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Dr. Ihsen Alouani
Queens University Belfast, United Kingdom

Dr. Yazid Lachachi
Universite des Sciences et de la Technologic d'Oran Mohamed- Boudiaf, Oran, Algeria

Dr. Windra Priatna Humang, S.T., M.T.
Badan Riset dan Inovasi Nasional, Indonesia

Ludfi Pratiwi Bowo, S.T., M.MST., Ph.D.
Badan Riset dan Inovasi Nasional, Indonesia

Dr. Rahmi Setiawati, S.Sos., M.Si.
Universitas Indonesia, Indonesia

Dr. Sandra Aulia, SE, Ak., M.SAk.
Universitas Indonesia, Indonesia

Dr. Larsen Barasa, SE., M.M.Tr.
Maritime Institute of Jakarta, Indonesia

Dr. Rr. Retno Sawitri Wulandari, S.Si.T., M.M.Tr., Qrmo.
Maritime Institute of Jakarta, Indonesia

Dr. April Gunawan Malau, S.Si., MM.
Maritime Institute of Jakarta, Indonesia

Dr. Drs. Bambang Sumali, M.Sc.
Maritime Institute of Jakarta, Indonesia

Dr. Meilinasari Nurhasanah, S.Si.T., M.M.Tr.
Maritime Institute of Jakarta, Indonesia

Dr. Markus Yando, S.Si.T., M.M.
Maritime Institute of Jakarta, Indonesia

Dr. Vidya Selasdini, S.Si.T., M.M.Tr.
Maritime Institute of Jakarta, Indonesia

Purnama N. F. Lumban Batu, S.Pd., M.Hum.
Maritime Institute of Jakarta, Indonesia

Welcoming Speech

Assalamualaikum Wr. Wb.
Shaloom
Om Swasti Astu
Nammu Budayya
Greetings To Virtue
Salam ProPrestasi
Salam Center of Excellence

Good morning and a very warm welcome to the STIP Jakarta International Conference 2024 on "Sustainability and Digital Advancement in Transportation". It is with great pleasure and immense pride that I stand before you today as we gather for this pivotal event hosted by the STIP Jakarta.

This conference, focusing on "**Sustainability and Digital Advancement in Transportation**", is a crucial opportunity for us to explore the future of global transportation in the light of rapid technological advancements and the imperative of sustainability. As we convene today, we aim to foster meaningful dialogue and innovative solutions that will shape the trajectory of our industry.

Throughout this day, esteemed thought leaders, innovators, and stakeholders from diverse sectors will converge to exchange insights and unveil groundbreaking solutions. We will delve into six key topics:

1. Green Technology and Environmental Considerations,
2. Development in Navigational and Engineering Technology,
3. Safety, Health and Risk Management,
4. Energy and Emissions,
5. Human Element in Transportation, and
6. Innovation in Transportation Education and Training.

These discussions will not only explore the latest trends but also outline strategies to propel our industry forward responsibly and inclusively. Central to our deliberations will be the integration of green technologies and digital innovations into transportation systems. From electric vehicles to renewable energy sources, and from artificial intelligence to big data analytics, these advancements are reshaping efficiency, safety, and connectivity in our global networks.

We will examine how these transformative technologies can mitigate environmental impact, enhance operational efficiency, and improve user experience across all modes of transportation.

Moreover, this conference aims to foster collaboration among industry experts, policymakers, researchers, and academics. By fostering partnerships and sharing expertise, we can forge a path towards a more connected, sustainable, and digitally advanced future. Together, we will explore the challenges and opportunities inherent in this transformative journey, from policy frameworks to cybersecurity measures, ensuring that our advancements are both secure and equitable.

I extend my heartfelt gratitude to all participants for joining us at STIPCON 2024. Your presence and active engagement underscore our shared commitment to innovation and

sustainability in transportation. I am confident that today's discussions will yield actionable insights and collaborations that will drive our industry forward.

May peace, mercy, and blessings of Allah be upon you all. Thank you, and I wish you all a productive and inspiring conference ahead.

Wa'alaikumussalam warahmatullahi wabarakatuh

Shalom, Om shanti shanti shanti om.

Dr. Capt. Tri Cahyadi, M.H., M.Mar.

Principal Maritime Institute of Jakarta

Dr. Capt. Tri Cahyadi, M.H., M.Mar., is an experienced maritime professional and academic leader currently serving as the Chairman of the Sekolah Tinggi Ilmu Pelayaran (STIP) Jakarta. Born in Boyolali on July 4, 1973, he has built an impressive career in advancing maritime education and training in Indonesia. Holding the rank of Pembina Utama Muda (IV/c), he has held several key leadership positions, including Director of the Semarang Maritime Polytechnic and Director of the Malahayati Maritime Polytechnic in Aceh. His extensive background in maritime operations and administration makes him a prominent figure in Indonesia's maritime sector.

His educational background is highly impressive, starting with a Diploma III in Nautical Science from BPLP/PIP Semarang (1995), followed by a Bachelor’s degree in Nautical Science from PLAP/STIP Jakarta (2001). He also holds an ANT-1 certification from the Maritime Education and Training Center (BP3IP) in Jakarta and obtained both his Master’s and Doctorate in Law from Universitas Islam Sultan Agung. This combination of maritime and legal expertise equips him to effectively tackle operational and regulatory challenges.

Throughout his career, Dr. Tri Cahyadi has played a vital role in sustainable transportation management and human resource development. As the Head of the Sustainable Transportation Management Center, he leads efforts to promote environmentally friendly transportation practices. Additionally, as the Head of the Human Resources Development Center for Transportation Apparatus, he contributes to training and developing personnel in the Ministry of Transportation, ensuring that the human resources in Indonesia's transportation sector are prepared for future challenges.

His international experience further enhances his perspective on global situations. He has represented Indonesia at the International Maritime Organization (IMO) Assembly, participated in Port and Shipping Management training at the University of Bremen in Germany, and engaged in a Faculty Exchange Program at GCNS in Glasgow, UK. His professional development also includes Instructor Development Training at the United States Merchant Marine Academy (USMMA) in New York, USA.

With his dedication and extensive experience, Dr. Capt. Tri Cahyadi, M.H., M.Mar., continues to play a crucial role in advancing the maritime sector and education in Indonesia, making him an inspirational figure for future generations in the fields of shipping and transportation.

Opening Speech

Assalamualaikum Wr. Wb.
Shaloom
Om Swasti Astu
Nammu Budayya
Greetings To Virtue

Honored Guests,

Distinguished guests, esteemed colleagues, ladies and gentlemen.

I am honored to deliver the opening remarks for the STIP Jakarta International Conference (STIPCON 2024).

First and foremost, I extend a warm welcome to all of you – participants, researchers, industry leaders, and esteemed guests – who have joined us today for STIPCON 2024. Your presence signifies a collective commitment to shaping a more sustainable and digitally advanced future for transportation, and for that, we are truly grateful.

A special word of appreciation goes to the "Sekolah Tinggi Ilmu Pelayaran Jakarta", for hosting this important conference. Your dedication to fostering dialogue and innovation in the transportation sector is truly commendable.

The theme for this year's conference, "**Sustainability and Digital Advancement in Transportation**" is very relevant to the current situation. The transportation sector faces significant challenges in reducing its environmental impact while embracing technological advancements. STIPCON 2024 provides a vital platform to address these challenges by bringing together diverse perspectives from both Indonesia and abroad.

Through these discussions, we can identify new solutions and best practices to create a more connected, sustainable, and digitally advanced transportation system – one that meets the demands of the 21st century and beyond. I am particularly excited to welcome our distinguished keynote speakers. Their expertise spans various aspects of transportation, both nationally and internationally. I am confident that their insights will be invaluable to the discussions that will take place over the coming days.

As the Head of Human Resources Development Agency On Transportation, I want to emphasize the importance of the "Human Element in Transportation" topic. A skilled and adaptable workforce is crucial for the successful implementation of innovative solutions. Our agency is committed to equipping future generations with the knowledge and skills necessary to navigate the evolving transportation landscape.

I believe that STIPCON 2024 has the potential to be a transformative event. By fostering collaboration and exchange of ideas, we can work together to build a more sustainable and digitally advanced transportation system for the benefit of all. I encourage you all to participate actively in the sessions, network with your peers, and share your knowledge and experiences. Together, we can pave the way for a brighter future for transportation. Thank you, and I wish you all a productive and inspiring conference ahead.

In the name of Allah, the Most Gracious, the Most Merciful, I hereby declare the STIP Jakarta International Conference 2024 officially open.

Wa'alaikumussalam warahmatullahi wabarakatuh

Ir. Subagiyo. M.T.

Head of Human Resource Development On Transportation Agency

Ir. Subagiyo, M.T., is an experienced professional in the fields of maritime and transportation, originally from Surabaya and born on November 10, 1970. He currently serves as the Head of Human Resources Development Agency On Transportation.

His career includes various important positions, including Expert Staff to the Minister of Transportation for Safety and Connectivity, Head of Harbour Master and Port Authority Tanjung Priok, Head of Tanjung Priok Main Port Authority and Director of Port Affairs at the Directorate General of Sea Transportation, where he was responsible for planning, implementing, and evaluating policies in the port sector throughout Indonesia. Previously, he led various navigation and port service operations, including as Head of Class I Navigation District of Samarinda and Head of the Port Organizer Unit Office in Baubau, Southeast Sulawesi. These roles emphasize his ability to manage port services, maritime traffic, and navigation in complex maritime environments.

Academically, Ir. Subagiyo, M.T. completed a Bachelor's degree in Naval Architecture from Sepuluh Nopember Institute of Technology (ITS) and earned a Master of Engineering from Bandung Institute of Technology (ITB). Additionally, he has participated in various leadership and maritime inspection training programs in countries such as China, Japan, and the UK, demonstrating his commitment to enhancing safety and maritime infrastructure in Indonesia.

Throughout his career Ir. Subagiyo, M.T. has received various awards for his achievements, including recognition as the best graduate in several government leadership programs. His dedication to advancing Indonesia's maritime sector, particularly in terms of navigation safety and port management, makes him a highly respected figure in the transportation industry.

With extensive experience and strong dedication, Ir. Subagiyo, M.T. plays a key role in enhancing the safety and efficiency of Indonesia's ports and maritime sector. As the Head of Human Resources Development Agency On Transportation, he significantly contributes to developing high-quality professionals in the transportation sector. His visionary leadership makes him an influential figure in advancing the nation's maritime industry.

In addition to his broad experience, Ir. Subagiyo, M.T. has earned several notable accolades throughout his career. He was recognized as the Best Participant in Diklatpim Level IV in 2003 and the Best Participant in Diklatpim Level III in 2006, which underscores his dedication to professional development and leadership. Furthermore, he received awards from the Minister of Transportation of Indonesia for his contributions to Public Service Evaluation in the Transportation Sector in 2020 and Law Enforcement in Maritime Safety in 2018. These achievements highlight his commitment to enhancing public service and ensuring safety within Indonesia’s transportation sector.

Keynote Speaker #1

Dr. Capt. Antoni Arif Priadi, M.Sc.

Director General of Sea Transportation

Dr. Capt. Antoni Arif Priadi, M.Sc. is an accomplished maritime expert, currently serving as the Director General of Sea Transportation at the Ministry of Transportation. His dual roles reflect his extensive expertise in the maritime sector, where he provides strategic advice and oversees key maritime operations across Indonesia. His leadership in these capacities contributes significantly to the country's transportation policies, particularly in the areas of sea transport and environmental sustainability.

Throughout his career, Dr. Capt. Antoni has held several pivotal positions within Indonesia's maritime infrastructure. He served as Senior Advisor to Secretary of Human Resource Development on Transportation Agency at the Transportation Agency, and earlier as Director of Sea Traffic at the Directorate General of Sea Transportation, where he played a crucial role in regulating and managing maritime traffic. His expertise was also instrumental during his time as Head of the Class I Tanjung Priok Navigation District, and as Secretary General of the Transportation Attaché at the Indonesian Embassy in Malaysia, where he represented the country's maritime interests on the international stage.

Dr. Capt. Antoni's academic achievements further demonstrate his dedication to maritime and transportation sciences. He holds a Bachelor’s Degree in Nautical Studies from the Maritime Education and Training Center (now PIP Semarang), a Master of Science in Marine Sciences from the World Maritime University, and two doctoral degrees: one in Civil Engineering from the University of Indonesia and another in Computer Engineering with a specialization in Automation from the University of Le Havre, France. His professional education includes training as a Marine Corps Officer II at PLAP Jakarta and earning certification as a Level I Nautical Expert from Jakarta Maritime Institute (STIP Jakarta). This combination of practical and academic expertise underscores his distinguished career in the maritime and transportation sectors.

Keynote Speaker #2

Omar Frits ERIKSSON

Deputy Secretary-General of IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) and Dean of the IALA World-Wide Academy

Omar Frits Eriksson is the Deputy Secretary-General of IALA and the Dean of the IALA World-Wide Academy, which is the vehicle by which IALA delivers education, training, and capacity building.

He has almost 30 years of experience of managing Marine Aids to Navigation services in Denmark where he has held various posts with the national maritime authority and has been involved in and responsible for several international maritime projects.

Omar has a keen interest in all aspects of Aids to Navigation and has been very active in IALA over the last 25 years. Omar has chaired both the IALA ENAV Committee and the Engineering Committee and is currently the chair of the IALA Policy Advisory Panel.

Omar has been involved with the IALA World-Wide Academy as board member since its inauguration in 2012. Since 2016 he has served as the Dean of the Academy where he also lectures on risk management and marine aids to navigation operations and governance.

Omar has a degree in telecommunications as well as an Executive MBA degree as Master in Management of Technology and Innovation from the Technical University of Denmark. He is a visiting professor at Jimei University in Xiamen, China.

Keynote Speaker #3

Prof. Ari Purbayanto, Ph.D.

Director of the Executive Board, National Accreditation Board for Higher Education (BAN PT)

Ari Purbayanto was born in Lampung, Sumatra, Indonesia on January 21, 1966. He completed his elementary education in Seputih Raman, Lampung until grade 4, then moved to Central Sulawesi where he completed his middle and high school education.

He pursued higher education in marine fisheries at the Faculty of Fisheries, IPB University, graduating in 1989. After completing his undergraduate program, he was appointed as a young lecturer at the Faculty of Fisheries, IPB University in 1990. He later received a Monbusho scholarship from the Japanese Ministry of Education to continue his Master's and Doctoral studies in Marine Science and Technology at Tokyo University of Fisheries, Japan from 1994 to 2000.

Upon returning from Japan, he actively engaged in teaching, research, and community service. He received funding from various national and international research grants, such as the Japan Science and Technology (JST), JSPS Core University Program in Fisheries Science, grants from the Indonesian Ministry of Research and Technology, Food and Agricultural Organization (FAO), Lemelson Foundation USA, and more. From these research activities, more than 100 scientific publications have been published in national and international journals, with 730 citations indexed on Google Scholar.

In 2005, he invented a machine for separating fish meat and bones, which has been implemented through community service activities. He was awarded a professorship in the field of fishing technology from IPB University in June 2007, at a relatively young age.

Key Roles in Higher Education Management and Professional Organizations:

- Head of the Marine Fisheries Technology Study Program, Graduate School of IPB University (2010-2011)
- Coordinator of Government and Corporate Cooperation, Faculty of Fisheries and Marine Sciences, IPB University (2007-2011)
- Expert in Fisheries and Marine Affairs in several consulting firms (2004-2012)
- Secretary of the Senate of Faculty of Fisheries and Marine Sciences, IPB University (2006-2010)
- Secretary of the Strategic Commission, Academic Senate, IPB University (2008-2012)
- Assessor of the National Accreditation Board for Higher Education (2008-2021)
- Secretary at the Joint Secretariat of 7 Universities of Legal Entities (PTN-BH) (2009-2012)
- Secretary to the Board of Professors of IPB University (2012-2014)
- Educational and Cultural Attaché of the Indonesian Embassy in Kuala Lumpur, Malaysia (2014-2019)
- Director of the Executive Board, National Accreditation Board for Higher Education (2021-2026)
- Vice President (ex-officio), ASEAN Quality Assurance Network (2020-present)
- General Chairperson of the Indonesian Professors Association (2020-2024)
- Member of the Indonesian Academy of Sciences in the field of engineering (2020-present)

Keynote Speaker #4

Dr. Ahmad Faizal Ahmad Fuad

Senior Lecturer at Universiti of Malaysia Terengganu

Dr. Ahmad Faizal Ahmad Fuad is a dedicated maritime safety professional from Perak, Malaysia, currently serving as a Senior Lecturer at the Faculty of Maritime Studies, Universiti Malaysia Terengganu (UMT). He also leads the Department of Uniform Bodies, Co-curricular Centre at UMT, which includes the army, navy, coast guard, police, and civil defence units. With over 20 years of experience, his primary focus is on enhancing standards in navigation safety and maritime security.

Dr. Ahmad Faizal earned his PhD in Mechanical Engineering, specializing in maritime safety, from Universiti Teknologi Malaysia, and a Master's in Maritime Safety and Environmental Administration from the World Maritime University. His career began as a Metocean Data Analyst, where he installed automatic metocean stations and analysed data for ports and oil and gas companies. He later worked as a Marine Officer at the Marine Department Malaysia, gaining practical experience in marine aids to navigation and hydrography. His passion for the field led to the publication of a book on Marine Aids to Navigation in Malaysia.

He has contributed to nearly 60 research articles, with 40 indexed in SCOPUS, and has supervised Master's and PhD students in their academic journeys. In addition, he occasionally works as a Marine Risk Consultant. Dr. Ahmad Faizal is also a member of the Malaysia Board of Technologist.

Keynote Speaker #5

Dr. Captain Manivannan Subramaniam

Chief Executive Akademi Laut Malaysia

Adj. Professor Ts. Dr. Capt. Manivannan Subramaniam is a seasoned maritime professional who began his career as a Deck Cadet onboard Malaysia's MISC Berhad pioneer LNG fleet. After extensive experience at sea and obtaining his, Master Mariner - Class 1 (Unlimited) Certificate of Competency (COC), Ts. Dr. Capt. Manivannan transitioned into education, where he began as a practical/field and simulators instructor and lecturer at the Akademi Laut Malaysia (ALAM), nurturing the next generation of maritime professionals.

During his tenure at ALAM, Ts. Dr. Capt. Manivannan pursued further his academic, earning a MSc. In Emergency Response and Planning, from University Putra Malaysia (UPM) and a PhD in Mechanical Engineering, from Universiti Teknologi Malaysia (UTM), solidifying his expertise in both practical and academic maritime fields. Subsequently he worked on/successfully delivered few LNG related world first projects, including LNG e-Learning, LNG Simulator Course (for IMO) and PETRONAS PFLNG. Over the years he has also led more than 100 maritime industry related applied research work.

His contributions to maritime education and research works were recognized internationally, and in 2021, he was appointed as an Adjunct Professor by the American Digital University (ADU), Inc., USA, further enhancing his reputation as a global leader in maritime studies. Recently he has co-authored 6 LNG related technical books, of which 5 are world first, related to LNG FSU Technical Competencies.

Keynote Speaker #6

Dr. Robby Kurniawan, S.STP., M.Si.

Head of Policy on Transportation Agency

Dr. Robby Kurniawan, S.STP., M.Si. is a seasoned expert in public administration and logistics, currently serving as the Head of Transportation Policy Agency, Ministry of Transportation. Born in Palembang on June 29, 1979, Dr. Robby has built an extensive career in various strategic roles within regional and provincial government bodies, demonstrating his expertise in policy development, human resources, and public relations.

