

Emerging Technologies for Maritime Sustainability: A Review of Selected Case-Studies

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Abstract

The maritime sustainability management involves number of issues in identifying and analysing the sustainability parameters with respect to the impact of the commercial activities on maritime ecosystem sustainability. The recent technological applications show a promising potential in enhancing the maritime sustainability management within the given cost and other resource constraints. Based on the recent technological advancements in big data, internet of things, artificial intelligence, imaging and remote sensing, many companies and organizations are deploying new technology driven models for managing the sustainability of operations. Most of the innovative solutions integrate different types of technologies for coordinated impact. For example, use of remote sensing and imaging can facilitate the effective marine eco-system management; and if the same is combined with machine learning algorithm, it can evolve as a self-evolutionary mechanism for continuous quality improvement in ecosystem management. The current paper explores the recent advances in technological applications for marine sustainability. By focusing on three selected case-studies, the paper highlights the critical factors in designing and implementing the technology-based sustainability management models in use. Based on the review of recent literature as well as interviews of the selected experts, the paper analyses the significant issue in selection of the right technology for maritime sustainability management. The paper also offers critical review of the different technological applications in maritime sustainability management.

Keywords: Marine Sustainability; Technology and Innovation; Sustainable Development.