

The Hong Kong Polytechnic University
Department of Logistics and Maritime Studies
Research Seminar

**Antecedents and Performance Outcomes of Green Innovation Adoption:
An Empirical Study of the Shipping Industry**

By

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(Conducted in English)

Abstract:

The shipping industry has been placing increasing emphasis on greening issues. Over the past decade, shipping researchers have devoted considerable research efforts to exploring diverse topics relevant to green shipping. The concept of green innovation (GI), however, has been largely ignored. As a result, our understanding of the conceptualization, measurement, and performance implications of GI adoption for shipping remains particularly limited. Therefore, this study aims to: (1) develop a theoretical framework to identify the different dimensions of GI adoption, (2) develop and validate measurement instruments of GI, (3) identify the antecedents of GI and examine their impacts on GI adoption, and (4) investigate the implications on organizational performance with GI adoption.

To achieve these research objectives, this study uses a mixed-method research approach that comprises a qualitative study (i.e., exploratory case study) and two quantitative studies (i.e., a large-scale survey study and a secondary data analysis). First, an exploratory case study of a Danish mega-carrier, Maersk Line, is conducted to evaluate the adoption and features of GI in the shipping industry. Second, a large-scale survey study is conducted. A sample of 226 shipping firms that are operating in the Pearl River Delta (PRD) region of China is surveyed to validate the measurements of GI and examine the relationships among the antecedents, GI adoption, and organizational performance outcomes. Third, to improve the generalizability of the research findings and for triangulation purposes, a secondary data analysis is conducted with data on the financial position of 129 shipping firms listed on the major stock markets worldwide.

The results reveal that first, GI consists of four sub-dimensions; namely, green management, service, process, and technological innovations. Second, stakeholder pressures (i.e., regulatory, competitive, and customer pressures) and environmental governance mechanisms (i.e., contractual, relational, and organizational governance) are positively related to the GI adoption of shipping firms. Third, GI and its sub-dimensions are positively related to the organizational performance of shipping firms (i.e., environmental, innovation, and economic performances). Lastly, environmental uncertainty moderated the positive impact of GI on organizational performance.

By systematically and empirically examining the relationships among the antecedents, GI adoption, and organizational performance outcomes, this study provides a comprehensive picture of GI adoption. The findings of this study are expected to advance knowledge on environmental and innovation management and bridge the significant gap between green shipping and GI research. Particularly, this study not only provides practical knowledge on factors that might contribute to the successful adoption of GI, but also sheds new light on the crucial role of GI adoption as a viable means of improving the competitiveness and organizational performance of shipping firms.

Bio:

Michael Ng is a doctoral student at the Department of Logistics and Maritime Studies, The Hong Kong Polytechnic University. He obtained his BSc in Management from The University of Manchester and MSc in International Shipping and Transport Logistics from The Hong Kong Polytechnic University. His research interests are in the areas of green innovation and operations management.

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All are welcome!