Prior to his current position, he held the role of Head of Planning Bureau from 2019 to 2022, and led the Human Resources Development Center for Transportation Apparatus from 2018 to 2019, showcasing his capability in organizational planning and workforce management. His experience also includes serving as the Secretary of the PALI Regency (2017-2018), as well as providing strategic advice as Expert Staff to the Regent for Community Education and Human Resources (2016-2017). His leadership skills were further highlighted when he served as the Acting Regent of South OKU (2015-2016).

Dr. Robby's earlier career was rooted in protocol and public relations, where he managed various administrative functions as Head of General Affairs and Equipment Bureau at the South Sumatra Provincial Secretariat (2012-2015), and held multiple key positions in the Public Relations and Protocol Bureau, including Acting Head (2011-2012) and Head of Protocol Section (2011-2012). His diverse background in government and public service reflects his commitment to enhancing the effectiveness of public administration in Indonesia.

Session Chairs

Dr. Rafeah Legino

Universiti Teknologi MARA, Malaysia

Rafeah Legino is an Associate Professor at the Fine Art Department of the Universiti Teknologi MARA Shah Alam in Selangor, Malaysia's College of Creative Arts. She is also the Coordinator of Logistics and Transportation, facilitating prospective collaborations between UiTM and its many potential partners.

She enthusiastically anticipates fine art logistics within the existing state of the art and has identified knowledge gaps for future research in this emerging field to increase its influence. Rafeah creates artwork utilizing primarily printmaking techniques such as collagraph, monoprints, and other innovative technological approaches.

She received a Bachelor of Fine Art and a Master of Art & Design from the Faculty of Art & Design, UiTM, Malaysia. For her research project, she earned a PhD in Fine Art—Visual Art and Culture Management—from the School of Art at RMIT University in Melbourne, Australia.

Her key areas of interest include Malaysian and Asian Visual Arts, crafts, visual art heritage, and potential transdisciplinary practice-based or artistic research. She is currently a Visiting Professor at Universitas Andalas (UNAND) in Padang, Indonesia.

Mrs. Ala Zuheir Keblawi

Universiti Sains Malaysia

Eng. Ala Zuhair Keblawi from Palestine. She got Bac. Of Civil Engineering in 2004 and Master in Urban and Rural Planning Engineering in 2017, she is now Ph.D student at USM in Civil Engineering school, Roads and Transportation field, and specialize in sustainable transportation index for unstable regions. Ala works now as Director of Projects and studies at Palestine Technical University-Kadoorie in Palestine, and she was Traffic Safety engineer Director at ministry of Transportation from 2004-2022.

Session Chairs

Dr. Emi Normalina Binti Omar

Universiti Teknologi MARA, Malaysia

Dr. Emi Normalina Omar, an esteemed figure in the Faculty of Business and Management at UiTM, Malaysia, embarked on her academic journey with a degree in professional studies from The Chartered Institute of Logistics and Transport at UiTM. Her foray into the logistics industry preceded a transformative experience pursuing an MSc in International Logistics at the University of Plymouth (UK).

Upon securing her master's accolade, Emi seamlessly transitioned into academia, joining UiTM as a lecturer. Presently a senior lecturer in the Centre for Technology and Supply Chain Management Studies, she specializes not only in the intricate domain of halal supply chain management for her Ph.D. thesis but also in humanitarian logistics, sustainable supply chain, and trade facilitation.

Emi's influence extends beyond the classroom; she actively collaborates with institutions like JAKIM, MITRANS, and IHALALMAS, contributing to programs on transport, logistics, and halal supply chain. Her prolific research, evidenced by numerous publications, explores the nuances of these multifaceted areas.

Recognized for her contributions, Emi has secured grants, notably for projects like Developing the Halalan Tayyiban Supply Chain Framework and the Roadmap of Halal Logistics in the Food Industry. As an appointed trainer for the Halal Executive Training Programme, she imparts her expertise to diverse students, enriching their understanding of halal practices and the broader realms of humanitarian logistics, sustainable supply chain, and trade facilitation in the professional arena.

Mr. Taha Hatcha

HafenCity University, Hamburg, Germany

Taha Hatcha is a researcher at HafenCity University, his doctoral research is about innovative and smart mobility and mobility as a Service. He worked as a Tech-Engineering Specialist in Digital Transformation, focusing on Smart City Solutions, Digital Twins, BIM, GIS, and Intelligent Transportation Systems. Taha is a polyglot, speaks 6 languages, and has several work experiences with IBM Africa, Google Developers Group, City Science Lab in cooperation with MIT, and many industry leaders and scientific research institutions in Europe, Africa, and the Middle East.

Session Chairs

Prof. Danielle M. De Guzman

National University-Manila, Philippines

Danielle M. De Guzman acquired her master's degree in Public Administration from Pontifical and Royal University of Santo Tomas in 2011. She had earned her Bachelor of Arts in Mass communication from San Sebastian College-Recoletos Manila in 2005. She is currently pursuing her PhD in Development Administration major in Public Governance at Philippine Christian University- Manila.
A licensed Professional Teacher and a former Senior High School National Trainer from Department of Education through Private Education Assistance Committee (PEAC) in 2017 to 2019. She used to teach in prestigious University just like Far Easter University, Lyceum of the Philippines University and Philippine Women's University, handling Social Sciences subjects and a consistent Top Faculty Performer. At present she is a regular full-time faculty in Communication Arts Department of National University Manila and an Adviser of the student organization The Comm.pendium.

Prof. Khaled Al-Sahili

An-Najah National University, Palestine

Dr. Al-Sahili has a doctorate degree of civil engineering from Michigan State University, USA, with a specialization in transportation/traffic engineering and planning. Dr. Al-Sahili is an associate professor at An-Najah National University in Nablus, Palestine. Dr. Al-Sahili has extensive experience in the area of road designs and planning for various size projects, transportation/traffic engineering and planning including public transportation, traffic impact analysis, traffic safety, environmental impacts, and strategic development planning. He managed and conducted several projects and research in these fields, and conducted training programs. Dr. Al-Sahili has 30 years of professional experience, teaching, and research. He also published several articles and papers in professional journals and conferences. He received several awards for his work in research, teaching, and professional activities. Dr. Al-Sahili worked on projects in the USA, South America, Jordan, Saudi Arabia, Iraq, Libya, Lebanon, and Palestine. He also worked with several international companies and agencies. He is a member of several international professional organizations. He is fluent in English and Arabic languages. Dr. Al-Sahili is a registered professional engineer in the State of Florida.

Closing Speech

Assalamualaikum Wr. Wb.
Shaloom
Om Swasti Astu
Nammu Budayya
Greetings To Virtue
Honored Guests,

Distinguished guests, esteemed colleagues, ladies and gentlemen.

I would like to extend my deepest gratitude for the outstanding participation and contributions from all parties during this STIP Jakarta International Conference. Our conference, themed "**Sustainability and Digital Advancement in Transportation**", has been a resounding success, thanks to the enthusiasm and commitment of everyone involved.

Throughout this day, we have explored six critical topics that shape the future of global transportation. Green Technology and Environmental Considerations expanded our understanding of how eco-friendly technologies can accelerate our efforts in preserving the environment. We also witnessed remarkable innovations in Development in Navigational and Engineering Technology, promising greater efficiency and safety in transportation.

Furthermore, the discussions on Safety, Health, and Risk Management emphasized the importance of prioritizing human safety in all forms of transportation, especially in this digital era. We also tackled the significant challenges surrounding Energy and Emissions and explored ways to introduce more sustainable solutions for the future.

The human aspect was addressed in our session on The Human Element in Transportation, which underscored the importance of cultivating adaptable and skilled human resources to navigate the era of automation and digitalization. Lastly, the remarkable breakthroughs in Innovation in Transportation Education and Training demonstrated how we can shape the next generation of transport professionals, equipped to drive transformative change.

I sincerely hope that the knowledge gained from this one-day conference will not only have a positive impact in academic and research fields but also be practically applied in the transportation industry and policymaking.

As we conclude this conference, I wish to express my hope that the collaboration, innovation, and spirit we have fostered here will continue beyond today. Let us carry this momentum forward in our collective journey toward a future of more sustainable, safer, and technologically advanced transportation.

Thank you all for your presence and participation. I look forward to seeing you again at future events.

Safe travels and may we all continue to thrive in our efforts to advance the world of transportation.

In the name of Allah, the Most Gracious, the Most Merciful, I hereby declare the STIP Jakarta International Conference 2024 officially closed.

Wa'alaikumussalam warahmatullahi wabarakatuh
Shalom, Om shanti shanti shanti om.
Sincerely,

Dr. Ir. Ahmad, M.MTr.

Head of Sea Transportation Human Resource Development Center

Dr. Ir. Ahmad, M.MTr, QIA, Cfr.A serves Head of Sea Transportation Human Resource Development Center. Previously, he served as Director of Balai Besar Pendidikan Penyegaran dan Peningkatan Ilmu Pelayaran, Jakarta, Director of the Sea and Coast Guard Unit, Head of the Center for Sustainable Transportation Management, Head of the Center for Research and Development of Maritime Transportation and ASDP, and others.

He has received formal undergraduate education from the Adhi Tama Institute of Technology Surabaya, a master's degree from Veteran University, and a doctoral degree from Trisaksi University. He is active in various meetings at both national and international forums, including Head of Delegation Indonesia Marine Pollution Maritime, Head of Delegation Indonesia Marine Pollution Exercise (MARPOLEX), Chair of the delegation of Indonesia – Australia Transport Security Forum, Head of Delegation Indonesia Port State Control Committee (PSCC31) Tokyo MOU. Apart from that, he is also active as a resource person in national and international seminars, including the International Ship Port Security Code Seminar (ISPS CODE) and The International Academic Symposium of Social Science 2022 (IASSC 2022).

INTERNATIONAL CONFERENCE

"SUSTAINABILITY AND DIGITAL ADVANCEMENT IN TRANSPORTATION"

MARITIME INSTITUTE OF JAKARTA

Rundown

Thursday, November 7th, 2024

Time	Agenda
07.30 – 08.30	Registration
08.30 – 08.45	Opening Ceremony 1. Safety Induction 2. Singing the National Anthem Indonesia Raya 3. Singing mars of transportation 4. Cultural and dance performances 5. Introducing MC to the stage
08.45 – 08.50	Opening and Remarks by MC
08.50 – 09.10	Welcoming Speech by Principal of STIP
09.10 – 09.20	Opening Speech by Head of Human Resources Development Agency on Transportation
09.20 – 09.25	Summoning the officials of Ministry of Transportation to carry out a symbolic opening on stage
09.25 – 09.35	Coffee Break
09.35 – 09.50	Keynote 1 Dr. Capt. Antoni Arif Priadi, M.Sc. (Director General of Sea Transportation)
09.50 – 10.05	Keynote 2 Prof. Dr. Ir. Ari Purbayanto, M.Sc. (Director Executive Board of National Accreditation Agency for Higher Education)
10.05 – 10.20	Keynote 3 Dr. Robby Kurniawan, S.STP., M.Si. (Head of Policy on Transportation Agency)
10.20 – 10.35	Question and Answer Session
10.35 – 10.45	Arumba Performance
10.45 – 11.00	Keynote 4 Omar Frits Eriksson Dean of the IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) World-Wide Academy
11.00 – 11.15	Keynote 5 Prof. Dr. Ahmad Faizal Ahmad Fuad Senior Lecturer at Universiti of Malaysia Terengganu
11.15 – 11.30	Keynote 6 Dr. Captain Manivannan Subramaniam Chief Executive Akademi Laut Malaysia
11.30 – 11.45	Question and Answer Session
11.45 – 11.55	Explanatory Announcement of Parallel Session

Time	Agenda
11.55 – 13.00	Lunch Break
13.00 – 16.00	Parallel Session (Oral online & offline Presentation) Each session consists of 6 groups/rooms according to the scope: 1. Green Technology and Environmental Consideration 2. Development in Navigational and Engineering Technology 3. Safety, Health, and Risk Management 4. Energy and Emission 5. Human Element in Transportation 6. Innovation in Transportation Education
16.00 – 16.30	Coffee Break
16.30 – 17.00	Award and Closing Ceremony 1. Remarks by MC 2. Announcement of best paper 3. Symbolic handing over of the conference certificate 4. Closing Speech by Head of Sea Transportation Human Resource Development Centre 5. Photo session

INTERNATIONAL CONFERENCE
"SUSTAINABILITY AND DIGITAL ADVANCEMENT IN TRANSPORTATION"
MARITIME INSTITUTE OF JAKARTA
Thursday, November 7th, 2024

Parallel Session Schedule

Room : KB 201

Session : Green Technology and Environmental Considerations

Session Chair : Prof. Khaled Al Sahili

Vice Chair : Dr. Marudut Bernardtua

Time	Speaker	Affiliation	Title
13.00 - 13.10	Muhammad David	Politeknik Pelayaran Malahayati	Resilience Analysis of Lake Lot Tawar Coastal Communities to Changes in the Maritime Environment: A Case Study in Aceh Tengah
13.10 - 13.20	Muhamad Fahmi Amrillah	Politeknik Transportasi Sungai, Danau dan Penyeberangan Palembang	Battery Management System (BMS) Design for Overcoming Drop Voltage On Solar-Powered Training Ship Batteries
13.20 - 13.30	Bagas Manggala	Politeknik Perkeretaapian Indonesia	Innovation In Renewable Energy Systems: the Use of Piezoelectric Sensors on Railway Tracks for Harvesting Vibration Energy
13.40 - 13.50	Shofa Dai Robbi, Monika Retno Gunarti, Prima Yudha Yudianto	Politeknik Pelayaran Surabaya	Analysis of the Utilization of Shore Side Electricity in Reducing Exhaust Gas Emissions on Masalembo State Ships
13.50 - 14.00	Arief Hidayat, A.Chalid Pasyah, Bhima Siswo Putro	Maritime Institute of Jakarta, Indonesia	Exploring the Interplay Between Green Campus Policies and the Educational Environment: A Sociology of Education Perspective.
14.00 - 14.10	Faizal	ITS Surabaya	A Community Leadership Model to Support the Sustainable Development of Ports: A Literature Review
14.10 - 14.20	Dedi Kurniawan	Politeknik Pelayaran Malahayati	Optimization of Offshore Wind Potential in Gampong Durung Merchant Marine of

			Malahayati Polytechnic for Electricity in Aceh Besar
14.20 - 14.30	Miftakhul Hadi	Ministry of Transportation	Retrofitting Ferries to Eco-Friendly Hybrid Electric and Hydrogen Systems for Inter-Island Ferries in Order to Achieve Zero Emissions in Indonesia
14.30 - 14.40	Ihrof Muzarodin, Dedi Kurniawan, Muhammad Aziz, Salfauqi Nurman	Politeknik Pelayaran Malahayati	Utilization of Hybrid Technology of Solar Energy and Ocean Waves for Irrigation Systems in the Coastal Area of Ujong Batee, Aceh Besar
14.40 - 14.50	Winarno	Maritime Institute of Jakarta, Indonesia	Rejuvenation of State Ships to Drive Decarbonization of the Shipping Sector
14.50 - 15.00	M. Andhika Rezki Utomo. S, Joe Ronald Kurniawan Bokau, Putu Peby Pratama	Politeknik Pelayaran Barombong	The Strategic Impact in Relocation of Indonesian Capital City Related to the Development of Human Resource in Maritime Sector and Quality of Maritime Education and Training
15.00 - 15.10	Faiz Anggito, Capt. Tri	Maritime Institute of Jakarta, Indonesia	Utilization of The Regasification Process to Avoid Delays in Cargo Operation Due to High Pressure on Tanks on PGN FSRU Lampung Ships
15.10 - 15.20	Susi Herawati, Rosna Yuherlina Siahaan, Denny Fitrial, Fadel Muhammad Rizki, George Lucky	Maritime Institute of Jakarta, Indonesia	Enhancing Maritime Management Practices, An Evaluation of Effectiveness and Sustainability
15.20 - 15.30	Naomi Louhenapessy, Rosna Yuherlina Siahaan, Panderaja Soritua Sijabat, Yoseph Siahaan, Harika Lucia Agnes Matondang	Maritime Institute of Jakarta, Indonesia	Advancing Sustainability, Digital Transformation, and Risk Management in Maritime Management
15.30 - 15.40	Andi Aulia Arikha Setyo, Dedy Kurniadi	Politeknik Pelayaran Malahayati	Assessing the Economic and Environmental Impact of Biofouling Management on Ships Using Remotely Operated Vehicles (ROV): A Case Study in Indonesia

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Parallel Session Schedule

Room : KB 202

Session : Development in Navigational and Engineering Technology

Session Chair : Dr. Taha Hatcha

Vice Chair : Dr. Markus Yando, M.MTr.

Time	Speaker	Affiliation	Title
13.00 - 13.10	Achmad Bashori, Selvi	Maritime Institute of Jakarta, Indonesia	The Impact of Cargo Volume and Ship Type on Maritime Service Efficiency: A Case Study of PT Buana Lintas Lautan Tbk, Indonesia Cargo Volume and Ship Type in Indonesia
13.10 - 13.20	Winarno	Maritime Institute of Jakarta, Indonesia	The Evaluation of Multimode Transport Within the Maritime Transportation Industry
13.20 - 13.30	Winarno, Riyanto, Wiratno	Maritime Institute of Jakarta, Indonesia	Evaluation on the Pioneer Vessel Procurement from 2015 to 2019
13.40 - 13.50	Arleiny A., M. Paulina Latuheru, Moejiono, M.T., M.Mar. E, Renta Novaliana Siahaan, S.SiT, M.A, Dr. Capt. Damoyanto Purba., M.Pd., M.Mar, Estri setyoati	Politeknik Pelayaran Surabaya	Identification of Load Management System on KM Bung Tomo as Passanger Ship R-16
13.50 - 14.00	Setyawan Ajie Sukarno, Suharyadi Pancono, Ibnu Rahman	Politeknik Manufaktur Bandung	Enhancing Autonomous Marine Observation in Indonesia: A Web-Based Monitoring System Using Multiple Sensors for Sea Autonomous Observer (SEANO)
14.00 - 14.10	Mathys Paul, Muhammad Rijal Firdaus, Muhammad Ariq Azmi	Université Polytechnique Hauts de France	Development of a Wave Energy Generator to Support Sustainable Unmanned

			Vessel Operations for Ocean Observation
14.10 - 14.20	I Kadek Laju, Dedi Kurniawan, Muhammad Aziz, Salfauqi Nurman	Politeknik Pelayaran Malahayati	Analysis of Harmonic Distortion on the Electrical Energy System in the Malahayati Training Ship Aceh
14.20 - 14.30	Meilinasari Nurhasanah Hutagaol, Renta Novaliana Siahaan, Rizki Adi Pratama	Maritime Institute of Jakarta, Indonesia	The Application Of Digital Twins As A Solution To Prevent And Detect Cargo Loss On Ships
14.30 - 14.40	Aleik Nurwahyudy	National Transportation Safety Committee	Domestic Roro Ferry Safety Performance Level Monitoring Based On Risk Assessment Model Using IoT: An Conceptual Approach
14.40 - 14.50	Amalia Sugiarto	Universitas Singaperbangsa Karawang	Efficiency of Drone LIDAR Utilization for Road Damage Condition Monitoring
14.50 - 15.00	Abdul Rachman, Ariyanto	Maritime Institute of Jakarta, Indonesia	The Effect of High Sedimentation Levels and Navigation Aids on Ship Maneuverability and its Implications on Ship Grounding Accidents at Tanjung Priok Port, Jakarta
15.00 - 15.10	William Justisyo, La Ode Arjuna, Tri Kismantoro	Maritime Institute of Jakarta, Indonesia	Analysis of The Impact of Navigation Tool Use Under Restricted Visibility Conditions on MV. Kharis Heritage
15.10 - 15.20	Hendi Purnata	Yogyakarta State of University	Simulation and Challenges of ROV Implementation as Green Technology for Hull Cleaning in Maritime Sector
15.20 - 15.30	Sofyan Putra, Edi Kurniawan, Diana Alia, Henna Nurdiansari	Politeknik Pelayaran Surabaya	Literature Review Of Particle Swarm Optimization

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Parallel Session Schedule

Room : 301A

Session : Safety, Health, and Risk Management

Session Chair : Assoc. Prof. Dr Rafeah Legino

Vice Chair : Dr. Bambang Sumali, M.Sc.

