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Article

The Role Of Management Accounting And Audit In The Efficient Use Of Resources At Railway Transport Enterprises

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Abstract: Maqolada temir yo'l transporti korxonalarida resurslardan samarali foydalanishni ta'minlashda boshqaruv hisobi va auditning o'rni "O'zbekiston temir yo'llari" AJ misolida tadqiq etilgan. Jamiyatning 2026-yil yarim yillik hisoboti, 2022-yilgi samaradorlik ko'rsatkichlari tahlili, MHXS bo'yicha konsolidatsiyalangan hisobotlari hamda Deutsche Bahn va Network Rail tajribasi asosida xarajat sig'imi, asosiy vositalar amortizatsiyasi, aylanma mablag'lar va moliyaviy resurslar ko'rsatkichlari tahlil qilingan. Natijalar xarajat va tushum nisbati yaxshilanganiga qaramay, asosiy vositalarning yuqori amortizatsiyasi, muddati o'tgan debitorlik qarzlarining o'sishi va valyuta kursi zararlari asosiy resurs xatarlari bo'lib qolayotganini ko'rsatdi. Faoliyat bo'yicha xarajatlarni hisoblash (ABC), mas'uliyat markazlari va aylana iqtisodiyot ko'rsatkichlariga asoslangan hamda xatarga yo'naltirilgan ichki va tashqi audit bilan quvvatlanadigan boshqaruv hisobi modeli taklif etilgan.

Keywords: boshqaruv hisobi, ichki audit, resurs samaradorligi, aylana iqtisodiyot, temir yo'l transporti, faoliyat bo'yicha xarajatlar hisobi, samaradorlik ko'rsatkichlari.

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Introduction

The transition to a green economy requires enterprises not only to grow but to grow with less material, energy and financial input per unit of output. In Uzbekistan, 2025 was declared the Year of environmental protection and the "green economy", and the corresponding state programme sets resource saving as a priority for all sectors [1]. Railway transport occupies a special place in this process: it is the least carbon-intensive mode of mass transport, yet it is one of the most capital- and resource-intensive industries. Track, rolling stock, electrification and signalling assets, traction energy, rails, sleepers and ballast form the bulk of its costs.

JSC "O'zbekiston temir yo'llari" (hereinafter – UTY) is undergoing deep reform in line with Presidential Resolution PQ-329 of 10 October 2023 [2]. The company's Development Strategy until 2030 includes a separate direction "Ecology and sustainable development (ESG)", which provides for higher energy efficiency, reduced environmental impact and the introduction of "green transport" principles [3]. Achieving these goals is impossible without an information system that shows where, by which activity and with what result resources are consumed, and without an independent check of that information. In our view, these functions belong to management accounting and audit, which defines the relevance of the study.

Literature review

C. Drury defines management accounting as a system that supplies managers with information for planning, cost control and decision-making, and stresses the importance

of accurate cost assignment to activities and products [4]. Uzbek scholars B.A. Xasanov et al. [5], Sh.T. Ergasheva and N.B. Abdusalomova [6], S.N. Tashnazarov et al. [7] study cost classification, budgeting, responsibility accounting and costing methods adapted to national accounting standards. O. Stopka et al. showed that activity-based costing (ABC) eliminates distortions in the allocation of overheads in a railway enterprise [8], while G. Troche developed an activity-based rail freight costing model for different production systems [9]. N.E. Babaxalov emphasises that railway costs should be described simultaneously from the management, tax and financial accounting perspectives [10]. In auditing, the International Standards on Auditing [11] and the works of M.X. Xodjayeva [12], B.K. Hamdamov et al. [13] and K.B. Urazov et al. [14] treat the assessment of internal control and risks as the core of audit. However, the link between management accounting, audit and resource efficiency in railway transport has not been studied sufficiently.

Methods. The information base comprises UTY's quarterly report for the first half of 2026 published on the Unified Portal of Corporate Information [15], the analysis of UTY's 2022 performance indicators [16], the IFRS consolidated statements for 2020 [17] and the company's organisational structure [18]. International practice was studied on the basis of the integrated report of Deutsche Bahn [19] and the annual report of Network Rail [20]. Horizontal, vertical and ratio analysis, comparison and synthesis were applied.

Results

The main resource indicators of UTY are summarised in Table 1.

