

# COST EFFICIENCY OF AUTONOMOUS AND CONVENTIONAL SHIPS ON THE ROUTE NOVI SAD – CONSTANȚA

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## Abstract

In recent years, a lot of attention has been devoted to the development of autonomous ship technology, and the literature related to this topic expands every day. However, a detailed assessment of the costs of autonomous ships is still in the development phase. The paper presents the outcomes of the cost calculation and comparison of a conventional and autonomous ship navigating on the route between Port of Novi Sad and Port of Constanța. The aim was to determine the potentials of utilising autonomous ships on the Danube from the economic perspective. The analysis includes determination of capital, operational and voyage costs incurred during the navigation of both a conventional and autonomous ship. For the purpose of calculating costs of autonomous ships, we took into account electricity costs, Remote Control Centre costs, Automated Facility Services costs. The main differences when comparing these two scenarios, i.e. ships are: reduction of the required crew on the autonomous ship, increased cargo-carrying capacity of the autonomous ship, as well as transition from diesel fuel to electric power.

After the cost analysis, cost efficiency was applied for exploitation period of 25 years. It was concluded that the present value of the costs of an autonomous ship is lower than the present value of the costs of a conventional ship.

**Keywords:** *autonomous ship, conventional ship, inland waterways, cost efficiency, present value*