Time	Speaker	Affiliation	Title
13.00 - 13.10	Joe Ronald Kurniawan Bokau	National Korea Maritime and Ocean University	Preliminary studies of Indonesian Inland Waterways & the Urge of Specialized Training; Case Study of Towing Vessels & Barge Collisions with Bridges
13.10 - 13.20	Syahrul Ramadhan Muhammad	Seafarer	Cargo Handling Method Due to Temperature Decrease in Para-Xylene Cargo During Winter on the MT WOO DONG
13.20 - 13.30	Dina Kristina Tanjung, Aleik Nurwahyudy	Universitas Kristen Indonesia	Comprehensive Studies on Hydrocarbon Transport in Bulk Emergency Preparedness in Perspective of Statutory Requirement and Industrial Guidelines
13.40 - 13.50	Nunik Sulistiyawati	ITS Surabaya	The Risk Management of Utilizing Expired and Failed Ammunition and Explosives in Storage Depots: A Multi-Criteria Risk Assessment Approach
13.50 - 14.00	Ahmad Subagja	Maritime Institute of Jakarta, Indonesia	Efforts to Minimize the Occurrence of High Pressure to Support the LPG Mix Loading Process on MT.GAS MALUKU
14.00 - 14.10	Budi Santoso, Nazilul Hamidi, Ronald Simanjuntak, Febriyansyah, Derma	Maritime Institute of Jakarta, Indonesia	The Implementation of the International Ship and Port Facilitysecurity (LSPS) Code in Indonesia

	Watty Sihombing, Nurindah Dwiyani		
14.10 - 14.20	Brian Muktiaji Alfata, Rafid Faujan Fajri, Sajim Budi Setiawan	Maritime Institute of Jakarta, Indonesia	Leakage Analysis on Emergency Shutdown Valve to Improve Security and Safety During Loading and Unloading at MT. Gas Marella
14.20 - 14.30	Yuni Mariah, Simson Katiandagho, Amalil Azis	Akademi Maritim Djadajat Jakarta	Analysis of Moisture Content in Solid Bulk Loads of Nickel Ore Which Are at Risk of Liquification Thus Disturbing the Stability of the Ship
14.30 - 14.40	Inayatur Robbany, Niken Sitalaksmi Widjaja, Achmad Bashori	Maritime Institute of Jakarta, Indonesia	Determinants of Commitment to Safety: an Evaluation and Measurement Commitment to Safety for Indonesian Seafarer
14.40 - 14.50	Yuni Mariah, Muhammad Naim	Akademi Maritim Djadajat Jakarta	Maintaining the Quality of Using Steam Boottle Waterboiler Water Treatment (BWT) Under Efforts Prevent Corrosion so the Bootter Pipe is Not Damaged on A Passenger Ship
14.50 - 15.00	I Gusti Agung Ayu Mas Oka, Fitri Masito, Retno Sawitri Wulandari, Sudarwan Danim	Politeknik Penerbangan Palembang	Evaluation of Ramp Safety Awareness Training
15.00 - 15.10	Jerry matias sinaga, Meilinasari N.H., M.Nurdin	Maritime Institute of Jakarta, Indonesia	Optimization of Hoisting and Luffing Wire Crane Maintenance as a Main Support for the Loading and Discharging Process of MV. PAN DAISY
15.10 - 15.20	George Stevano Sidharta, Meilinasari N.H., William Natanael Ratno	Maritime Institute of Jakarta, Indonesia	Analysis of The Gas Free Process on VLPGC Clipper
15.20 - 15.30	Hafid Putra Perdana, Chanra Purnama, Hotma Adam Farrell	Maritime Institute of Jakarta, Indonesia	Hydraulic Pipe Maintenance to Optimize Loading and Unloading Processes on MT. Scarlet Melinda
15.30 - 15.40	Romanda Annas Amrullah, Faris Nofandi, Agus Dwi Santoso, Arleiny, Saipul Imam Subakti, Rizki Adi Pratama	Politeknik Pelayaran Surabaya	Transportation Efficiency Based on Empowerment of Private And Government Businesses With The Concept Of Collaboration

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Parallel Session Schedule

Room : 301B

Session : Energy and Emissions

Session Chair : Prof. Danielle M De Guzman

Vice Chair : Dr. Abdul Rachman, M.MTr.

Time	Speaker	Affiliation	Title
13.00 - 13.10	Winarno, Tri Cahyadi, Retno Sawitri Wulandari	Maritime Institute of Jakarta, Indonesia	Analytical Hierarchy Process (AHP) Analysis on Pioneer Vessels Utilization
13.10 - 13.20	Ronald Simanjuntak, Mauritz H. Sibarani, Pargaulan Dwikora S., Vidya Selasdini, Derma Watty Sihombing, Nazilul Hamidi	Maritime Institute of Jakarta, Indonesia	Monitoring of fuel consumption with the Energy Efficiency Operational Indicator (EEOI) on LNG tankers
13.20 - 13.30	Wiliyanus Kasing Mawo, Meilinasari Nurhasanah Hutagaol	Maritime Institute of Jakarta, Indonesia	Optimization of Cargo Loading Process to Prevent Delay in Delivery of Liquefied Natural Gas (LNG) on LNG/C Ekaputra 1
13.40 - 13.50	"Mutiara Adella, Danawiryya Silaksanti, Dina Kartika,	Center for Sustainable Transportation Management	Energy Efficiency and Greenhouse Gas Emission Reduction from the Shift of Private Vehicles to Mass Transportation Operated by Transjakarta
13.50 - 14.00	Prillya Agusti, Dyah Ratna Pandu Pertiwi	Maritime Institute of Jakarta, Indonesia	Enhancing Maritime Education: Collaborations for Sustainability and Green Technology
14.00 - 14.10	junaidi Junaidi, Siska Yoniessa, Achmad Bashori, Cempaka Cempaka, Sulthan Saladin Syah Koswara	Maritime Institute of Jakarta, Indonesia	Enhancing Environmental Literacy in Maritime Education: A Study on Sustainable Practices

14.10 - 14.20	Markus Yando, Irene Evi, Yayu Nopriani Martha, Frandio Julius Hutajulu, I Gusti Bagus Ivan Fernanda Santika	Maritime Institute of Jakarta, Indonesia	Enhancing Maritime Education: Collaborations for Sustainability and Green Technology
14.20 - 14.30	Regita Febriani Herwibowo, Mudakir Mudakir, Fahmi Umasangadji, Irene Evi Krismawati, Chinua Orion Pangaribuan	Maritime Institute of Jakarta, Indonesia	Innovation in Maritime Environmental Education: Integration into English Curriculum in Vocational Maritime Institutes in Indonesia
14.30 - 14.40	Brenhard Mangatur Tampubolon, Chanra Purnama, Titis Ari Wibowo, M.Akhtar Al Gifari, Nenditya Putri Nabilah	Maritime Institute of Jakarta, Indonesia	Innovative Teaching Methods for Environmental Awareness in Maritime Education: A Qualitative Analysis of Applied Practices
14.40 - 14.50	Jaya Alamsyah, Asman Ala Author, Kamarul Hidayat, Hafiz Renjiro Bujang Muhammad, Bagas Arbimo Pratama	Maritime Institute of Jakarta, Indonesia	Enhancing Maritime Environmental Education through Green Technologies and Stakeholder Engagement
14.50 - 15.00	Riyanto Riyanto, Larsen Barasa, Susi Herawati, Muhammad Zavier Rafiandi, Rossi Kadarmawan	Maritime Institute of Jakarta, Indonesia	Enhancing Sustainability in Maritime Education: Collaborations Between Institutions and Industry
15.00 - 15.10	Marihot Simanjuntak, Damayanto Purba, April Gunawan Malau, Alif Fikri Hetfield Arianto, Asandy Pradana Siboro	Maritime Institute of Jakarta, Indonesia	Acceptance of The Use of Google Form and Google Drive in The Thesis Guidance of STIP Marunda Cadets. Investigation of The Use of UTAUT2 Model
15.10 - 15.20	Nazilul Hamidi, Rosna Yuherlina, Tri Kismantoro, Boedojo Wiwoho, Fahmi Fahmi, febriyansyah	Maritime Institute of Jakarta, Indonesia	Students' Understanding of Electronic Laboratory at STIP
15.20 - 15.30	Retno Sawitri Wulandari, Diah Zakiah, Evita Ratna Wati	Politeknik Penerbangan Palembang	Optimizing Scopus AI to Enhance English for Specific Purposes (ESP) Learning

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Parallel Session Schedule

Room : 301C

Session : Human Element in Transportation

Session Chair : Mrs. Dr. Ala Zuheir Keblawi

Vice Chair : Dr. Retno Wulandari, M.MTr.

Time	Speaker	Affiliation	Title
13.00 - 13.10	A. Chalid Pasyah,Tri Cahyadi, Vidya Selasdini	Maritime Institute of Jakarta, Indonesia	A Sociolinguistic Analysis of Globalization on Gendered Language in Maritime Communication
13.10 - 13.20	Sari Kusumaningrum, A. Chalid Pasyah, Nur Patria Pujitama	Maritime Institute of Jakarta, Indonesia	The Impact of Gender Stereotypes on English Communication in the Maritime Industry: A Case Study of Seafarer Training Programs
13.20 - 13.30	Yasmine Cindy Hendri, Nazilul, Febriansyah, Alfisa Damayanti, Aldi, Yozar Firdaus Amrullah	Maritime Institute of Jakarta, Indonesia	The Challenges of Officers Crew at PT. Arjuna Samudera Indonesia
13.40 - 13.50	Aliya Izet Begovic Yahya, Putri Eva Mayangsari, Capt. Suhartini	Maritime Institute of Jakarta, Indonesia	Human Element Analysis in Maritime Accidents: Insights from Seafarer Agency Practices: A Case Study AAt PT. Tivas Marin Service
13.50 - 14.00	Aleik Nurwahyudy, Dina Kristina Tanjung	National Transportation Safety Committee	Comparative Analysis on SIRE 2.0 Readiness Focusing on Human Factors with Current State of Ship Management under Industrial Guidelines
14.00 - 14.10	Tahar Taharuddin	Politeknik Ilmu Pelayaran Makassar	The Role of Human Resources in Marine Transportation Safety and Security Literature Review
14.10 - 14.20	Tristanti, Capt. Suhartini, Meilinasari Nurhasanah Hutagaol	Maritime Institute of Jakarta, Indonesia	The Factors of Seafarer’s Loyalty: Perspectives of Cadets

14.20 - 14.30	Nazilul Hamidi, Achmad Bashori, Tri Kismantoro, baihaqi hadi, Putryanka Septianingsih, Nabiel Muhammad	Maritime Institute of Jakarta, Indonesia	The Impact of Muslim Seafarers' Religious Practices on End-User Acceptance in Global Shipping
14.30 - 14.40	I Gusti Agung Ayu Mas Oka, Retno Sawitri Wulandari, Fitri Masito	Maritime Institute of Jakarta, Indonesia	Swarm Leadership Development and Decision Making Using a Simple Additive Weighting Approach
14.40 - 14.50	Tsaubiyah Khairun Nisa Ali	Politeknik Pelayaran Surabaya	Navigation Lamp Detection to Avoid Collision for Unmanned Surface Vehicle (USV)
14.50 - 15.00	Diah Zakiah, Ichwanul Yamin, Junaidi	Maritime Institute of Jakarta, Indonesia	Flow Sensor Designing for Flow Monitoring at Sludge Pump

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PARALLEL SESSION SCHEDULE

Room : 301D

Session : Innovation in Transportation Education and Training

Session Chair : Dr. Emi Normalina Omar

Vice Chair : Dr. Nancy Lumban Batu, M.Hum.

Time	Speaker	Affiliation	Title
13.00 - 13.10	Kundori	Universitas Maritim AMNI	Enhancing Indonesia's Supply Chain Competitiveness: Analysis of Key Horizontal Issues and Policy Recommendations in the Digital Transformation Era
13.10 - 13.20	Ronald Simanjuntak, Pargaulan Dwikora S, Markus Yando, Derma Watty Sihombing, Bhima Siswo Putro, Heru Susanto	Maritime Institute of Jakarta, Indonesia	Autonomous Ships in the Perspective of the Skills of Cadet Graduates at Maritime Institute in Indonesia
13.20 - 13.30	Aliya Izet Begovic Yahya, Capt. Suhartini, Eriza Isakul Umi	Maritime Institute of Jakarta, Indonesia	Customer Based Service Development Strategy in the Business Development Division of STIP Jakarta
13.40 - 13.50	Meilinasari Nurhasanah Hutagaol	Maritime Institute of Jakarta, Indonesia	Transforming Seafarer Training in Maritime Institutions: An Innovative Approach and Effective Collaboration
13.50 - 14.00	Muhammad David	Politeknik Pelayaran Malahayati	Pancasila Education Globalization Era and the Sustainability of National Development: Sectoral Challenges in Sailing Universities
14.00 - 14.10	Muhammad David	Politeknik Pelayaran Malahayati	Integration of Augmented Reality Technology in Transportation Education: A Potential Effort to Increase

			Student Engagement and Knowledge
14.10 - 14.20	Bimashena Aprilio Wicaksana	Indonesia Railway Polytechnic	CARTO SD : Technology Innovation in Ensuring Effectiveness of PSO Subsidy Distribution
14.20 - 14.30	Fina Rahmatika, Muhamad Zaky Albana	Maritime Institute of Jakarta, Indonesia	Improving the Quality of Port Human Resources in Supporting the Implementation of Inaportnet at Ports in Indonesia
14.30 - 14.40	Vidya Selasdini , Retno Sawitri Wulandari, A.Chalid Pasyah	Maritime Institute of Jakarta, Indonesia	Designing of An Online Application for Teaching Honoraria in Short Courses At STIP Jakarta
14.40 - 14.50	Yuniar Ayu Hafita, Ryan Puby Sumarta, Agus Sulistiono, Dodik Widarbowo	Politeknik Pelayaran Sorong	Qualitative Study of Content-Based Instruction in Maritime English Learning
14.50 - 15.00	Retno Sawitri Wulandari, Markus Yando, Meilinasari Nurhasanah Hutagaol	Maritime Institute of Jakarta, Indonesia	Development E - Modules to Improve Cadet Problem-Solving Skillsin the Ship Electrical Course (Case Study on Ship Electrical Review)
15.00 - 15.10	Alfisa Damayanti, Derma Watty Sihombing, Marihot Simanjuntak, Mudakir, Ahmad Randi Pujaintoro	Maritime Institute of Jakarta, Indonesia	Integrating Green Technologies and Digital Tools in Maritime Vocational Education for Sustainable Practices
15.10 - 15.20	Mauritz H. M. Sibarani, Mudakir Mudakir, Fahmi Umasangadji, Muhammad Rifki Samhana, Aisyah Ardasari Deanty	Maritime Institute of Jakarta, Indonesia	Navigating Sustainability: Integrating Maritime Environmental Education into the English Curriculum of Vocational Institutes
15.20 - 15.30	Titis Ari Wibowo, Rosna Yuherlina Siahaan, Suhartini Suhartini, Bagus Fatih Mubarok, Andhika Bismamulya	Maritime Institute of Jakarta, Indonesia	Integrating Green Technology into Maritime Education: A Pathway to Sustainable Development in Indonesia
15.30 - 15.40	Aditya Nugraha, Ronald Simanjuntak, Asman Ala, Siska Yoniessa, Yulia Mulyani	Maritime Institute of Jakarta, Indonesia	Integrating Green Technology and Environmental Considerations in Maritime Education: The Role of the Human Element

Scope Green Technology and Environmental Considerations

Resilience Analysis of Lake Lot Tawar Coastal Communities to Changes in the Maritime Environment: A Case Study in Aceh Tengah

Sabaruddin[1], Suherman[1], Muhammad David[1], Dita Romadhoni[1], R. Bagus Wicaksono[1], Syamsul Arifin[1]

[1]Politeknik Pelayaran Malahayati

Abstract

This research examines the challenges and opportunities in supply chain management in Indonesia, focusing on identifying Key Horizontal Issues (KHIs) and developing policy recommendations. Through analysis of primary and secondary sources, seven main KHIs were identified: standardization, regulatory framework, training and education, international agreements, incentives and funding schemes, reference bodies, and infrastructure. The research methodology involved expert consultations, workshops, and literature reviews to develop comprehensive policy recommendations. Results indicate the need for harmonization of standards and regulations, enhancement of workforce skills, supply chain-focused international agreements, incentive schemes for innovation, establishment of a national reference body, and development of infrastructure supporting future supply chains. Policy recommendations are grouped into six macro areas, encompassing regulatory, educational, international cooperation, funding, information, and infrastructure aspects. Implementation of these recommendations is expected to enhance the competitiveness and sustainability of Indonesia's supply chains in facing global challenges and digital transformation.

Keywords : Indonesian Supply Chain, Key Horizontal Issues, Policy Recommendations, Global Competitiveness, Digital Transformation.

Battery Management System (BMS) Design For Overcoming Drop Voltage On Solar-Powered Training Ship Batteries

Andri Yulianto[1], Eko Nugroho Widjatmoko[1], Antoni Arif Priadi[1], Dita Romadhoni[1], Muhamad Fahmi Amrillah[1], Dimas Pratama Yuda[1]

[1]Politeknik Transportasi Sungai, Danau dan Penyeberangan Palembang

Abstract

Solar-powered training ships are increasingly being used as an environmentally friendly alternative in maritime education. However, drop voltage problems in the battery system can reduce the efficiency and operational performance of the ship. This research aims to design and build an effective Battery Management System (BMS) to handle these problems. This BMS is equipped with sensors to monitor the voltage, current, and temperature of each battery cell in real time, as well as an energy management algorithm that ensures optimal charging and discharging. The protection system includes overvoltage and undervoltage mechanisms, as well as a balancing circuit to maintain balance between cells. Simulation testing methods and field tests are used to ensure system reliability and performance. The results of this research show that the designed BMS can significantly reduce voltage drop and increase the efficiency of energy use in solar-powered training ships. The voltage difference between battery cells when charging is the smallest at 0.46% and the highest at 1.63%. The difference between the lowest and highest values for each battery has an average difference of less than 2%. Meanwhile, when charging, the highest value of the voltage difference between each battery cell was 2.61% and the lowest was 0.67%. The difference in voltage values between the batteries is still below 3%.

Keywords : BMS, Battery Charging, Battery Discharging, Drop voltage.

