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MECHANISMS FOR THE MULTI-CYCLIC MODELS IMPLEMENTATION TO CALCULATE THE PRIME COST AND BUSINESS PROCESSES' COST AT INDUSTRIAL ENTERPRISES

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Abstract. The main problem in calculating the total production cost in terms of overhead costs and the business processes cost at an industrial enterprise is the deviation of the estimated cost from the actual costs incurred. This is due both to the specific features of industrial enterprises (big main and auxiliary business processes, a huge number of them, a large number of closed economic relationships' loops at the subprocesses and functions levels, a large range of input resources and products), and calculation methods' algorithms (primarily, the most common boiler method in industry). In order to improve the accuracy of calculating these indicators, the author proposes the multi-cyclic distribution principle for overhead costs, the essence of which is their gradual assignment to the main business processes over several cycles, gradually. The article presents multi-cycle calculation models both for the auxiliary business processes cost and for calculation cost production an industrial enterprise. In order to automate the production cost calculation and the business processes cost, software products have been developed. In the article, the author proposes a step-by-step calculation algorithm using two programs: 1) calculating the cost of supporting business processes and 2) calculating the cost of production.

Keywords: digital economy; software; cost price; overheads; supporting business processes cost.

JEL codes: L64; M11; M15.

References

- 1. Barber, K.D., Dewhurst, F., Pritchard, M.C. (2006) Cost allocation for business process simulation models // Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture. Vol. 220. No. 5. P.: 695-705. DOI: 10.1243/09544054JEM379.
- 2. Dhake, R.J.; Kurangale, H.R. (2011) Business Process Management@ 3pl Through Process Mapping & Activity Based Costing // Proc. of the 1st International Conference on Modern Trends in Industrial Engineering.
- 3. Kaličanin, Đ.; Knežević, V. (2013) Activity-based costing as an information basis for an efficient strategic management process // Economic Annals. Vol. 58. No. 197. P.: 95-119. DOI: 10.2298/EKA1397095K.
- 4. Onat, O.K.; Anitsal, I.; Anitsal, M.M. (2014) Activity based costing in services industry: A conceptual framework for entrepreneurs // The Entrepreneurial Executive. Vol. 19. P.: 149.
- 5. Karamyshev, A.N. (2017) The principle of multi-cyclicity attributing the cost of auxiliary business processes to the cost of commercial products of large industrial enterprises. Bulletin of the Belgorod State Technological University named after V.G., Shukhov. No. 1. P.: 195-200.
- 6. Karamyshev, A.N. (2016) Methodology for calculating the cost of production of a large machine-building enterprise, taking into account the principle of multi-cyclic distribution of the cost of auxiliary business processes // Economics and Entrepreneurship. No. 12-3 (77). P.: 1054-1061.
- 7. Karamyshev, A.N. (2017) Methodology for calculating the cost of auxiliary business processes of a large machine-building enterprise, taking into account their closed cyclic relationships // Economics and Entrepreneurship. No. 5-1 (82). P.: 563-568.
- 8. Karamyshev, A.N. (2017) Multicycle principle of attributing the cost of supporting business processes to commodity production cost in large industrial enterprises // Turkish Online Journal Of Design Art And Communication. Vol. 7. P.: 1675-1685. DOI: 10.7456/1070DSE/145.
- 9. Karamyshev, A.N. (2017) Algorithm for the completion of the multi-cyclic allocation of the cost of auxiliary subprocesses to the main business processes of an industrial enterprise. Bulletin of the Belgorod State Technological University named after V.G., Shukhov. No. 2. P.: 233-235.
- 10. Karamyshev, A.N. (2017) Model of decision-making on the transfer of a business process to outsourcing at large machine-building enterprises // Economics and Entrepreneurship. No. 10-2 (87). P.: 905-910.
- 11. Karamyshev, A.N. (2018) Model of permanent improvement of the commodity policy of a large enterprise // Competence. No. 2 (153). P.: 28-33.

- 12. Karamyshev, A.N. (2018) A model for making managerial decisions on the modernization of technologies for performing business processes at a large industrial enterprise. Bulletin of the Belgorod State Technological University named after V.G., Shukhov. No. 1. P.: 101-105.
- 13. Karamyshev, A.N. (2017) Analysis of management decisions on the modernization of technologies for the implementation of the main and auxiliary business processes of an industrial enterprise // Economics and Entrepreneurship. No. 2-2 (79). P.: 816-820.

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