Department of Industrial & Systems Engineering
Cullen College of Engineering

ISE FRIDAY SEMINAR

BROADEN HORIZONS EXTEND MINDS

Dr. Marco Poisler
Member of UTC's Global Management Executive Team
and Board of Directors
UTC Oversee INC
Houston, TX

Date: Friday, September 19, 2025

Time: 1 - 1:50 pm

Location: D2 Lect2

Zoom Meeting ID: 97076565407. **Passcode:** 477211

THE AUTONOMOUS VESSEL GAP

Abstract: The maritime industry exemplifies Moravec's Paradox through its increasing reliance on sophisticated digital systems that enhance operational safety while simultaneously creating new challenges in maintenance and repair. In this talk we discuss how technical support dependencies moderate the relationship between digital crane failures, vessel idling time, and resulting CO_2 emissions in maritime operations. Using the Unified Theory of Acceptance and Use of Technology (UTAUT) framework, this research addresses the gap in existing technology adoption models that fail to account for physical-digital interface complexities and technical support dependencies in safety-critical operational environments. The study employs a mixed-methods approach, combining survey data from 127 maritime professionals with secondary analysis of vessel operational data from Clarksons Research and Esgian databases. Using technical support availability as a critical moderating factor, we introduce the Operational Readiness Index (ORI) as a composite measure to integrated crew and equipment capability.

Our research contributes theoretically by extending UTAUT to incorporate technical support dependencies as critical moderating factors, integrating Moravec's and Polanyi's cognitive paradoxes into technology acceptance models, and introducing environmental performance as an extended component of performance expectancy. The successful operationalization of ORI demonstrates how human and technological factors can be integrated within technology acceptance frameworks without artificial separation. Our work provides frameworks for assessing digital technician requirements in maritime operations, guidelines for balancing system complexity with maintenance capabilities, and training recommendations for developing troubleshooting capabilities among operational crews. The environmental significance lies in quantifying CO_2 emissions impact of technical support dependencies, demonstrating that improved crane system reliability and efficiency could help to reduce maritime emissions. The

findings will have applications for key maritime stakeholders: shipowners can utilize results for retrofit investment decisions; port authorities can integrate insights into berth prioritization

strategies; insurers can develop underwriting models accounting for technical support adequacy; and equipment manufacturers can develop comprehensive support strategies addressing geographic coverage gaps. The extension of UTAUT to asset-intensive, safety-critical industries demonstrates broader relevance beyond maritime to offshore energy, smart rail systems, and industrial automation contexts where operational reliability is paramount.

Short Bio: Dr. Marco Poisler is a key figure in global logistics, serving as a member of UTC's Global Executive Management Team and Board of Directors. He has been instrumental in establishing strategic Global Energy & Capital Project offices worldwide. Born in Jersey City, Marco studied economics at Georgetown University and earned a Master's in Transportation from SUNY Maritime. He is fluent in Portuguese and Spanish, with a working knowledge of Ukrainian. He serves as an Adjunct Professor at the University of Houston's Cullen Engineering Supply Chain & Logistics Technology Program teaching the cutting-edge course "Project Logistics" developed by Margaret Kidd. He received his bachelor degree in economics from Georgetown University, a Master's degree in Transportation from SUNY Maritime, and a PhD degree in business administration from UH Bauer.

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