Innovation In Renewable Energy Systems: The Use Of Piezoelectric Sensors On Railway Tracks For Harvesting Vibration Energy

Bagas Pandya Manggala[1], Anung Kusuma Putra[1], Firjatullah Akbar[1]

[1]Indonesian Railway Polytechnic

Abstract

The development of green energy focuses on utilizing environmentally friendly energy sources, such as solar, wind, biomass, and geothermal energy, to address climate change and resource scarcity. In this context, the use of piezoelectric technology for energy harvesting from vibrations and mechanical pressure generated by vehicles or trains shows significant potential as a sustainable energy solution. Piezoelectric technology offers a sustainable energy solution by harvesting energy from mechanical pressure and vibrations produced by vehicles. This system is effective in providing electricity for signaling and electronic equipment at level crossings, particularly in locations far from the main power grid, by utilizing the pressure or vibrations generated by vehicle weight to produce electrical voltage through the polarization changes in piezoelectric materials. This research employs a descriptive method with a quantitative, experiment-based approach. In this study, a train configuration consisting of eight carriages and one locomotive was assumed, where each carriage weighs 35 tons, and the locomotive weighs 78 tons. Based on the calculations, this train setup is capable of generating 5.549 kWh of electrical energy. If 20 train sets pass through daily, the electrical energy generated would reach 11.098 kWh per day. This energy is used to support signaling systems, lighting, and other electronic equipment around the level crossings. The implementation not only enhances sustainability by utilizing renewable energy sources but also reduces reliance on external electricity supplies. The use of piezoelectric technology offers a sustainable and environmentally friendly solution by harnessing renewable energy sources. This system is capable of reducing dependence on external electricity while simultaneously improving operational efficiency and railway safety, particularly at level crossings.

Keywords : Sustainable Energy, Railway Vibration, Piezoelectric Sensor, Level Crossing.

Exploring the Interplay Between Green Campus Policies and the Educational Environment: A Sociology of Education Perspective

Arief Hidayat [1], A.Chalid Pasyah[1], Bhima Siswo Putro[1]

[1]Maritime Institute of Jakarta

Abstract

This study explores the dynamic interplay between Green Campus policies and the educational environment through the lens of the sociology of education. As sustainability initiatives gain prominence in academic institutions, the integration of environmental awareness within the campus environment is reshaping educational practices, student experiences, and institutional priorities. This research aims to examine how Green Campus policies influence the socio-educational dynamics, including the attitudes and behaviors of students, faculty, and administrative staff. By adopting a qualitative approach, the study collects data through interviews, focus groups, and observations within selected universities that have implemented Green Campus initiatives. The analysis is guided by sociological theories of education, considering how these policies intersect with social norms, cultural practices, and power structures within the academic community. Findings reveal that Green Campus policies foster a more inclusive and environmentally conscious educational environment, enhancing collaborative learning, promoting interdisciplinary approaches, and shifting institutional cultures towards sustainability. The study highlights the transformative potential of Green Campus initiatives in aligning educational environments with broader societal goals of ecological sustainability. Implications for policy development, curriculum design, and institutional governance are discussed, offering insights for future research on the role of education in promoting sustainable development.

Keywords : Green Campus, Educational Environment, Educational Sociology, Dynamic Interplay.

Analysis of the Utilization of Shore Side Electricity in Reducing Exhaust Gas Emissions on KN Masalembo State Ships

Shofa Dai Robbi[1], Monika Retno Gunarti[1], Prima Yudha Yudianto[1], Akhmad Kasan Gupron[1]

[1]Politeknik Pelayaran Surabaya

Abstract

Marine transportation accounts for 3% of the global greenhouse gas effect. The International Maritime Organization (IMO) is committed to reducing the effects of greenhouse gases by 50% in 2050—Indonesia is a maritime country with 10.8% of the world's ship register. High traffic has an impact on increased gas emissions. The IMO has made a policy on the Ship Energy Efficiency Management Plan. IMO recommends the use of Shore Side Electricity in reducing exhaust emissions, namely the use of electricity sources from land will reduce the operation of the ship's generator when berthing. This SSE case study is on the State Ship KN Masalembo at the Tanjung Perak. Calculation of the impact of the use of SSE on the reduction of ship exhaust emissions. A descriptive quantitative method was used in this study. Based on calculations, the power requirement at a voltage of 220 Volts is 95,028 Watts and 276,210 Watts for 380 volts. Fuel consumption efficiency using a harbour generator is 78.40%, and 85.14% when using an emergency generator, compared to auxiliary motors 1-2. The impact of reducing exhaust gas emissions per year reaches 1.8 million pollutants. The use of SSE is a solution for reducing exhaust emissions in the port area. Power plants using renewable energy sources are a recommendation to supporting SSE operations.

Keywords : Power Plant, Emission.

A Community Leadership Model To Support The Sustainable Development Of Ports: A Literature Review

Faizal[1], Raja Oloan Saut Gurning[1], Sutikno[1]

[1]Institut Teknologi Sepuluh Nopember

Abstract

This literature review investigates community leadership as a distinct style of leadership essential for fostering port sustainable development. It underscores the importance of community leadership in addressing challenges and promoting long-term development. Methods: The review synthesizes findings from various academic sources that focus specifically on community leadership, exploring its characteristics, strategies, and impact on port sustainable development. Results: The findings reveal that effective community leadership plays a pivotal role in mobilizing resources, enhancing participation, and achieving sustainable outcomes. Leaders who adopt community-centered approaches significantly influence the success of initiatives aimed at long-term and sustainable port development. Discussion: The review discusses the implications of community leadership for practice and policy, emphasizing the need for continued support and research in this area. Understanding community leadership is vital for enhancing sustainable practices and empowering port to drive their development.

Keywords : Community Leadership, Port, Sustainable Development.

Optimization Of Offshore Wind Potential In Gampong Durung Merchant Marine Of Malahayati Polytechnic For Electricity In Aceh Besar

Dedi Kurniawan[1]

[1]Politeknik Pelayaran Malahayati

Abstract

The utilization of renewable energy, particularly offshore wind energy, is increasingly becoming a focus in efforts to diversify energy sources and reduce carbon emissions. This study aims to investigate the offshore wind potential in Gampong Durung, Malahayati Merchant Marine Polytechnic, Aceh Besar, and propose optimization strategies to harness it for supporting electricity needs in the region. The research was conducted through a series of methodological steps, including wind pattern mapping, wind speed measurements, historical data analysis, and mathematical modeling. The findings reveal that Gampong Durung has significant wind potential, characterized by stable wind speeds and directions throughout the year. Wind speed measurements were conducted at multiple locations, showing average wind speeds over three consecutive months of 2.6 m/s, 2.4 m/s, and 2.6 m/s, with the prevailing wind direction being northwest. Wind speed calculations during the hours of 09:00-12:00 produced power outputs of 463.252 watts, 463.252 watts, and 557.7425 watts, while during 13:00-16:00, power outputs were 1,115.69 watts, 664.28 watts, and 742.355 watts. Based on this analysis, the study also proposes adequate infrastructure planning to integrate wind energy into Aceh Besar's power system. Considering economic, environmental, and social factors, this optimization project is expected to contribute positively to meeting the region's sustainable energy needs. Therefore, the study recommends further exploration of offshore wind potential in Gampong Durung, as investment in wind energy technology could bring substantial economic and environmental benefits to the coastal communities of Aceh Besar. The next recommended steps include further research into more efficient wind turbine designs and cost analysis to ensure the appropriate and sustainable implementation of wind energy projects. In conclusion, the study highlights the significant potential of offshore wind energy as a reliable and sustainable energy source for the people of Aceh Besar.

Keywords : Renewable Energy, Wind Energy.

Retrofitting Ferries To Eco-Friendly Hybrid Electric And Hydrogen Systems For Inter-Island Ferries In Order To Achieve Zero Emissions In Indonesia

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Abstract

The International Maritime Organization (IMO) in 2023 updated its strategy to reduce greenhouse gas (GHG) emissions from international shipping, with a commitment to use low- or zero-emission fuels by 50% by 2030 and reach net-zero by 2050. The strategy reflects the IMO's commitment to steer the shipping sector towards a more sustainable future by significantly reducing GHG emissions and encouraging technological innovation. The active participation of government, industry and other stakeholders is essential to achieve this ambitious goal. Indonesia as the largest archipelago in the world, ferries play a vital role in supporting various aspects of life in remote areas. Not only do ferries enable community mobility, but they are also crucial for the distribution of goods that form the backbone of economic activity. By providing a reliable means of transport, ferries help overcome geographical challenges between islands, which in turn contributes to local and national economic growth. Therefore, the facilitation and improvement of marine transport networks, especially ferry services, is an urgent need to support community mobility, distribution of goods, economic growth, socio-culture, politics and security. Against this background, there is a need for the government and relevant partners to work together to develop more efficient and safe sea transport infrastructure and services. This includes improving the quality of ports, providing more modern vessels, and enforcing regulations that support smooth operations. In line with the IMO strategy, Indonesia is also committed to reducing GHG emissions by conducting a feasibility study on the use of green hydrogen as an alternative fuel to replace diesel fuel for ferries in Indonesia. Retrofitting ferries that currently use diesel engines to hybrid electric and hydrogen vessels is a potential step to improve energy efficiency, reduce greenhouse gas emissions, and adapt to sustainable energy trends. Converting diesel-powered ferries to hybrid systems that use electric and hydrogen power to achieve net-zero emission is a strategic step in toward cleaner shipping. Proper technology selection, adequate financing, and detailed planning that considers technical and safety aspects are the main keys to success in retrofitting ferries to hybrid electric and hydrogen systems.

Keywords : Greenhouse Gas, Net-Zero, Emission, Ferry, Retrofit, Green Hydrogen, Electric, Energy Efficiency.

Utilization of Hybrid Technology of Solar Energy and Ocean Waves for Irrigation Systems in the Coastal Area of Ujong Batee, Aceh Besar

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[1]Politeknik Pelayaran Malahayati

Abstract

Irrigation inefficiency is a major challenge in the shrimp farming agricultural area of Ujong Batee, Aceh Besar, where most residents depend on the shrimp farming sector. Farmers often face additional costs due to the use of electric pumps to draw water from wells, which require electrical installations and long cables. This study aims to assess the feasibility of implementing a hybrid energy-based irrigation system that combines solar energy and ocean wave energy as a solution to enhance energy efficiency and reduce operational costs for irrigation in the region. The research methodology involves measuring solar radiation intensity and ocean wave conditions at the study site, as well as analyzing the power requirements to operate water pumps.The measurement results indicate that the lowest solar intensity over a month is 5.33 kWh/m²/day, with a daily irradiation duration of 10 hours, generating a power output of 450 Wp from solar panels. Meanwhile, the ocean wave speed during the same period is 2.99 m/s, which, with a turbine diameter of 1.5 meters, can produce an electrical power of 186.65 watts. By combining these two energy sources, the proposed hybrid system can provide a sustainable solution for the energy needs of the irrigation system in the coastal area of Ujong Batee, Aceh Besar, reducing dependence on conventional electricity and lowering operational costs for shrimp farmers.

Keywords : Irrigation, Solar Energy, Hybrid Technology.

Rejuvenation of State Ships to Drive Decarbonization of the Shipping Sector

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[2]Maritime Institute of Jakarta

Abstract

In line with the 2023 IMO GHG Strategy, adopted at the 80th Marine Environment Protection Committee (MEPC 80) on the Reduction of GHG Emissions from Ships, Indonesia has been implementing climate action that aligns with its national policy to combat climate change. The Government of Indonesia has been making efforts to rejuvenate state ships, specifically navigation and patrol ships, by building new ships and scrapping old ones. This study aims to assess the potential for reducing greenhouse gas emissions from state ship construction activities using modern technology. It analyzes operational data for each ship's specifications, such as fuel type, power, and gross tonnage. The study shows that the GHG emission reduction from this activity in 2023 is 121.674 tons of CO2, resulting from the 22 new ships built between 2019 and 2023. The construction of these new ships demonstrates the government's commitment to reducing emissions from the operation of state ships by eliminating older ships. It is hoped that if commercial ships are also scrapped and replaced with new ones built using more modern technology that saves fuel, this will enhance efforts to reduce emissions from the shipping sector and encourage maritime decarbonization.

Keywords : Ship Rejuvenation, Maritime Decarbonization, GHG Emission Reduction From Ships.

The Strategic Impact in Relocation of Indonesian Capital City Related to the Development of Human Resource in Maritime Sector and Quality of Maritime Education and Training

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Abstract

The relocation of Indonesia's capital to Ibu Kota Nusantara (IKN) presents a strategic opportunity to boost the maritime sector, particularly in human resource development and Maritime Education and Training (MET). This paper explores the impact of the relocation on maritime infrastructure, workforce demands, and educational institutions. Findings indicate that the relocation will expedite port expansions and establish research hubs for maritime innovation, positioning IKN as a key center for maritime growth. Despite these prospects, challenges remain in addressing the gap between the supply and demand of skilled seafarers, worsened by pandemic disruptions. International collaboration and the Pentahelix approach, which integrates academia, government, and industry, are essential to enhancing MET programs and aligning with global standards as Indonesia moves toward its 2045 vision of Net Zero Emissions.

Keywords : Capital Relocation, Maritime Human Resource Development, Maritime Education and Training (MET), Infrastructure Development.

Utilization Of The Regasification Process To Avoid Delays In Cargo Operation Due To High Pressure On Tanks On PGN FSRU Lampung Ships

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Abstract

The development of the modern era has triggered a revolution in the exploitation of natural resources and the use of advanced technology, resulting in environmental challenges such as global warming. Natural gas, particularly in the form of Liquefied Natural Gas (LNG), has emerged as a cleaner and more efficient energy alternative to address the negative impacts of fossil fuels. LNG offers high energy density and low emissions, thus supporting the transition towards sustainability. This study focuses on PGN FSRU Lampung, which plays a crucial role in the storage and regasification of LNG. It is found that proper management of tank pressure during the loading and unloading processes is essential to prevent safety risks and operational delays. The case of the delay experienced by the S.S. EKAPUTRA 1 highlights the importance of communication and coordination in loading operations. This research recommends enhancing pressure monitoring systems and training for operators to ensure efficiency and safety in LNG management.

Keywords : Liquefied Natural Gas (LNG), PGN FSRU Lampung, Natural Gas, Tank Pressure Management, Operational Efficiency, Safety Risks, Environmental Sustainability.

Enhancing Maritime Management Practices, An Evaluation of Effectiveness and Sustainability

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[1]Maritime Institute of Jakarta

Abstract

This research evaluates the effectiveness and sustainability of maritime management practices through a comprehensive analysis of key performance indicators. Achieving an impressive score of 9 out of 10, the findings reveal strong operational efficiency, risk management, technological adoption, and stakeholder collaboration within the maritime sector. The study highlights the industry's commitment to optimizing logistics and leveraging digital tools, essential for maintaining competitiveness. Notably, significant advancements in sustainability practices reflect an increasing emphasis on environmental responsibility. Robust risk management strategies further indicate a preparedness to tackle potential challenges. The research underscores the vital role of effective communication and partnerships among maritime entities in enhancing overall performance. As the industry navigates technological advancements and regulatory shifts, continued research and adaptability will be essential. Future initiatives should focus on integrating emerging technologies, refining waste management practices, and assessing the impacts of globalization on maritime operations. By fostering a culture of innovation and collaboration, the maritime sector can ensure resilience and success in a complex global landscape.

Keywords : Maritime Management, Sustainability, Operational Efficiency, Risk Management, Technological Adoption.

Advancing Sustainability, Digital Transformation, and Risk Management in Maritime Management

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Abstract

This research examines the evolving landscape of the maritime industry by focusing on three key domains: sustainability performance, digital transformation, and risk management. The analysis was motivated by the growing environmental, technological, and operational challenges faced by ports and shipping companies, requiring effective strategies to ensure resilience and long-term growth. While previous research addresses these areas independently, this study integrates them to assess their interdependencies and practical implications. The primary objective was to investigate how maritime organizations are adopting sustainable practices, implementing digital solutions, and managing risks, and to identify the gaps hindering further development. Using a mixed-method approach, the study combined quantitative scoring and qualitative interviews with industry participants. Indicators such as emission reductions, digital adoption levels, and supply chain resilience were evaluated on a 10-point scale to assess effectiveness.The results revealed that sustainability initiatives achieved a score of 8.6/10, reflecting strong compliance with environmental standards, though challenges remain with infrastructure and clean fuel adoption. Digital transformation scored 8.5/10, improving operational efficiency through automation and predictive analytics but revealing disparities in technological readiness. Risk management scored 8.1/10, with progress in cybersecurity and climate preparedness but uneven resilience among smaller operators.The study concludes that the maritime sector must adopt integrated strategies to align environmental, operational, and risk priorities. Practical recommendations include policy incentives, collaborative frameworks, and workforce development to ensure sustainable, efficient, and resilient operations.

Keywords : Sustainability, Digital Transformation, Risk Management, Maritime Management, Operational Efficiency.

Assessing the Economic and Environmental Impact of Biofouling Management on Ships Using Remotely Operated Vehicles (ROV) Underwater Cleaning System: A Case Study in Indonesia

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[1] Politeknik Pelayaran Malahayati

Abstract

The maritime industry is currently facing challenges due to the increase of biofouling on ships, because it can potentially affect operational costs, fuel consumption, and exhaust emissions. Indonesia is in the tropics, biofouling growth on ships is faster than the Mediterranean region. The purpose of the observation is to find out the challenges and how Remotely Operated Vehicles (ROV) work in the underwater Cleaning system used to minimize biofouling growth on ships and the impacts it causes in Indonesia. Observations were carried out using a combined quantitative and qualitative methodology with an analysis method using triangulation methodology, and comparative analysis will be used. According to analysis findings to assess the environmental and economic effects of using ROV for biofouling cleaning, there are differences in fuel consumption results in the ship fuel usage data sample before and after cleaning using ROV. The Paired T test with the SPSS test tool was used to analyse the significance of the average difference from the sample data, and the average difference in fuel consumption is 1.11 MT, or 4.03 percent. The calculation of CO2 emissions in the sample fuel data resulted in a CO2 reduction of 139,400 tones, or 4.04 percent. With the positive assessment and benefits of using ROVs in Indonesia, surely in use there are various challenges faced and need to be properly addressed.

Keywords : Ship Biofouling Management, Underwater Cleaning, Remotely Operated Vehicles (ROV), Economic and Environmental Impact.

Evaluate the impact of Shore Side Electricity (SSE) on Reducing Exhaust Emissions for Ships, Using the State Ship KN Masalembo as a Case Study at Tanjung Perak

Shofa Dai Robbi[1], Monica Retno Gunarti[1], Prima Yudha Yudiyanto[1], Akhmad Kasan Gupron[1], Sri Mulyanto[1]

[1] Politeknik Pelayaran Surabaya

Abstract

Sea transportation accounts for 3% of the global greenhouse gas effect. The International Maritime Organization (IMO) is committed to reducing the impact of greenhouse gases by 50% in 2050—Indonesia is a maritime country with 10.8% of the world's ship register. High traffic has an impact on increased gas emissions. The IMO has made a policy on the Ship Energy Efficiency Management Plan. IMO recommends using Shore Side Electricity to reduce exhaust emissions, namely the use of electricity sources from land will reduce the operation of the ship's generator when berthing. This SSE case study uses the State Ship (KN) Masalembo at the Tanjung Perak Port. Evaluation of the impact of SSE on emission reduction is carried out by calculating electricity and fuel consumption. Based on fuel consumption, the amount of pollutants produced is known. A Descriptive quantitative method is used in this research. Based on the calculation, the electricity demand at 220 Volt voltage is 95,028 watts, and at 380 watts is 276,210 Watts. There are 3 generators on board with different output power. There are: auxiliary engine 1-2, harbour generator, and emergency generator. Each generator has different efficiency and fuel consumption. The Comparison of SSE reduction impact is largest in aux eng 1-2 worth 206,855.13 kg pollutant/ton of fuel. Fuel cost savings of up to 92.57% every year. SSE utilization is a solution for reducing exhaust emissions in the port area. Power generation using renewable energy sources is a recommendation for supporting SSE operations.

Keywords : Fuel, Emissions, Generator, Electricity, Shore Side Electricity.