Table 1. Resource efficiency indicators of JSC "O'zbekiston temir yo'llari", billion UZS

Indicator	Base period	Reporting period	Change
Net revenue (H1)	7 424.6	9 618.3	+29.5%
Cost of services sold (H1)	5 727.6	6 701.3	+17.0%
Cost-to-revenue ratio, %	77.1	69.7	–7.4 p.p.
Other operating expenses (H1)	960.9	677.4	–29.5%
Interest expenses (H1)	449.7	587.9	+30.7%
Foreign exchange losses (H1)	698.2	1 161.2	+66.3%
Net profit (H1)	658.7	1 008.5	+53.1%
Wear of fixed assets, %*	57.7	56.4	–1.3 p.p.
Overdue receivables*	274.1	340.2	+24.1%
Long-term bank loans*	24 363.2	25 568.2	+4.9%

*Source: author's calculations based on [15]. H1 – first half of 2025 and 2026; * – balance sheet items at the beginning and end of the first half of 2026.*

The data show positive dynamics: revenue grew 12.5 percentage points faster than the cost of services, so the cost-to-revenue ratio fell to 69.7%. This is close to the target of 0.70 set in the 2022 performance indicators, when the actual ratio was 0.911 and the planned operating profit of 700 billion UZS turned into a loss of 514.7 billion UZS [16]. Other operating expenses fell by 29.5%, which indicates stronger cost control.

At the same time, three resource risks remain. First, 56.4% of the gross value of fixed assets has already been depreciated; in 2022 the wear coefficient was 0.452 against the target of 0.25 [16], and in 2020 depreciation under IFRS rose by 46% to 1 540.2 billion UZS [17]. Ageing assets increase energy and repair costs. Second, overdue receivables grew by 24.1%, which immobilises working capital; in 2022 the receivables turnover period was 93.6 days against the planned 80 days [16]. Third, foreign exchange losses of 1 161.2 billion UZS exceed net profit by 15%, reflecting the dependence on foreign-currency loans. The organisational structure includes an internal audit service reporting to the Supervisory Board, a department of strategic analysis and budgeting and a transformation office [18],

but no unit is assigned to accounting for resource consumption and environmental indicators.

Discussion

Based on the analysis, we propose a resource-oriented model of management accounting and audit for railway enterprises consisting of the following elements.

1. Activity-based costing of resources. Costs should be assigned to the main activities – traction, track maintenance, rolling stock repair, station and terminal operations – using resource drivers such as kWh or litres of fuel per 10 000 gross tonne-km and materials per kilometre of track [8; 9]. This reveals the activities where resources are lost.

2. Responsibility centres and flexible budgets. Regional railway branches, locomotive and wagon depots should be treated as cost centres with flexible budgets and standard rates of energy and material consumption; monthly variance analysis makes managers accountable for overruns [4; 6].

3. Circular economy accounting. Materials recovered during track reconstruction (old rails, sleepers, ballast) should be recorded separately, valued and reused. Deutsche Bahn, for example, targets a recycling rate of at least 95% and recycled shares of 45% for rail steel, 40% for ballast and 30% for concrete sleepers by 2030, while the share of renewables in its traction current reached 69.8% in 2024 [19].

4. Resource indicators in the KPI system. UTY's indicator system already includes energy efficiency (11.8% of cost in 2022) [16]; it should be supplemented with energy intensity of transport work, asset renewal and the share of recycled materials. Network Rail uses an environmental sustainability index of four measures – waste recycled, waste diverted from landfill, carbon reduction and non-traction energy reduction – and in 2023/24 achieved 82.6% of the target alongside 1 116 million pounds of efficiencies [20].

5. Risk-based audit of resource use. The internal audit service should conduct regular performance audits of energy, materials and fixed assets using management accounting data. External auditors, in line with ISA 315, ISA 520 and ISA 610, can rely on this work when assessing risks of fixed asset impairment, receivables and currency positions [11; 13]. In the long term, UTY's non-financial ESG indicators should also be subject to independent assurance, as practised by Deutsche Bahn [19].

Conclusion

The study shows that UTY has improved its cost-to-revenue ratio and net profit, but high wear of fixed assets, growth of overdue receivables and foreign exchange losses limit the efficiency of resource use. Management accounting turns resource consumption into measurable information by activity and responsibility centre, while audit confirms its reliability and identifies losses. Implementing the proposed model – activity-based costing, flexible budgets, circular economy accounting, resource KPIs and risk-based audit – will help UTY meet the ESG goals of its 2030 strategy and contribute to Uzbekistan's green economy.

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