MSQ14

STRATEGIC ADOPTION AND QUALITY OPTIMIZATION OF AI TECHNOLOGIES IN COMPETITIVE PORTS

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Abstract

AI-powered smart ports enhance operational efficiency by utilizing innovative technologies and data-driven solutions. The extent of these enhancements largely depends on the quality of the integrated AI technologies. In this paper, we develop analytical duopoly models to examine a traditional port's optimal decisions on whether to adopt AI-powered smart services and the optimal quality level if adoption occurs. Our results demonstrate that AI quality design costs play a critical role in the adoption decision. Additionally, we identify the market conditions under which it is optimal for a traditional port to transition into a smart port, providing practical guidance for strategic AI adoption in ports.

Conference Track

Management Science and Quantitative Methods