Scope Development in Navigational and Engineering Technology

Enhancing Autonomous Marine Observation in Indonesia: A Web-Based Monitoring System Using Multiple Sensors for Sea Autonomous Observer (SEANO)

Setyawan Ajie Sukarno[1], Ibnu Rahman[1], Suharyadi Pancono[1]

[1]Politeknik Manufaktur Bandung

Abstract

The limited technological capabilities and human resources in marine observation have positioned Indonesia at a dependency on foreign nations, raising significant security concerns due to the offshore location of data servers. To address this issue, a Unmanned Surface Vehicle (USV) has been developed as a solution for Indonesia's autonomous marine observation needs. This study presents the design and implementation of a web-based monitoring system utilizing multiple sensors—specifically the DHT22, MPU6000, and SE100—integrated within the Sea Autonomous Observer (SEANO). The research methodology encompasses five key stages: data collection through literature reviews, design of electrical and informatic systems, rigorous system testing, revision of test outcomes, and comprehensive system evaluation to derive conclusions and recommendations. The USV operates on a Raspberry Pi 3 Model B, leveraging the Pixhawk PX4 for control and Ubiquity Rocket M5 for wireless data transmission. The monitoring system achieves remarkable accuracy, with data reliability rates of 98.70% for air temperature, 98.87% for humidity from the DHT22 sensor, 3.17 meters for GPS, and 99.59% for pitch, 99.63% for roll, and 99.88% for yaw from the SE100 sensor. Furthermore, the MPU6000 sensor provides a speed accuracy of 94.94%. Control accuracy is also noteworthy, reaching 1.37 meters in hold mode and 1.89 meters in auto mode, with response times of 218 ms for data fetching and 172 ms for data transmission. This research contributes significantly to enhancing Indonesia's capabilities in autonomous marine observation and establishes a framework for future developments in the field.

Keywords : Marine Observation, Monitoring, Sensors, Autonomous Vehicle, Web Based Management

The Evaluation Of Multimode Transport Within The Maritime Transportation Industry

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Abstract

Multimode transportation refers to the transportation of goods using at least two modes of transportation under a single contract, known as a multimode transportation document, from a receiving location to a delivery location. One of the problems regarding multimode transportation in the maritime transportation sector is the absence of regulations governing the rights and obligations of multimode transportation. This study aims to evaluate multimode transportation and analyze problems regarding the operational performance of multimode transportation in the maritime transportation sector. Between 2015 and 2020, we collected data from twenty KSOP (Harbor Master and Port Authority Office) locations, nine multimode companies, and five transportation management service companies. Data were analyzed qualitatively and quantitatively. According to the study's findings, multimode companies' business development conditions and transportation services fall into the medium category. Meanwhile, the business continuity is relatively low. The study rates the mode change to the main port as high, while it rates the port categories II–III as low. In terms of port capacity, the availability of equipment and technology, the accessibility of human resources and customs, and the licensing aspects at ports, categories II-III lag significantly behind. The study's results offer an inventory of multimode transportation in the marine transportation sector, along with recommendations for companies seeking government support in the form of facilitation, a multimode transportation business ecosystem, and the development of multimode transportation businesses.

Keywords : Evaluation, Multimode Transportation, Maritime Transportation Industry.

Evaluation on the Pioneer Vessel Procurement from 2015 to 2019

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Abstract

The shipbuilding process's implementation is not always linear, and delays in ship completion are a constant possibility. Several previous studies have discussed delays in the shipbuilding process by both private companies and state-owned enterprises (Santosa et al., 2018; Gazali & Baroroh, 2022; Mulyatno et al., 2023; Penangsang & Basuki, 2024), but none have discussed the evaluation of delays in the construction of pioneer vessels procured by the government. Therefore, the objective of this study is to assess the government's procurement of pioneer ships from 2015 to 2019. This will ensure that the ship's production process and operation remain compliant with technical specifications and quality standards, enabling it to continue providing passenger and goods services. In addition, it can provide recommendations for risk mitigation to improve the procurement system and supervision of ship construction. Data was taken from 8 ship units (out of a total of 90 units) that, by the end of 2020, had not been handed over and/or operated by ship operators, including seven pioneer ships and one 100-TEU container ship. The study's findings reveal that the assessment of ship procurement encompasses four shipyards, the evaluation of procurement documents, the assessment of development supervision, the assessment of shipyard conditions, the assessment of financial status, and the completion of a ship condition survey. Meanwhile, the main factors causing delays in the ship construction process include financial management (very high), workforce (high), shipyard facilities (high), and Ship Component Certification by the Indonesian Classification Bureau (high). We expect the results of this study to inform the Directorate of Sea Traffic's policies and decisions regarding the continued construction of delayed ships and to serve as a reference for planning the ships construction built between 2015 and 2019.

Keywords : Evaluation, Pioneer Vessel, Government Procurement.

The Impact of Cargo Volume and Ship Type on Maritime Service Efficiency: A Case Study of PT Buana Lintas Lautan Tbk, Indonesia

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Abstract

Ports are a vital element in ensuring the smooth running of trade activities, particularly in the process of loading and unloading goods. The duration of loading and unloading at a port varies from a few hours to several days, depending on the volume and type of cargo, as well as the efficiency of available port facilities and equipment. PT Buana Lintas Lautan Tbk Tanjung Priok branch, which operates in ship agency services, needs to improve service efficiency to overcome this problem. This research aims to evaluate the influence of ship type and volume of cargo on ship turnaround time , as well as analyze the combined impact of these two factors. Using quantitative methods with primary data obtained from documentation and literature studies, as well as data analysis through descriptive statistics, classical assumption tests and linear regression. The research results show that the variables of ship type and volume of cargo simultaneously influence service time with a calculated F value of 16.546 > F table 3.34. However, only the volume of cargo has a significant positive effect on service time, while the type of ship does not show a significant effect. In conclusion, the volume of cargo significantly influences the service time of ship arrival and departure, while the type of ship does not have a significant effect.

Keywords : Type Of Ship, Volume Of Cargo, Turnaround Time.

Identification Of Load Management System On KM Bung Tomo As Passanger Ship R-16

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[1]Politeknik Pelayaran Surabaya
[2]Polteknik Transportasi SDP Palembang
[3]Politeknik Pelayaran Banten

Abstract

Cargo handling systems on pioneer passenger ships are generally designed for efficiency and safety in loading and unloading goods and other cargoes. The following are some of the components that are generally found in the cargo handling system on pioneer passenger ships: among others include Cargo Storage Area, Cargo Handling Equipment, Fastening and Buffer Systems, Labeling and Tracking Systems, Information and Management Systems, Safety and Training Procedures, Routine Maintenance, Overall Cargo Regulation, cargo handling systems on pioneer passenger ships must be designed and operated with regard to efficiency, security, and compliance with applicable maritime regulations. This research was carried out on KM Tomo which implements Route R 16 with 9 ports. This research uses a qualitative method using observation, interview and documentation methods. Primary data is obtained directly by observing and interviewing the Skipper and secondary data is obtained from data collection and documentation.

Keywords : Cargo Handling, Pioneer Ship.

Development of a Wave Energy Generator to Support Sustainable Unmanned Vessel Operations for Ocean Observation

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[2]Université Paris Saclay
[3]Politeknik Manufaktur Bandung

Abstract

The advancements in maritime transportation have enabled the use of unmanned vessels for ocean observation, essential for monitoring marine conditions such as weather, climate, and biogeochemical phenomena. These vessels play a critical role in early risk mitigation strategies. However, their long-term operation faces the challenge of maintaining a sustainable energy supply. Wave energy, with its abundance and high density in marine environments, presents a promising renewable energy source to address this issue, especially in regions like Indonesia, where wave energy potentials reach up to 70 kW/m. This research focuses on developing an efficient wave-powered generator, based on the Bouyant Energy Generator principle, to meet the energy demands of unmanned vessels. The generator will convert wave movements into electrical energy, considering key factors like wave characteristics, energy storage, and magnet-coil design. Tailored for unmanned vessels, the generator will capture wave energy from multiple directions while maintaining vessel stability. This design aims to provide a sustainable and reliable energy source for long-term ocean observation.

Keywords : Unmanned Vessels, Wave Energy Generator, Renewable Energy, Ocean Observation, Bouyant Energy Generator.

Analysis of Harmonic Distortion on the Electrical Energy System in the Malahayati Training Ship Aceh

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[1]Politeknik Pelayaran Malahayati

Abstract

The operation of the Malahayati training ship in Aceh relies on electrical energy to ensure optimal performance, necessitating a very high level of accuracy in electrical energy measurements. Inaccurate energy measurements can lead to significant financial and operational losses for all parties involved, including both ship management and operators. One of the main causes of accuracy issues in electrical energy measurement is the presence of nonlinear loads on the ship. These nonlinear loads can trigger harmonics in the electrical system, which are distortions in voltage and current waveforms that can significantly affect power quality and potentially reduce the accuracy of energy measurements.This study was conducted to further understand how harmonics generated by nonlinear loads affect the precision of electrical energy measurements on the Malahayati training ship. The research focuses on analyzing the level of harmonic distortion measured in terms of Total Harmonic Distortion (THD) and how this impacts the performance of energy measurement devices, particularly the kWh meters used on the ship.The results obtained from this study indicate a significant correlation between the increased use of nonlinear loads and the rise in harmonic distortion. The more nonlinear loads that are utilized, the higher the level of harmonic distortion, which is reflected in the increase of %THD. This increase in %THD, in turn, causes substantial deviations in electrical energy measurements, leading to a decline in measurement accuracy. In some cases, deviations in electrical energy measurements can exceed -50%, indicating that the measurements become highly inaccurate and far from the actual values. Particularly when %THD exceeds 100%, both conventional and digital energy measurement devices show a significant drop in performance, rendering them unable to provide reliable measurement results.Therefore, this study emphasizes the importance of mitigating harmonics in the ship's electrical system to maintain a high level of accuracy in electrical energy measurements, ultimately helping to reduce potential losses and ensure more efficient ship operations.

Keywords : Unmanned Vessels, Wave Energy Generator, Renewable Energy, Ocean Observation, Bouyant Energy Generator.

The Application Of Digital Twins As A Solution To Prevent And Detect Cargo Loss On Ships

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[2]Politeknik Pelayaran Surabaya

Abstract

Technological advancements, especially in the transportation industry, have presented a variety of challenges and opportunities. One of the main problems in the shipping industry is the frequent occurrence of ship accidents and cargo losses, as recorded in 2021 when MV Maersk Essen lost about 750 containers in the Pacific Ocean and tankers experienced cargo losses of around 0.5% to 1.22% or equivalent to 59 MT. This research aims to develop a solution based on digital twin technology to prevent and detect cargo loss on ship cargo. The method used in this study is a literature study from various sources of journals, news, reports, books, and other sources that are analyzed and collected based on the necessary data. Digital twins are used as virtual models to predict and collect data related to ship cargo, such as cargo conditions, current locations, and cargo hold conditions. The results of the study show that digital twin technology can add references and collaboration to reduce marine accidents. The use of digital twins allows early detection of damage to ship engines, the collection of real-time data on environmental conditions that can affect ship engines, and minimizes cargo loss. The implementation of digital twin also invites industrial companies and stakeholders to participate in technology development to realize the industrial era 4.0 in the shipping sector.

Keywords : Cargo Loss, Digital Twin, Shipping Industry.

Domestic Roro Ferry Safety Performance Level Monitoring Based On Risk Assessment Model Using IoT: An Conceptual Approach

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Abstract

Domestic RoRo (roll-on/roll-off) ferry safety has been a growing concern for years due to its continued casualty events, which have significant consequences. However, the development of the transport mode from the perspective of safety performance is considered a slow process due to the nature of its operation and less stakeholder concern. One of the significant issues, among others, lies in monitoring the safety level of the service. This condition requires more awareness in every aspect of operation and every mindset of related parties. On the other hand, the Internet of Things (IoT) development has been significantly progressive, covering nearly every aspect of the transport system. The progressive process has been followed by accessibility and affordability of the technology so that every stakeholder can utilise it to the fullest. The paper explores the possibility of IoT technology being included in improving the safety of domestic ferry operations by monitoring the overall safety performance from the perspective of its risk status. The research maps the stakeholder's position based on their function and current or future IoT system. As a risk assessment model, the F-N Curve is the base concept for assessing the operation's safety performance and risk state condition. The research identified the possibility of integration under the IoT scheme in dynamic risk assessment. The research also recognises the significant strengths and challenges of integrating every available IoT system, which is contributed by the system's openness.

Keywords : Safety, IoT, Risk Assessment.

Efficiency of UAVs LiDAR Utilization for Road Damage Condition Monitoring

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Abstract

The demand for an efficient and accurate method to monitor road conditions and assess the volume of necessary repairs has grown as urban infrastructure expands. This paper examines the efficiency of using Unmanned Aerial Vehicles (UAVs) equipped with Light Detection and Ranging (LiDAR) technology for road condition monitoring. The visual methods of road assessment, which often involve manual inspections and ground-based surveys, are labor-intensive and time-consuming. In contrast, UAV-based LiDAR systems offer a faster and more precise. This study focuses on evaluating the effectiveness of UAV LiDAR in road surface monitoring by integrating key processes such as UAV LiDAR data acquisition, UAV photo data acquisition, feature extraction, and volume assessment. UAV LiDAR provides high-resolution, three-dimensional models of road surfaces, enabling the identification of structural issues such as cracks, potholes and others damage. The combination of LiDAR and UAV-captured imagery enhances the accuracy of surface assessments by providing both structural and visual data. Feature extraction algorithms automatically detect and categorize damage, while volume assessment methods calculate the material needed for repairs by comparing current road conditions with reference models.

Keywords : UAV, LiDAR, Road Condition Monitoring, Feature Extraction, Volume Assessment, Road Repairs.

The Effect Of High Sedimentation Levels And Navigation Aids On Ship Maneuverability And Its Implications On Ship Grounding Accidents At Tanjung Priok Port, Jakarta

Abdul Rachman[1], Ariyanto[1]

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Abstract

This research aims to analyse the effect of sedimentation levels and navigation aids, particularly the Electronic Chart Display and Information System (ECDIS), on ship manoeuvrability and its implications on grounding accidents. The analysis was conducted using a structural model, with R^2 and F^2 values used to evaluate the strength of influence between exogenous and endogenous variables. The results show that the R^2 value for ship manoeuvrability (Y) is 0.639, indicating a moderate influence of sedimentation and ECDIS on maneuverability. Meanwhile, the R^2 value for ship grounding accidents (Z) is 0.564, which suggests that both ship maneuverability and sedimentation, along with ECDIS, explain 56.4% of the variability in grounding accidents. Specifically, it was found that sedimentation levels have a direct, positive, and significant effect on ship maneuverability (R^2 = 0.639). Additionally, sedimentation has a positive and significant effect on grounding accidents (R^2 = 0.564). ECDIS has a direct, positive, and significant influence on ship maneuverability (R^2 = 0.639), while it has a negative and significant impact on grounding accidents, reducing the risk of such incidents (F^2 = 0.412). Ship maneuverability also has a direct and significant effect on grounding risks. Mediation testing showed that ship maneuverability mediates the effect of sedimentation and ECDIS on grounding accidents, reinforcing the relationships between these factors. These findings highlight the importance of sedimentation management and the optimization of ECDIS usage to enhance ship maneuverability and reduce the risk of grounding accidents.

Keywords : Sedimentation, ECDIS, Ship Maneuverability, Grounding Accident.

Analysis Of The Impact Of Navigation Tool Use Under Restricted Visibility Conditions On Mv. Kharis Heritage

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Abstract

This research aims to analyze the impact of using navigation tools in seemingly limited conditions, such as bad weather, thick fog, or difficult terrain. In this modern era, maritime navigation tools such as GPS, RADAR, and ECDIS have become very important in helping seafarer reach their destinations accurately. However, under seemingly limited conditions, the reliability of these tools can be questioned. The research method used is a field case study, where the measurement of accuracy and effectiveness of navigation tools is conducted under various seemingly limited conditions. Data is collected through direct observation, seafarer assessment , and performance analysis of the navigation tools used in real situations. The research results show that modern navigation tools can provide fairly accurate information despite the challenges faced. However, dependence on the human that operate these devices with their maximum capacity, especially when facing emergency situation. Therefore, understanding manual navigation skills become very important to handle emergency situations. This research also highlights the importance of training for users to improve traditional navigation skills, so they can combine the use of modern tools with classical navigation techniques. Overall, these findings provide valuable insights for navigation tool users, training providers, and navigation technology developers, to formulate more effective strategies for using navigation tools in various conditions, especially when they enter the emergency situation. The recommendations produced include raising awareness about the limitations of navigation tools, as well as the need to following all the instruction, manual, and procedures that needed.

Keywords : GPS, RADAR, ECDIS, Manual Navigation, Navigational Techniques, Restricted Visibility.

Simulation and Challenges of ROV Implementation as Green Technology for Hull Cleaning in Maritime Sector

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Abstract

This research develops and simulates a Remotely Operated Vehicle (ROV) as an eco-friendly technology solution for hull cleaning to improve energy efficiency and reduce carbon emissions in the maritime sector. Biofouling on the hull increases hydrodynamic drag, which leads to higher fuel consumption and increased greenhouse gas emissions. The ROV designed in this study uses corrosion-resistant materials and is equipped with high-precision sensors and an automatic cleaning system. Tests were conducted through technical simulations, showing a potential reduction in hydrodynamic drag of up to 20% and a 10-15% decrease in fuel consumption, contributing to a reduction in carbon emissions of up to 12% per operational cycle. Economic analysis indicates that investment in ROV technology can provide a payback within 1-2 years, especially on vessels with intensive operational patterns. In addition, synergies between ROV deployment and operational strategies such as slow steaming and route optimization are projected to further improve energy efficiency by 5-10%. Although the simulation results are very promising, this study recognizes the need for field validation to ensure ROV performance under real operational conditions. This research provides an initial foundation for the development of ROV technology as part of sustainability initiatives in the maritime sector, supporting compliance with International Maritime Organization (IMO) regulations for greenhouse gas emission reduction.

Keywords : ROV, Biofouling, Energy Efficiency, Carbon Emissions, Green Technology, Slow Steaming, Route Optimization.

Literature Review Of Particle Swarm Optimization

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[1]Politeknik Pelayaran Surabaya

Abstract

Optimization methods are crucial methods in a process because optimization methods can solve complex problems. One of the most effective optimization methods to achieve optimal solutions is Particle Swarm Optimization (PSO), an algorithm inspired by the social behavior of animals. Where, the PSO algorithm is a particle (parable an animal) that has been initialized will move continuously updating its position based on a combination of two factors, namely the attraction towards the individual's best position (pBest) and the attraction towards the global best position (gBest) until it reaches the position optimal. Particle movement is influenced by three main control parameters, namely cognitive coefficient (c1), social coefficient (c2), and inertial weight (ω) in order to produce optimal values without being trapped in local solutions. The advantages of PSO compared to other optimal methods such as the Firefly Algorithm (FA) and Gray Wolf Optimizer (GWO) are its convergence speed and ability to handle non-linear problems with noise. This makes PSO good for applying to complex problems such as solving non-linear mathematical model problems, optimizing fuzzy controllers, optimizing exhaust gas emission parameters and engine performance on ships.

Keywords : PSO, Optimizing, Ships.

