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OUTSOURCING STRATEGIES IN MANUFACURING PROCESSES OF BEARING RINGS

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ABSTRACT

In the last decades the globalization of businesses has led to new approaches regarding the usage of resources. Identification of the optimum solution for resource planning and usage requests some market research. This is necessary to select, evaluate and qualify the suppliers. An important job in this feasibility evaluation process is the analysis of the supplier capability to manufacture, control and delivery the products according to customer specifications. The integration of the outsourced process in the company flow diagrams requests analysis and identification of the products and process requirements. This paper proposes a new method that can be used to integrate the outsourced processes or phases in the manufacturer management system. A case study to assess the feasibility of outsourcing as a part of the manufacturing process of components for the bearings used in railway industry is presented. The study was developed based on actual data collected from the industry.

KEYWORDS: outsourcing, manufacturing processes, strategies, flow diagram, hybrid production strategy.

REFERENCES

[1] Kester, R., Schuur, P. C., Hoffmann, P., *The make-or-buy decision in the application on the Product X of firm X the Netherlands*, Master Degree, University of Twente, Faculty Behavioural Management and Social sciences, p. 84, 2019.

[2] Regmi, R., Zhuo, Z., Hongpeng, Z., *Entrepreneurship strategy, natural resources management and sustainable performance: A study of an emerging market*, Resources Policy, vol. 86, no. 104202, 2023.

[3] Ilkka, S., *Strategic decision making model for make or buy decisions*, International Journal of Logistics Economics and Globalisation, vol. 6, no. 3, 2015, p. 205.

[4] Mugoni, E., Kanyepe, J. Tukuta, M., *Sustainable Supply Chain Management Practices (SSCMPS) and environmental performance: A systematic review*, Sustainable Technology and Entrepreneurship, vol. 3, no. 1, 2024.

[5] McIvor, R., *What is the right outsourcing strategy for your process?, European Management Journal*, vol. 26, no. 1, 2008,
pp. 24–34.

[6] Agburu, J. I., Anza, N. C., Iyortsuun, A. S., *Effect of outsourcing strategies on the performance of small and medium scale enterprises (SMEs)*, Journal of Global Entrepreneurship Research, vol. 7, no. 1, 2017.

[7] Kabus, J., Dziadkiewicz, M., Miciula, I., Mastalerz, M., *Using Outsourcing Services in Manufacturing Companies*, Resources, vol. 11, no. 3, 2022.

[8] Afteni, C., Paunoiu, V., Frumusanu, G.-R., Afteni, M., *Evaluation, monitoring and auditing of suppliers in supply chain management*, International Journal of Manufacturing Economics and Management, vol. 1, no. 2, 2021, pp. 6–18.

[9] Arora, M., Kumar, A., *An Empirical Study on Make-or-buy Decision Making*, International Journal of Education and Management Engineering, vol. 12, no. 1, 2022, pp. 19–28.

[10] Shao, X. F., *What is the right production strategy for horizontally differentiated product: Standardization or mass customization?*, International Journal of Production Economics, vol. 223, 2020.

[11] Sujish, K. M., Sujishna, R., Sujitha, M., Rizwan, R., *Strategic Decision-Making Mode for Make or Buy Decision*, International Journal of Science, Engineering and Management, vol. 9, no. 12, 2022, pp. 116-122.

[12] Kim, E., Min, D., *A two-stage hybrid manufacturing model with controllable make-to-order production rates*, Journal of Manufacturing Systems, vol. 60, 2021, pp. 676–691.

[13] Chitariu, D.-F., Eduțanu F.-D., Oancea L., Mihai, C.-G., Bișoc, C., *Overview on bearing manufacturers research and development directions*, Bulletin of the Polytechnic Institute of Iași. Machine constructions Section, vol. 69 (73), no. 4, pp. 71–78, 2023.

[14] Luna, N. S. P., Galar, D., *Inspection and Analysis of the Functioning of the Bearings Used on Railways*, Lulea University of Technology, Sweden, 2014, p. 164.

[15] Afteni, M., Afteni, C., Frumusanu, G.-R., Susac, F., *Estimation of components cost by comparative assessment method in the case of bearings with interchangeable construction*, Acta Technica Napocensis, vol. 65, no. IV, 2022, pp. 979–986.