methodology for criticality Analysis of thermal Power plant equipment" in Materials Today: proceedings, Vol. 4, pp 1927-1936.
- [23] Márquez, A. C., León, P. M., Fernández, J.F. G., Márquez, C. P. and Campos, M. L. (2009), "The maintenance management framework: A practical view to maintenance management," Journal of Quality in Maintenance Engineering, Vol. 15, No. 2, pp.167-178.
- [24] Guo, L., Gao, J., Yang, J. and Kang, J. (2009), "Criticality evaluation of petrochemical equipment based on fuzzy comprehensive evaluation and a BP neural network," Journal of Loss Prevention in the Process Industries, Vol. 22 No. 4, pp. 469-476.
- [25] Faisall, M. and Sharawi, A, (2015), "Prioritize Medical Equipment Replacement Using Analytical Hierarchy Process", IOSR Journal of Electrical and Electronics Engineering, Vol. 10, No. 3, pp. 55-63.
- [26] Peeters, J., Basten, R. and Ting, T. (2018), "Improving failure analysis efficiency by combining FTA and FMEA in a recursive manner," Reliability Engineering & System Safety, Vol. 172, pp. 36-44.
- [27] Roda, I., Macchi, M., Fumagalli, L., Viveros, P. (2014), "A review of multi-criteria classification of spare parts: From literature analysis to industrial evidences," Journal of Manufacturing Technology Management, Vol. 25, No. 4, pp. 528–549.
- [28] Triantaphyllou, E. and Mann, S. H. (1995), "Using the Analytic Hierarchy Process for Decision Making in Engineering Applications: Some Challenges," International Journal of Industrial Engineering: Theory, Applications and Practice, Vol. 2, No. 1, pp. 35–44.
- [29] Saaty, T. L. (2008), "Decision making with the analytic hierarchy process," International Journal of Services Sciences, Vol. 1 No. 1, pp. 83–98.
- [30] Gass, S. I. and Rapcsák, T. (2004), "Singular value decomposition in AHP," European Journal of Operational Research, Vol. 154 No. 3, pp. 573–584.
- [31] Subramanian, N. and Ramanathan, R. (2012), "A review of applications of Analytic Hierarchy Process in operations management," International Journal of Production Economics, Vol. 138, No. 2, pp. 215–241.
- [32] Ahmad, R and Kamaruddin, S. (2012), "An overview of time-based and condition-based maintenance in industrial application," Computers & Industrial Engineering, Vol. 63, No. 1, pp. 135–149.
- [33] Saaty, T. L. (1980), The Analytic Hierarchy Process, McGraw-Hill, New York.
- [34] Muchiri, P., Pintelon, L., Gelders, L and Martin, H. (2011), Development of maintenance function performance measurement framework and indicators, International Journal of Production Economics, Vol. 131, No. 1, pp. 295-302.