Navigation Lamp Detection To Avoid Collision For Unmanned Surface Vehicle (USV)

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Abstract

Unmanned Surface Vehicle (USV) has become a major focus in the development of shipping technology to improve the efficiency and safety of navigation on the water. This research carried out the design and creation of an unmanned ship system equipped with an ESP32 camera to detect the navigation lights of other ships and avoid potential collisions. In this system, the initial response of the ESP32CAM camera reads the color of the lights approaching the unmanned ship with a distance of less than 100 cm. ESP32CAM reads and identifies colors through image processing. When ESP32CAM detects green and red-light colors, the ESP32CAM microcontroller commands the buzzer to sound. The color detection system works if ESP32CAM detects red then the ESP32CAM microcontroller will send a signal to the servo motor to move left, while ESP32CAM detects green the ESP32CAM microcontroller will send a signal to the servo motor to move right. The servo motor functions as a ship rudder drive of USV. The Navigation lamp system test using ESP32CAM camera to prevent ship collisions is carried out with a predetermined scenario, independent light color testing, and whole system testing. The result of testing the navigation lamp system with the ESP32CAM camera is that the system can function properly, USV is able to detect the navigation lamp of other ship and take appropriate action to avoid collision. Based on the research that has been done, the ESP32CAM camera can identify the optimum light at 100cm.

Keywords : ESP32CAM Unmanned Surface Vehicle (USV), Navigation Light, Servo Motor, Rudder, Prevention Of Ship Collision.

Flow Sensor Designing For Flow Monitoring At Sludge Pump

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Abstract

Sludge pumps on ships have an important role in maintaining the smooth operation of ships by ensuring efficient waste disposal. Designing an accurate and reliable flow sensor to monitor flow in sludge pumps are crucial to prevent system damage and failure. In this research, a YF-B5 flow sensor was used which has the function of sending signals to the ESP-32 module. The flow rate and volume delivered are displayed by the LCD. This research aims to monitors sludge flow in real-time and provides warnings when there are abnormal conditions and also shuts down the system when necessary. In testing, this system succeeded in activating an alarm on the low flow rate, and shut down the pump on zero flow rate.

Keywords : Flow Sensor, Monitoring, Pump.

Transportation Efficiency Based On Empowerment Of Private And Government Businesses With The Concept Of Collaboration

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[1] Politeknik Pelayaran Surabaya

Abstract

The disproportionate growth between the transportation fleet and the infrastructure causes congestion, pollution, inconvenience and poor service. However, the high growth in transportation fleets managed by the private sector more than those managed by the government is not effective, on the other hand the government does not have enough funds to provide adequate public transportation facilities, so the concept of Allocation Cheap Sourcing is needed which is a collaboration between fleets managed by the private sector and the government. The method used in this study is Evidence based policy . The results of the study show that the effectiveness of collaboration can be in the form of partnerships and new forms of organization (NFO).

Keywords : Allocation Cheap Sourcing, Government, Policy, Private, Transportation Fleet.

Dynamic Route Optimization for Cargo Distribution within Ports Using Real-Time Sensor Data and Machine Learning Algorithms

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Abstract

Efficient cargo distribution within port environments is crucial to reducing operational costs and enhancing the throughput of goods. Traditional route optimization approaches rely on historical data, limiting their ability to respond to real-time conditions such as congestion, equipment availability, and unforeseen delays. This research proposes a dynamic route optimization model that utilizes real-time sensor data from vehicles, cranes, and other port equipment to provide adaptive routing for cargo distribution. The model leverages machine learning algorithms, particularly Dijkstra's algorithm for shortest-path calculations and reinforcement learning (RL) for adaptive decision-making, to optimize routes based on real-time input. The primary objective of the study is to minimize cargo transit time across the port, maximizing equipment utilization and minimizing fuel consumption. The proposed system integrates multi-source sensor data from IoT devices, providing real-time updates on traffic flow, equipment status, and environmental factors. By combining Dijkstra's algorithm with Q-learning—a reinforcement learning technique—our model dynamically adjusts routes, learning optimal patterns based on historical and real-time data. Additionally, a multi-agent reinforcement learning (MARL) approach is introduced to handle the coordination between multiple moving assets, enhancing collaborative efficiency in high-traffic areas. Preliminary simulation results indicate significant improvements in cargo delivery speed and resource utilization under varying port traffic conditions. This study contributes to the advancement of smart port operations by offering a scalable, data-driven solution that can be adapted to different port layouts and operational requirements.

Keywords : Cargo, MARL, Port, Sensor Data.

Analysis of Ship's Draft Calculation Methods Using Basic Percentage in Cargo Loading Operations

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Abstract

This study examines the implementation of basic percentage calculations in determining ship's draft during cargo loading operations. The research focuses on analyzing various simple mathematical methods commonly used by deck officers to ensure safe and efficient loading procedures. The primary objective is to evaluate the effectiveness and accuracy of basic percentage calculations compared to traditional methods in determining ship's draft changes during loading operations. This research employed a quantitative approach, collecting data from 30 cargo vessels of various sizes during their loading operations at the Port of Tanjung Priok over a six-month period. The study specifically analyzed three main aspects: the accuracy of draft calculations using basic percentage methods, the time efficiency in performing these calculations, and the practical application by deck officers during actual loading operations. The data collection process involved direct observations, documentation of loading calculations, and structured interviews with deck officers. The findings reveal that using basic percentage calculations resulted in 95% accuracy compared to actual draft measurements, with a significantly reduced calculation time of approximately 40% compared to traditional methods. Furthermore, 85% of deck officers reported increased confidence in draft calculations when using these simplified percentage methods. The study also identified potential areas where basic percentage calculations could be standardized across different vessel types. The research concludes that implementing basic percentage calculations in draft determination provides an efficient and reliable alternative to more complex methods, particularly in time-sensitive loading operations. This study contributes to the practical application of nautical mathematics in cargo operations and provides recommendations for incorporating these methods into standard operating procedures. The findings suggest that simplified mathematical approaches can enhance operational efficiency without compromising accuracy in draft calculations.

Keywords : Ships Draft Calculation, Cargo Loading Operation, Basic Percentage Methods.

IoT-Based Policy Model for Quality Assurance Systems in Maritime Education: A Risk Management Approach

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Abstract

This study proposes an IoT-based policy model to strengthen quality assurance in maritime education through a structured risk management approach. By leveraging IoT applications—such as environmental monitoring, asset tracking, and student safety systems—the model enables real-time data collection to proactively identify and mitigate risks in facilities, equipment usage, and training activities. This framework emphasizes increased transparency, resource optimization, and compliance with international standards, allowing for continuous monitoring and automated reporting to enhance quality assurance processes. The scalable, data-driven model provides maritime education institutions with a systematic approach to maintaining and improving quality standards amid the unique operational demands of the sector.

Keywords : IoT, QA, Risk Management.

Leveraging IoT for Sustainable Supply Chain Visibility in the Global Transportation Industry: A Systematic Literature Review

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Abstract

This study aims to systematically review and synthesize existing literature on the role of the Internet of Things (IoT) in enhancing sustainable supply chain visibility within the global transportation industry. Given the growing environmental concerns and the complexity of international logistics, this review seeks to highlight the potential contributions and challenges of IoT implementation for sustainable practices. A Systematic Literature Review (SLR) was conducted following PRISMA guidelines. Relevant studies were identified through reputable databases such as Scopus, IEEE Xplore, and ScienceDirect, using keywords related to IoT, supply chain visibility, sustainability, and transportation. Inclusion criteria were applied to filter studies published within the last ten years, focusing on those discussing IoT applications, supply chain visibility, and sustainability. The findings reveal that IoT significantly enhances supply chain visibility, allowing real-time monitoring, improved route optimization, and proactive maintenance, contributing to reduced environmental impacts. However, implementation challenges, such as infrastructure disparities and data security concerns, are prevalent across studies, suggesting areas for future research and development. This research provides a comprehensive synthesis of current insights into the role of IoT in sustainable supply chain visibility, addressing gaps in existing literature and identifying key barriers and facilitators within the global transportation context. It serves as a reference for researchers and practitioners aiming to leverage IoT for sustainable logistics solutions.

Keywords : Internet of Things (IoT), Sustainable Supply Chain, Systematic Literature Review, Transportation, Supply Chain Visibility, Environmental Sustainability.

Optimization of Pneumatic and Hydraulic Equipment Maintenance Management System on Marine Vessels Using FluidSIM Software Simulation to Improve Operational Efficiency

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Abstract

In the maritime industry, the reliability of pneumatic and hydraulic systems is crucial for ensuring smooth and efficient vessel operations. Effective maintenance management of these systems can significantly reduce downtime, minimize operational costs, and enhance safety on board. This study explores the optimization of maintenance management for pneumatic and hydraulic equipment on marine vessels using FluidSIM software simulation. FluidSIM provides a comprehensive environment for designing, testing, and analyzing hydraulic and pneumatic circuits, enabling maintenance teams to predict failures, streamline repairs, and implement preventive strategies. By simulating real-world scenarios and identifying potential issues beforehand, maintenance protocols can be optimized for better resource allocation and timely interventions. The results of this study demonstrate that employing FluidSIM for maintenance planning can lead to a reduction in system failures and overall maintenance costs, contributing to improved operational efficiency and vessel performance. This research aims to provide a framework for integrating simulation-based maintenance management within the maritime industry to enhance operational readiness and safety.

Keywords : Maintenance Management, Pneumatic and Hydraulic Systems, Preventive Strategies, FluidSIM.

Optimizing Maritime Route Planning In Indonesia Using Machine Learning For Fuel Efficiency

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Abstract

Indonesia's vast archipelago, with its thousands of islands and complex maritime routes, presents unique challenges for efficient and sustainable vessel navigation. This research focuses on optimizing maritime route planning using machine learning algorithms to enhance fuel efficiency and reduce the environmental impact of shipping in Indonesian waters. By utilizing datasets that include real-time weather conditions, ocean currents, tidal patterns, and historical vessel performance, machine learning models predict optimal shipping routes that minimize fuel consumption and decrease carbon emissions. Key routes frequently traveled between Java, Sumatra, and Kalimantan are analyzed to assess how data-driven insights can improve operational efficiency. The study evaluates the effectiveness of these predictive models through simulations and real-world trials, demonstrating that machine learning has the potential to revolutionize maritime logistics in Indonesia. The findings underscore the importance of integrating advanced technologies into route planning to not only lower operational costs but also support Indonesia's commitment to environmental sustainability and its blue economy initiatives. This research provides a significant contribution to achieving more sustainable and efficient shipping practices, crucial for the archipelagic nature of Indonesia.

Keywords : Maritime Route Planning, Machine Learning, Fuel Efficiency, Environmental Impact, Indonesian Waters, Ocean Currents, Weather Data, Predictive Modeling, Shipping Logistics, Sustainability, Blue Economy.

Utilizing Digital Technology To Enhance Efficiency And Sustainability In Indonesia's Maritime Transportation

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Abstract

This study investigates the integration of digital technology to enhance the efficiency and sustainability of Indonesia’s maritime transportation sector. The maritime industry, a critical component of Indonesia's economy, faces increasing demands for modernization to meet global standards of efficiency and environmental sustainability. The research adopts a case study approach, focusing on major ports across Indonesia to gather comprehensive insights. Primary data were collected through structured interviews with key stakeholders, including port operators, maritime authorities, and logistics providers, while secondary data were derived from industry reports, policy documents, and academic publications. Findings indicate that implementing technologies such as Internet of Things (IoT), big data analytics, and cloud-based systems has significantly reduced vessel waiting times and optimized fuel consumption, thus contributing to a lower carbon footprint. Additionally, these digital advancements have improved supply chain transparency and operational decision-making, fostering a more sustainable and resilient maritime logistics system. This study proposes a framework for integrating digital technologies that aligns with sustainability goals and supports environmental initiatives within the maritime transport sector. The proposed framework emphasizes best practices for technology adoption that can be scaled and adapted to other developing maritime economies. These findings offer valuable insights for policymakers, industry leaders, and practitioners seeking to promote sustainable growth in maritime logistics through technological advancement.

Keywords : Maritime Transportation, Digital Technology, Sustainability, Operational Efficiency, IoT, Big Data Analytics, Cloud-Based Systems, Indonesia.

Digital Advancements For Sustainable Transportation: The Impact Of Educational Management Strategies

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Abstract

The push for sustainability in the transportation sector has been significantly bolstered by digital advancements, including technologies such as AI, IoT, and data analytics. This research investigates how educational management can enhance the adoption and application of these digital solutions to support sustainable practices in transportation. The study employs a mixed-methods approach, analyzing case studies and contemporary training programs to identify the key elements that contribute to effective sustainability-focused education. The role of curriculum development and strategic training programs is examined to understand how educational institutions can prepare students and professionals to engage with and apply digital innovations that promote environmental responsibility and operational efficiency. Findings suggest that aligning educational management with industry needs through collaborative initiatives can bridge the gap between technology and sustainable practice. This research contributes practical recommendations for integrating digital literacy with sustainability concepts in education, enabling future transportation leaders to innovate and implement effective solutions. The study concludes that educational management is pivotal in fostering a workforce equipped to navigate the challenges of sustainable development in the era of digital transformation.

Keywords : Sustainability, Digital Technology, Educational Management, Transportation, AI Integration, IoT, Sustainable Education, Workforce Development.

Optimizing The Effectiveness Of SAR Operations In The Mountains Using Dijkstra-Based Drone Technology

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Abstract

This study investigates the optimization of search and rescue (SAR) operations in mountainous terrains through the integration of Dijkstra-based drone technology. The challenging geography of mountains often complicates traditional SAR efforts, leading to delays in response times and difficulties in locating victims. By utilizing unmanned aerial vehicles (UAVs) equipped with Dijkstra's algorithm for pathfinding, this research demonstrates how drones can effectively navigate complex landscapes, identify the shortest and safest routes, and enhance operational efficiency. The findings indicate that drones significantly improve situational awareness by providing real-time aerial data, allowing SAR teams to map areas quickly and make informed decisions. Additionally, the study highlights case examples where drone technology has successfully facilitated rescue operations in mountainous environments, demonstrating its potential to save lives and optimize resource allocation. This research contributes to the ongoing development of innovative approaches in SAR methodologies, emphasizing the critical role of technology in enhancing rescue missions in difficult terrains.

Keywords : Drone, Dijkstra, SAR.

Literature Review on the Utilization of Artificial Intelligence in Marine Ship Transportation Management: Trends, Challenges, and Opportunities

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Abstract

The integration of Artificial Intelligence (AI) in marine ship transportation management has transformed traditional practices, offering innovative solutions for optimizing routes, enhancing safety, and improving operational efficiency. This literature review aims to explore the current landscape of AI applications within the maritime industry, focusing on trends, challenges, and emerging opportunities. The review examines key areas such as predictive maintenance, fuel efficiency, autonomous navigation, and real-time data analytics, showcasing how AI-driven tools can streamline processes and reduce costs. Despite its potential, the implementation of AI in maritime management faces several challenges, including data security, regulatory constraints, and the need for specialized infrastructure. This study synthesizes recent findings to highlight the benefits and limitations of AI applications, emphasizing the importance of industry-wide collaboration and standardization to overcome these obstacles. Through a comprehensive analysis of existing literature, this review provides insights into the future of AI-driven advancements in marine transportation, suggesting pathways for further research and development.

Keywords : AI, Marine Transportation, Autonomous Navigation, Ship Management.

Integrating Multimodal Sensor Data for Enhanced Predictive Maintenance Accuracy in Port Equipment Using Machine Learning

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Abstract

Predictive maintenance is critical in port operations, where equipment reliability directly impacts operational efficiency and cost management. Traditional predictive maintenance models often rely on limited data sources, which may not capture the full spectrum of equipment condition indicators, leading to potential inaccuracies. This research proposes a multimodal sensor data integration framework for predictive maintenance, utilizing a combination of sensor inputs—such as vibration, temperature, humidity, and acoustic signals—to provide a comprehensive view of equipment health. The proposed model leverages machine learning algorithms, particularly sensor fusion techniques combined with Long Short-Term Memory (LSTM) networks, to process time-series data from diverse sensors and predict maintenance needs with high accuracy. By incorporating LSTM, the model can capture complex temporal dependencies within the multimodal data, identifying subtle patterns that precede equipment degradation. Furthermore, a feature extraction layer is implemented to preprocess and enhance the distinct characteristics of each sensor type, enabling the predictive model to adapt to varied operational conditions. Preliminary results from simulation and test cases indicate that the multimodal approach significantly outperforms traditional single-sensor predictive maintenance models, providing earlier and more accurate alerts for potential failures. This study contributes to the advancement of smart port infrastructure by demonstrating a scalable and adaptable predictive maintenance solution that leverages multimodal data for enhanced equipment reliability and operational resilience.

Keywords : Predictive Maintenance, LSTM, Reliability.

Scope Safety, Health and Risk Management

Preliminary studies of Indonesian Inland Waterways & the Urge of Specialized Training Focusing on Towing Vessels & Barge Interaction with Bridges

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Abstract

An accident involving a towing vessel and barge colliding with bridges occurred recently in Indonesia. This inland canal stretched for about 500 kilometers from the upstream river to the downstream river, with bridges across the river in some areas. Thus, by meticulously mapping each location of Indonesian Inland Waterways, we were able to establish which area had the most difficulties in navigation due to the distance and number of bridges. The questionnaires were distributed to 163 sailors in order to acquire a broader view on navigation challenges in inland waterways, with the Mahakam River ranking as the most difficult river. This danger of navigation should be emphasized through specialist training on countermeasures approach by adopting best practices in industries and recommending methods to stakeholders, as a result, this study will seek not only to propose specialized training but also to gain a wide awareness of the issue through a survey of sailors sailing the river. This exploratory investigation will serve as a baseline for the next study in a confined environment (simulators) to learn more about the involvement of fatigue and stress in navigators while navigating inland waterways.

Keywords : Inland Waterways, Towing Vessel And Barge, Navigational Risk, Bridge Allision.

The Risk Management of Utilizing Expired and Failed Ammunition and Explosives in Storage Depots: A Multi-Criteria Risk Assessment Approach

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Abstract

The management of expired and failure ammunition and explosives in storage depots poses a significant challenge in maintaining personnel safety and environmental protection. Unusable ammunition has the potential to create high risks of explosions and radiation, which threaten the health and safety of personnel as well as the environment. This research aims to formulate a risk mitigation strategy through a multi-criteria assessment approach by identifying, analyzing, and evaluating potential hazards. The study seeks to explore risk management strategies to minimize potential hazards and enhance safety in storage depots. The approach utilized in this research is a multi-criteria risk assessment that integrates various technical, operational, and environmental risk factors to identify, assess, and mitigate associated risks. The analysis is conducted using the Best-Worst Method (BWM) to prioritize mitigation actions, while PROMETHEE (Preference Ranking Organization Method for Enrichment Evaluation) assigns weights or preference values to each alternative in a decision-making process in a clear and structured manner to address preferences and uncertainty in decision-making. The findings of this study are expected to contribute to the development of more comprehensive risk mitigation policies, enhance personnel safety, protect the environment, and optimize the long-term management of ammunition and explosives.

Keywords : Risk Management, Storage Depot, Utilization, Expired Failure Ammunition, Multi-Criteria.

Efforts to Minimize the Occurrence of High Pressure to Support the LPG Mix Loading Process on MT.GAS MALUKU

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Abstract

The purpose of this research is to analyze and find solutions related to the Efforts to Minimize the Occurrence of High Pressure to Support the LPG Mix Loading Process on MT.GAS MALUKU. The approach method used by the author in this research is qualitative descriptive, which is a presentation method that uses concepts related to the problem being studied to analyze data in the form of understanding obtained in the field and uncover the causes of the problems that occur as well as examine solutions that can be implemented for those problems. The result of this research is the to identify the factors causing high pressure during the loading of LPG mix, to understand what causes the crew to not fully optimize the LPG mix loading and unloading procedures, and to determine the efforts and solutions that can be implemented when high pressure occurs during loading.

Keywords : High Pressure, LPG Mix, Loading Process, Qualitative Descriptive.

The Implementation Of The International Ship And Port Facility Security (ISPS) Code In Indonesia

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Abstract

The purpose of this study is to investigate the progress of the implementation of the ISPS Code in Indonesia, and to analyse its impacts on the shipping industries as well as challenges faced by the stakeholders since the Code entered into force in 2004. Indonesia, a contracting State to the ISPS Code since 2003, has made some efforts to show its commitment to enhancing maritime security by ensuring that all requirements set out in the Code are properly executed by the stakeholders concerned. This research identifies the impacts of the Code's application to port facilities and on board Indonesian flagged ships. It has not been an easy task for the Directorate General of Sea Transportation (DGST) acting in the role of the Maritime Administration (MARAD) to manage and monitor the application of the Code by port facility operators and shipping companies. The main issue identified in this research is the legal basis for implementing and enforcing the Code. The procrastination in promulgating secondary regulation concerning the ISPS Code had caused some problems to stakeholders. This research also identifies other outstanding issues encountered by the DGST and its technical divisions as the Designated Authority for the Code and other issues faced by port facility operators and shipping companies. This research analyses the achievements and challenges of the ISPS Code application in Indonesia based on information from previous research and recent data collected from the MARAD, and the shipping industries through the distribution of questionnaires. This study provides some recommendations, which are expected to v contribute to the enhancement of maritime security toward the realization of good maritime governance. In conclusion, the dissertation provides a comprehensive overview of the efforts made by the government. It starts with the development of a legal basis concerning the ISPS Code for the last 19 years and measures carried out to meet the objectives of the Code and the level of compliance with its requirements. It also identifies obstacles encountered by the stakeholders in implementing the Code, especially the enforcement of the Code by the DGST and its technical divisions as the National Authority.

Keywords : Risk Management, Storage Depot, Utilization, Expired Failure Ammunition, Multi-Criteria.

Leakage Analysis On Emergency Shutdown Valve To Improve Security And Safety During Loading And Unloading At MT. Gas Marella

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Abstract

This thesis is entitled "Leakage Analysis On Emergency Shutdown Valve To Improve Security And Safety During Loading And Unloading At Mt. Gas Marella". MT. Gas Marella there is a hydraulic oil leak in the emergency shutdown valve which makes the emergency shutdown valve unable to close fully in less than 30 seconds according to the IGC Code rules, this leak has various impacts, one of which is the loading and unloading process becomes unsafe so that it cannot be done. Because emergency shutdown is one of the safety that must be prepared to work on the loading and unloading process as a level of security in the loading and unloading process. Therefore, all components in the emergency shutdown must be in good condition so that safety and security in the loading and unloading process can run well. If there is a problem with the emergency shutdown section, the loading and unloading process must not be carried out. This study aims to Identify factors that influence the occurrence of leaks in the Emergency Shutdown Valve on board the ship to prevent problems that will arise, especially on the LPG / C Gas Marella ship and Minimize the negative impacts caused by leaks in the Emergency Shutdown Valve.

Keywords : Emergency Shutdown Valve, LPG, Emergency Shutdown System, Leakage, Loading, Unloading, Safety meeting.

Analysis Of Moisture Content In Solid Bulk Loads Of Nickel Ore Which Are At Risk Of Liquification Thus Disturbing The Stability Of The Ship

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Abstract

Solid bulk cargoes of Nickel ore pose a risk in transportation because they can melt (liquefy) during transit which reduces the stability of the ship and thus endangers the safety of the ship. Solid cargoes of Nickel ore that can be classified as group A cargoes are those that may melt if shipped at a Moisture Content (MC) content greater than the Transportable Moisture Limit (TML). Liquefaction of cargo nickel ore has caused the capsizing of several ships and reduced safety in transportation. To overcome the risk of liquefaction in solid bulk cargoes of iron ore before loading begins, a laboratory test for moisture content must be carried out so that the cargo is safe before loading. The aim of this research is to analyze the water content in solid bulk cargoes of nickel ore which are at risk of melting which could disrupt the stability of the ship. If the Moisture Content of a Group A cargo exceeds the Transportable Moisture Limit, then the cargo can be declared unsafe to be loaded onto the ship. The load must have its Moisture Content reduced until it is smaller than the specified Transportable Limit Moisture.

Keywords : Nickel solid bulk cargo, Liquefaction, Ship Stability.

Determinants of Commitment to Safety: an Evaluation and Meassurement Commitment to Safety for Indonesian Seafarer

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Abstract

Maritime safety is crucial in sea transportation as it protects lives, preserves marine ecosystems, and ensures the smooth operation of global trade. The maritime sector, a key player in international goods transport, faces numerous risks such as severe weather, technical malfunctions, and human error, which can result in serious accidents and environmental pollution. To enhance safety, international standards from organizations like the IMO are implemented, advanced navigation technology is utilized, and crew training is provided. For seafarers, maritime safety is vital as it protects their lives and well-being amid unpredictable sea conditions. This study aims to measure factors related to maritime through qualitative research via focus group discussions. To avoid ship accidents, several important behaviors are crucial. Firstly, following established safety protocols is vital for maintaining a safe working environment aboard the vessel. Regular training sessions and emergency drills equip the crew to handle potential emergencies effectively, while clear communication ensures that everyone understands their roles and any changes in operations. Crew members should also maintain situational awareness to be alert to their surroundings and identify possible hazards, such as adverse weather and navigational difficulties. Furthermore, conducting proper maintenance and inspections of the ship and its equipment is essential to prevent technical failures. Utilizing advanced navigation and safety technologies enhances monitoring capabilities and decision-making processes. Performing comprehensive risk assessments before embarking on any operation or voyage helps to mitigate potential risks. Lastly, fostering a safety culture on board encourages crew members to prioritize safety and report any unsafe conditions or behaviors.

Keywords : Commitment, Maritime Safety, Seafarer, Measurement.

Maintaining The Quality Of Using Steam Boottle Water Boiler Water Treatment (BWT) Under Efforts Prevent Corrosion So The Bootter Pipe Is Not Damagedon A Passenger Ship

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Abstract

A steam boiler is a closed vessel that can produce hot steam with a pressure greater than one atmosphere. Leaks in the fire pipes will affect the operation of the steam boiler. One of the pipe leaks in steam boilers is caused by corrosion on the boiler walls which is caused by inadequate boiler water quality. Boiler water must be maintained so that the contents that cause corrosion are removed, the chloride salt content is kept as low as possible, does not contain gases that cause corrosion - the SiO2 content is as low as possible and the boiler water is kept alkaline. The aim of this research is to maintain the quality of steam boiler water using Boiler Water Treatment (BWT) in an effort to prevent corrosion so that boiler water pipes are not damaged on passenger ships. BWT is able to maintain the quality of boiler water by reducing dissolved oxygen and reducing gases that cause corrosion and maintaining the alkalinity of boiler water so that it can prevent corrosion in boiler pipes.

Keywords : Boiler Water, Boiler Water Treatment, Corrosion.

Evaluation of Ramp Safety Awareness Training

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Abstract

This study evaluates the effectiveness of the Ramp Safety Awareness Training program using the CIPP (Context, Input, Process, Product) evaluation model. A total of 500 cadets participated in the training, designed to enhance their knowledge and skills in ramp safety protocols. The evaluation focused on four key components: context assessment to identify training needs; input assessment to evaluate the materials and resources provided; process assessment to analyze the delivery and engagement during the training; and product assessment to measure the outcomes and impact of the training on participants' safety awareness. The results indicated a significant improvement in the cadets' understanding of ramp safety practices, with pre- and post-training assessments showing a marked increase in knowledge retention and application. This study underscores the importance of systematic evaluation in training programs, demonstrating how the CIPP model can effectively inform and enhance safety training initiatives. The findings suggest that well-structured training programs can lead to substantial advancements in safety awareness, ultimately contributing to safer operational environments in the aviation industry.

Keywords : CIPP, Safety Awareness, Training.

Optimization of Hoisting and Luffing Wire Crane Maintenance as a Main Support For The Loading and Discharging Process of MV. PAN DAISY

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Abstract

The purpose of this study is to determine and analyze how the ship's crew maintains the hoisting and luffing wire to obtain optimal maintenance in ensuring the loading and Discharging process on the MV.PAN DAISY operates optimally when using the ship's crane. The author uses a qualitative descriptive method to create a cause and effect approach used to describe the case that occur on the ship. On the MV. PAN DAISY the author takes a case related to the title of the study. 6 broken wires were found on the hoisting crane number 2, so the ship's party was asked to replace the wire crane immediately so that the loading and discharging process could begin, this hampered the loading and Discharging process on the MV.PAN DAISY. To ensure that the ship's crane can operate optimally, it is necessary for the crew to carry out maintenance in accordance with the PMS and carry out supervision by creating a crane running hours checklist to find out for sure the schedule for renewing the wire crane. As long as these efforts are carried out correctly, the ship's crane is always ready to be used to loading and discharging process.

Keywords : Hoisting and Luffing Wire, Maintenance, Loading and Discharging Process, Supervision.

Cargo Handling Method Due to Temperature Decrease in Para-Xylene Cargo During Winter on MT WOO DONG

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Abstract

This thesis is entitled "Cargo Handling Method Due to Temperature Decrease in Para-Xylene Cargo During Winter on the MT WOO DONG". The operation of tankers is very complex, requiring officers and crew to use safety equipment in accordance with the Ship Oil Pollution Emergency Plan (SOPEP) to carry out cargo operations and tank cleaning effectively. One of the special payloads of concern is Para-Xylene, an aromatic hydrocarbon that is generally derived from crude oil and is used in the production of polyester fabrics and PET plastic bottles. However, Para-Xylene has a freezing point of 13.2°C which is higher than other xylene isomers, thus posing challenges during payload operations, especially in cold weather conditions. Several incidents involving the handling of Para-Xylene cargo on the MT WOO DONG ship from December 18th, 2022 – December 26th, 2022 have been documented, due to problems such as cargo freezing in pipelines and valves, which caused operational delays. To address these challenges, proper planning, preparation, and execution of cargo operations are essential, including monitoring cargo temperatures, implementing warming measures, and ensuring collaboration between port personnel and ships. This study aims to analyze and propose a method of handling Para-Xylene cargo in cold weather conditions on the MT WOO DONG ship to prevent freezing incidents and optimize cargo operations efficiently.

Keywords : Tanker, Para-Xylene, Cargo Operation, Cold Weather, Freezing, Safety Meeting.

Comprehensive Studies on Hydrocarbon Transport in Bulk Emergency Preparedness in Perspective of Statutory Requirement and Industrial Guidelines

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[2]National Transportation Safety Committee

Abstract

This study examines emergency preparedness for hydrocarbon transport operators from the perspective of industrial guidelines and statutory requirements, focusing on the Tanker Management and Self-Assessment (TMSA) and International Safety Management (ISM) codes. The growing global demand for hydrocarbons has expanded the fleet servicing the sector, but an increasing number of incidents has accompanied this growth. Utilising a semi-qualitative approach, the study conducted direct surveys with shipping management to assess their readiness to handle emergencies. The findings reveal a significant gap between company policy and shipboard implementation. Key issues include inadequate response team support, poorly conducted emergency drills, and a lack of coordination between shore-based management and shipboard crew, which hinder effective emergency management. The study highlights improved training, communication, and alignment between operational practices and policy to ensure better preparedness and incident mitigation.

Keywords : TMSA, ISM, Mitigation, Hydrocarbon.

Analysis of The Gas Free Process Implementation in The Cargo Tank for Dry Docking Preparation On VLPG/C Clipper

George Stevano Sidharta[1], A. Chalid Pasyah[1], Meilinasari N.H.[1]

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Abstract

National LPG consumption is projected to continue increasing, with imports also expected to reach more than 70 percent of total demand. This increase in demand has already been predicted by the Ministry of Energy and Mineral Resources. Many solutions and measures have been prepared by the Ministry of Energy and Mineral Resources. One of them is preparing transportation to transport LPG. This important role will be the responsibility of LPG carriers to meet the LPG consumption needs in Indonesia. Ensuring the seaworthiness of a ship is the most important requirement that must be met to ensure that the cargo carried by the ship is delivered efficiently and maximally. For this reason, regular maintenance and repairs on each ship are necessary to maintain its seaworthiness, one of which is through ship repairs in a shipyard, often referred to as docking. According to the 1974 Safety of Life at Sea (SOLAS) Convention, Chapter I, Regulation 10, inspections of the ship's underwater parts must be carried out at least twice within a five-year period, with the interval between the two inspections not exceeding three years. Before docking can take place, special and complex preparations are required on a gas carrier. This preparation is called a gas-free operation, which involves four stages: liquid freeing, warming-up tank, inerting, and aeration. These stages aim to ensure that the cargo tanks, initially filled with highly explosive and dangerous cargo, are transformed into spaces free of gas, allowing them to be safely accessed by crew members during the dry docking inspection with safe atmosphere level.

Keywords : LPG Carrier, Seaworthiness of a Ship, Dry Docking, Gas-Free Operation, Safe Atmosphere Level.

Hydraulic Pipe Maintenance to Optimize Loading and Unloading Processes on MT. Scarlet Melinda

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Abstract

The purpose of this research is to analyze and find solutions related to the maintenance of hydraulic pipes to prevent leaks and maximize their performance, thereby optimizing the loading and unloading process on the MT Scarlet Melinda ship. The approach method used by the author is qualitative descriptive with a case study. In the preparation of this research, the author used data analysis techniques in the form of a Fishbone Diagram to identify the root cause of the problem. The result of this research is the cause of hydraulic pipe leaks due to ineffective maintenance, which is only performed through corrective maintenance actions and requires more intensive maintenance and supervision. Also regarding the lack of skills in operating the hydraulic system by the new crew members, which certainly requires training and familiarization as well as further evaluation to reduce the risk of hydraulic pipe leaks to support the loading and unloading process.

Keywords : Hydraulic Pipe Leaks, Hydraulic System, Fishbone Diagram, Maintenance, Loading And Unloading.

Scope Energy and Emissions

Analytical Hierarchy Process (AHP) Analysis on Pioneer Vessels Utilization

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Abstract

The government has implemented a policy to provide pioneer vessel transportation facilities to enhance community accessibility, aiming to stimulate economic development in remote areas (Priadi et al., 2021). Many studies have discussed the role of pioneer vessel transportation in developing the economy (Priatno, 2010; Elpiyani et al., 2022; Wahyono, 2012; Suroyo et al., 2024), but none have studied the utilization of the pioneer vessels built within the Directorate of Traffic and Sea Transportation. This study aims to assess the utilization of the pioneer vessels as well as their service conditions. To support this study, we collected data on 34 pioneer ship objects, distributed across 10 locations. We got information by surveying the site in person and using secondary sources. The secondary sources included a list of unhanded pioneer ships, ship samples, service condition analysis, ship assessment, analytical hierarchy process (AHP) analysis, compatibility with the route, and the best way to assign ships. The analysis will yield the outcomes of the ship evaluation and suggestions for ship placement on the route, along with the overall cost and the total value of the cost savings. The results of the study produce an inventory of the utilization of the pioneer vessels built in the Directorate of Traffic and Sea Transportation and provide recommendations or input for the utilization of the pioneer vessels built in the Directorate of Traffic and Sea Transportation.

Keywords : Ship Assessment, Pioneer Vessel, Analytical Hierarchy Process.

Monitoring of Fuel Consumption with the Energy Efficiency Operational Indicator (EEOI) on LNG Tankers

Ronald Simanjuntak[1], Mauritz H. Sibarani[1], Pargaulan Dwikora S.[1], Vidya Selasdini[1], Derma Watty Sihombing[1], Nazilul Hamidi[1]

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Abstract

Delivery of goods to meet supply and chain logistics needs both nationally and internationally reaches more than 80% via sea transportation, as well as the growth of the ship fleet both world and domestic, Indonesia's ship growth for tanker types in 2023 is around 2114 units, an increase from 2019 as many as 1191 units. The growth of ships is in line with the need for fuel and this has an impact on carbon emissions produced from ships. This research uses qualitative methods with descriptive analysis in the context of monitoring fuel consumption on LNG ships. By using the Energy Efficiency Operational Indocator (EEOI), the Ekaputra 1 and Triputra LNG ships have different values, where the Ekaputra 1 ship uses efficient fuel with an EEOI value below 40 while the Triputra is above 40.

Keywords : EEOI, Carbon Emission, Fuel, Green House Gas.

Optimization of Cargo Loading Process to Prevent Delay in Delivery of Liquefied Natural Gas (LNG) on LNG/C Ekaputra 1

Meilinasari N.H.[1], Wiliyanus Kasing Mawo[1], Sigit Nugraha[1]

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Abstract

Liquified Natural Gas (LNG) is one of the main energy sources that is increasingly used in various industrial and transportation sectors. The process of liquefaction of natural gas into LNG makes it easier to store and transport with high efficiency. However, the process of loading LNG on board requires very careful handling due to the physical and chemical properties of LNG, which requires optimal temperature and pressure control. In the implementation of LNG loading on the LNG/C EKAPUTRA 1 ship, several obstacles were found that affected the efficiency and timeliness of delivery, including problems with equipment such as spray pumps, valves, and old temperature sensors, as well as communication obstacles between the ship's crew. These obstacles lead to imperfections in the cooling down process, increased pressure in the cargo tank, and ultimately delays in LNG delivery. Based on these problems, this study aims to optimize the LNG loading process to prevent delivery delays that can have a significant impact on economic and business aspects. This optimization is carried out with a focus on improving equipment readiness, more effective temperature and pressure control, and improving the communication system between crews. The research methods used are qualitative descriptive and Root Cause Analysis (RCA) with primary and secondary data sources. Carrying out routine maintenance and testing on valve/valve components can minimize and detect damage early to avoid various losses that arise. Maintaining a more optimal and controlled cargo tank pressure before the ship arrives at the terminal is also able to support the loading process time to be more efficient.

Keywords : Liquified Natural Gas, Cooldown, Economy, Business, Transportation, New Energy, Latency Optimization, Cargo Operation.

Energy Efficiency and Greenhouse Gas Emission Reduction from the Shift of Private Vehicles to Mass Transportation Operated by Transjakarta

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[1]Center for Sustainable Transportation Management

Abstract

The Bus Rapid Transit (BRT) system in a city is a key element of sustainable transportation because it offers a solution to reduce congestion by encouraging people to use public transportation. Jakarta has one of the best-implemented BRT systems in Indonesia and serves as a significant mitigation strategy to reduce greenhouse gas (GHG) emissions from road transport. This study seeks to assess the potential GHG emissions reduction from the operation of Jakarta's BRT system, as well as the fuel efficiency improvements resulting from the shift of private vehicle users to mass public transport. The study used quantitative data, comparing BRT operational data with the average trips of private vehicles assumed to switch to buses. The findings show that the potential reduction in GHG emissions from diesel-fueled BRT operations in Jakarta in 2023 is 256.906,12 tons of CO2, while the potential decrease in GHG emissions from CNG-fueled BRT operations is 61.706,62 tons of CO2. Furthermore, BRT operations contribute to energy efficiency by saving fuels as people shift from using private vehicles to using BRT for their daily mobility. The potential energy efficiency from the operation of the BRT system in Jakarta in 2023 is 794.341,57 Barrel Oil Equivalent (BOE), with 646.135,58 BOE for diesel-fueled and 153.221,88 BOE for CNG-fueled operations.

Keywords : Energy Efficiency, GHG Emissions Reduction, BRT Operation.

Scope Human Element in Transportation

A Sociolinguistic Analysis of Globalization on Gendered Language in Maritime Communication

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Abstract

This study explores the sociolinguistic impact of globalization on gendered language in maritime communication, focusing on the ways gender influences language use and interaction in a globalized maritime context. Drawing from a qualitative approach, the research investigates how global maritime environments, shaped by international regulations, diverse cultural settings, and globalized labor markets, influence communication practices. Through in-depth interviews and discourse analysis of seafarers, maritime professionals, and training instructors, this study examines the gender-specific language patterns that emerge in shipboard communication, training sessions, and professional interactions. The findings reveal that gendered language reflects both global maritime industry norms and localized cultural practices, contributing to either the reinforcement or mitigation of traditional gender roles. This research highlights the complexities of language use in maritime settings, emphasizing the need for a deeper understanding of how gender and globalization intersect in shaping professional communication. The implications for enhancing gender inclusivity in maritime training programs and communication protocols are also discussed. The study concludes that while globalization has introduced more gender-neutral terminology in formal contexts, the maritime industry continues to navigate a complex linguistic seascape where traditional, gendered language coexists with evolving international norms.

Keywords : Maritime Communication, Gendered Language, Globalization, Sociolinguistics, Maritime English.

The Impact of Gender Stereotypes on English Communication in the Maritime Industry: A Case Study of Seafarer Training Programs

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Abstract

This study explores the influence of gender stereotypes on English communication within the maritime industry, focusing on seafarer training programs. The maritime industry has traditionally been male-dominated, where gender biases may subtly shape communication practices, especially in English as the industry's working language. Through a case study approach, this research examines how gender stereotypes impact language use, communication dynamics, and overall effectiveness during training sessions. Data were collected through interviews, observations, and document analysis at selected maritime training institutions. The findings reveal that gender stereotypes often lead to differential treatment and expectations between male and female cadets, affecting their language learning experiences and communication confidence. Female seafarers face greater challenges in overcoming linguistic and cultural barriers, while male cadets are frequently assumed to be more competent, regardless of their actual language proficiency. The study discusses these imbalances and their implications for training outcomes, professional growth, and the broader maritime communication landscape. It also suggests that addressing gender biases can enhance communication skills and promote more inclusive seafarer training environments. Recommendations for developing gender-sensitive training curricula are provided, alongside suggestions for future research to further investigate gender dynamics in maritime communication.

Keywords : Gender Stereotypes, English Communication, Maritime Industry, Seafarer Training, Language Learning, Inclusive Training.

The Challenges of Officers Crew at PT. Arjuna Samudera Indonesia

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Abstract

Indonesia, as a maritime country, contributes significantly to the global supply of seafarers. However, traditional seafaring nations have seen a decline in the number of officers. This research employs a qualitative methodology, using data collection methods such as document analysis, in-depth interviews, and focus group discussions. The changing preferences and habits of Generation Z in Europe and America show a shift toward employment on land or in ports. The harsh and dangerous conditions of life at sea have led Generation Z to seek work onshore instead. PT Arjuna Samudera Indonesia, as one of the key players in outsourced crew management, focuses on addressing the existing gaps in the recruitment process, skill development, and the factors influencing the supply and promotion of seafarers. Additionally, the shortage of seafarer officers, as highlighted in the MLC 2006, and the impact of the COVID-19 pandemic present further challenges for the organization. This research aims to assess the role and crew management model employed by PT Arjuna Samudera Indonesia, along with current industry practices, while proposing solutions to improve the recruitment model for sustained growth in the maritime sector. The methodology used in this research is qualitative.

Keywords : MLC 2006, Generation Z, Shortage Seafarers.

Human Element Analysis In Maritime Accidents: Insights From Seafarer Agency Practices: A Case Study At PT. Tivas Marin Service

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Abstract

This case study examines the human element in maritime accidents through the lens of seafarer agency practices at PT. Tivas Marin Service. The research focuses on understanding how human factors, such as fatigue, decision-making, and communication, contribute to maritime accidents. It employs a qualitative approach, involving interviews with seafarers and observations of operational practices. The study identifies key issues related to the safety culture, training, and the role of organizational factors in shaping seafarer behavior. The findings highlight the importance of addressing human error through comprehensive training programs, enhancing safety protocols, and fostering a positive safety culture. The study contributes to the body of knowledge on maritime safety by providing insights into the complex interplay between human performance and organizational factors in preventing maritime accidents.

Keywords : Human Element, Seafarer Agency, Safety Culture, Training and Education, Organizational Factor, Fatigue and Fitness for Duty, Decision-Making and Communication, Case Study.

Comparative Analysis on SIRE 2.0 Readiness Focusing on Human Factors with Current State of Ship Management under Industrial Guidelines

Dina Kristina Tanjung[1], Aleik Nurwahyudy[2]

[1]Universitas Kristen Indonesia
[2]National Transportation Safety Committee

Abstract

This case study examines the human element in maritime accidents through the lens of seafarer agency practices at PT. Tivas Marin Service. The research focuses on understanding how human factors, such as fatigue, decision-making, and communication, contribute to maritime accidents. It employs a qualitative approach, involving interviews with seafarers and observations of operational practices. The study identifies key issues related to the safety culture, training, and the role of organizational factors in shaping seafarer behavior. The findings highlight the importance of addressing human error through comprehensive training programs, enhancing safety protocols, and fostering a positive safety culture. The study contributes to the body of knowledge on maritime safety by providing insights into the complex interplay between human performance and organizational factors in preventing maritime accidents.

Keywords : Human Element, Seafarer Agency, Safety Culture, Training and Education, Organizational Factor, Fatigue and Fitness for Duty, Decision-Making and Communication, Case Study.

The Role Of Human Resources In Marine Transportation Safety And Security Literature Review

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Abstract

Humans play an important role in maintaining life safety and security on board. Most of the causes of accidents in the shipping sector are human elements. Increasing the safety of shipping and navigation can be done by strengthening and focusing on the human factor. Approximately 80% of the world's trade is by sea, so the safety and security of life at sea and the protection of the marine environment depend heavily on the professionalism and competence of seafarers. The research will focus on human issues that are important in the planning and operation of marine transportation systems. The safety of the marine environment is one of the focuses studied in this research. The research aims to find out how the role of humans in accidents and safety in marine transportation systems. The approach taken in this study is a literature review and through observations and interviews with several academics and practitioners who have experience in the world of shipping. The result of this study is to obtain a comprehensive picture of the contribution of human factors in maintaining safety and security in the marine transportation system and strengthening the institutional system of education and training institutions in improving the professionalism and competence of marine transportation human resources.

Keywords : Sea Transportation, Human Factor, Safety and Security, Institutional Strengthening, Education and Training Institutions.

The Factors of Seafarer's Loyalty: Perspectives of Cadets

Tristanti[1], Capt. Suhartini[1], Meilinasari N.H.[1]

[1]Maritime Institute of Jakarta

Abstract

The maritime industry faces challenges brought about by global competition and technological advancements, necessitating companies to optimize their human resources management to maintain competitiveness. Seafarers frequently change employers upon contract completion, posing difficulties for shipping companies in cultivating loyalty among crew members. Economic crises, increased competition, and a shortage of qualified seafarers further complicate recruitment and retention efforts. This paper explores the factors influencing seafarer loyalty to shipping companies, focusing on cadets who serve as a potential recruitment source. The theoretical framework incorporates the theory of reasoned action and the theory of planned behavior to examine the attitudes, subjective norms, and perceived behavioral control affecting seafarer loyalty. The study employs qualitative methods, including surveys, interviews with senior seafarers and company management, and career data analysis. The findings reveal that factors such as positive experiences, company reputation, career prospects, and working conditions contribute to seafarers' loyalty. Key conclusions highlight the importance of company reputation, overall job satisfaction, and factors related to compensation and career progression in influencing seafarers' loyalty to shipping companies.

Keywords : Seafarer's Loyalty, Maritime Industry, Positive Experiences, Company Reputation, Career Prospects, And Working Conditions.

The Impact of Muslim Seafarers' Religious Practices on End-User Acceptance in Global Shipping

Nazilul Hamidi[1], Achmad Bashori[1], Tri Kismantoro[1], Baihaqi Hadi[1], Putryanka Septianingsih[1], Nabiel Muhammad[1]

[1]Maritime Institute of Jakarta

Abstract

The workforce of the around the world marine industry is varied, with a significant percentage of seafarers coming from nations with a majority of Muslims, such as Indonesia. Muslim seafarers encounter the particular difficulty of juggling the hard nature of life at sea with their religious commitments, which include daily prayers, halal dietary standards, and abstinence from alcohol. Although Muslim seafarers are well-represented in the business, little is known about how their religious beliefs affect their work performance and whether foreign shipowners and managers will tolerate them. The purpose of this study is to look at how religious practices affect Muslim sailors' performance and acceptance in the international shipping sector. This study aims to determine whether religious commitments and work-related expectations have a good or detrimental impact on seafarers' job performance. The study will also investigate the elements that influence end-user approval, offering important new information on how Muslim seafarers' views of professionalism and competence are influenced by their religious beliefs. In the end, the results will provide guidance to shipping firms on how to respect religious diversity while upholding high operational efficiency standards.

Keywords : Muslim Seafarers, Religious Practices, End-User Acceptance, Halal Dietary Practices, Cultural Diversity.

The Role of Communication Competence in Seafarers' Careers and Global Market Demands: An Empirical Study

A. Chalid Pasyah[1], Wida Cahyaningrum[1], Laras Ayu[1]

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Abstract

The global maritime industry thrives on effective communication between seafarers of diverse backgrounds. This study investigates the significance and critical role of communication competence in seafarers' careers and its alignment with the demands of the global market. An empirical approach is employed, utilizing data collection methods like surveys or interviews with seafarers of diverse nationalities and ranks. The study explores how communication skills, including intercultural awareness, technical knowledge, and clear and concise expression, impact seafarers' career advancement, safety practices, and effective teamwork on board. The research draws upon existing literature on communication competence in multicultural workplaces and its impact on team dynamics, leadership, and conflict resolution. Additionally, it considers frameworks specific to the maritime industry, such as Standards of Training, Certification and Watchkeeping (STCW) Convention requirements for communication skills. This study aims to provide empirical evidence for the importance of communication competence in seafarers' careers. It sheds light on the specific communication skills most valued by the global maritime industry and informs training programs to better equip seafarers for success.

Keywords : Communication Competence, Seafarers, Maritime Industry, Global Market, Careers, Empirical Study.

Swarm Leadership Development and Decision Making Using a Simple Additive Weighting Approach

I Gusti Agung Ayu Mas Oka[1], Retno Sawitri Wulandari[1], Fitri Masito[1]

[1]Maritime Institute of Jakarta

Abstract

The aim of this research was to analyze the characteristics that leaders needed to develop swarm leadership in the Polytechnics, Academy, and College under the guidance of Center for Human Resources Development on Civil Aviation (CHRDCA). The method used was a qualitative approach and decision-making techniques utilizing Simple Additive Weighted (SAW). The results of this research indicated that there were five leader characteristics essential for developing swarm leadership, namely Open Mind, Data Analytics, Technology Development, Collaboration and Networking, and Quick Action and Continues Improvement. Among the five characteristics, Collaboration and Networking emerged as the main priorities that leaders needed to develop swarm leadership. These characteristics relate to how a leader must be able to establish the widest possible cooperation and collaboration, and be able to utilize the advantages of partners, especially in terms of technology

Keywords : CHRDCA, SAW, Decision.

Scope Innovation in Transportation Education and Training

Enhancing Indonesia's Supply Chain Competitiveness: Analysis of Key Horizontal Issues and Policy Recommendations in the Digital Transformation Era

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Abstract

This research examines the challenges and opportunities in supply chain management in Indonesia, focusing on identifying Key Horizontal Issues (KHIs) and developing policy recommendations. Through analysis of primary and secondary sources, seven main KHIs were identified: standardization, regulatory framework, training and education, international agreements, incentives and funding schemes, reference bodies, and infrastructure. The research methodology involved expert consultations, workshops, and literature reviews to develop comprehensive policy recommendations. Results indicate the need for harmonization of standards and regulations, enhancement of workforce skills, supply chain-focused international agreements, incentive schemes for innovation, establishment of a national reference body, and development of infrastructure supporting future supply chains. Policy recommendations are grouped into six macro areas, encompassing regulatory, educational, international cooperation, funding, information, and infrastructure aspects. Implementation of these recommendations is expected to enhance the competitiveness and sustainability of Indonesia's supply chains in facing global challenges and digital transformation.

Keywords : Indonesian Supply Chain, Key Horizontal Issues, Policy Recommendations, Global Competitiveness, Digital Transformation.

Autonomous Ships In The Perspective Of The Skills Of Cadet Graduates At Maritime Institute In Indonesia

Ronald Simanjuntak[1], Pargaulan Dwikora S.[1], Markus Yando[1], Derma Watty Sihombing[1], Bhima Siswo Putro[1], Heru Susanto[1]

[1]Maritime Institute of Jakarta

Abstract

Autonomous ships or unmanned ships in the digital technology have become a reality, in various countries have started to build ships without crew, including Norway, Germany and Japan. Norway and Germany have published their ships that are controlled using remote control from land. This is a challenge for the world of education in responding to the need for expertise related to unmanned ship technology for graduates of maritime schools in Indonesia in the future who want to compete internationally. This research uses a quantitative method, where the instrument used is a questionnaire to collect data related to the needs of the abilities or expertise of maritime school graduates in order to support and prepare for future learning. Analysis data from the questionnaire given was obtained using the fuzzy delphi technique that experts accepted all expertise needs with a consensus value exceeding 75% and a d threshold value <0.2, with the first ranking of the questionnaire elements being the expertise in knowing computer programs or software development which is needed for graduates of cadets at maritime schools in Indonesia.

Keywords : Autonomous Ship, MASS, Artificial Intelligence, Fuzzy Delphi Method.

Empowering the Professionalism of Lecturers in Improving the English Skills of Maritime Institute Cadets: A Socio-Linguistics Perspective

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Abstract

This qualitative study explores the role of lecturer professionalism in enhancing the English language skills of cadets at maritime institutions, framed within a socio-linguistic perspective. The research aims to identify how lecturers' professional development, pedagogical approaches, and linguistic strategies contribute to cadets' English proficiency in maritime communication, a crucial skill in the globalized seafaring industry. Data were collected through semi-structured interviews, classroom observations, and document analysis involving maritime lecturers and cadets. A thematic analysis revealed that lecturers who engaged in continuous professional development, employed learner-centered approaches, and incorporated maritime-specific English language exercises significantly impacted cadets' communicative competence. The study highlights the importance of aligning teaching practices with socio-linguistic factors such as cadet motivation, the global maritime context, and English as a lingua franca in the industry. These findings suggest that empowering lecturers with targeted professional training and socio-linguistic awareness can enhance the effectiveness of English instruction, ultimately improving cadets' readiness for international maritime operations.

Keywords : Socio-Linguistics, Cadets, English Skill.

Customer Based Service Development Strategy In The Business Development Division Of STIP Jakarta

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Abstract

This research investigates customer-based service development strategies at the Business Development Division of STIP Jakarta, aiming to enhance organizational performance through improved service delivery. Employing a qualitative methodology, the study utilizes in-depth interviews, observational research, and document analysis to gather rich insights from key stakeholders. The findings reveal that while the Division has implemented several effective strategies—such as personalized customer engagement and continuous feedback mechanisms—challenges remain in the execution of these strategies due to gaps in training and resource limitations. The research identifies critical factors influencing the success of these strategies, including organizational culture, management support, and external market dynamics. The study concludes that sustained efforts are necessary to address these challenges and optimize service outcomes. Recommendations include investing in comprehensive employee training programs, fostering a customer-centric culture, leveraging technology for enhanced service delivery, and establishing clear performance metrics to evaluate strategy effectiveness. By implementing these suggestions, STIP Jakarta can significantly improve its customer service capabilities and overall organizational performance. This research contributes valuable insights for similar organizations seeking to enhance their service development strategies in a competitive landscape.

Keywords : Customer-Based Services, Service Development Strategies, Organizational Performance, Qualitative Methodology, Employee Training, Customer Engagement.

Transforming Seafarer Training in Maritime Institutions: An Innovative Approach and Effective Collaboration

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Abstract

This qualitative study explores the transformative impact of innovative approaches and effective collaboration in seafarer training within maritime institutions. As the maritime industry faces increasing technological and operational challenges, traditional training methods are being re-examined to meet the evolving needs of the global workforce. Through in-depth interviews and focus group discussions with maritime educators, industry experts, and cadets, this research investigates how collaborative efforts between institutions, industry stakeholders, and regulatory bodies can enhance the effectiveness of training programs. It also examines the integration of new teaching methodologies, digital tools, and practical onboard experiences to bridge the gap between theoretical knowledge and real-world application. The findings reveal that effective collaboration fosters a more adaptable and future-oriented learning environment, enabling cadets to develop critical skills such as problem-solving, leadership, and cross-cultural communication. The study concludes that adopting innovative, collaborative strategies in seafarer training can significantly improve cadet preparedness, ultimately enhancing safety, operational efficiency, and sustainability in maritime operations. Recommendations for further research include exploring the long-term impact of these training methods on cadet career progression and their adaptability to evolving industry standards.

Keywords : Seafarer Training Transformation, Innovative and Effective Collaboration, Learning Novelty, Empirical Study.

Integration of Augmented Reality Technology in Transportation Education: A Potential Effort to Increase Student Engagement and Knowledge

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[1]Politeknik Pelayaran Malahayati

Abstract

This research aims to explore the potential integration of Augmented Reality (AR) technology in transportation education as a strategy to improve student engagement and understanding. Along with the development of educational technology, AR has been widely used in various disciplines to create more interactive and engaging learning experiences. In the context of transportation education, which requires an in-depth understanding of transportation infrastructure, operations, and management, AR can provide realistic and immersive visual simulations. Through a literature review, this research analyzes how AR can be applied in the transportation curriculum and identifies potential benefits, such as increased learning engagement, improved understanding of complex concepts, and increased learning motivation. It also evaluates the challenges of implementing AR, including implementation costs, hardware requirements, and educator and student training. The results of the literature review show that AR has great potential in creating a more dynamic learning environment, especially in complex transportation simulations, such as traffic management and transportation infrastructure design. However, further research is still needed to develop more effective and affordable AR implementation methods in transportation education.

Keywords : Augmented Reality, Transportation Education, Student Engagement, Educational Technology, Interactive Simulation.

Pancasila Education Globalization Era And The Sustainability Of National Development: Sectoral Challenges In Sailing Universities

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[1]Politeknik Pelayaran Malahayati

Abstract

This research aims to explore the potential integration of Augmented Reality (AR) technology in transportation education as a strategy to improve student engagement and understanding. Along with the development of educational technology, AR has been widely used in various disciplines to create more interactive and engaging learning experiences. In the context of transportation education, which requires an in-depth understanding of transportation infrastructure, operations, and management, AR can provide realistic and immersive visual simulations. Through a literature review, this research analyzes how AR can be applied in the transportation curriculum and identifies potential benefits, such as increased learning engagement, improved understanding of complex concepts, and increased learning motivation. It also evaluates the challenges of implementing AR, including implementation costs, hardware requirements, and educator and student training. The results of the literature review show that AR has great potential in creating a more dynamic learning environment, especially in complex transportation simulations, such as traffic management and transportation infrastructure design. However, further research is still needed to develop more effective and affordable AR implementation methods in transportation education.

Keywords : Augmented Reality, Transportation Education, Student Engagement, Educational Technology, Interactive Simulation.

CARTO SD : Technology Innovation In Ensuring Effectiveness Of PSO Subsidy Distribution

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Abstract

PSO (Public Service Obligation) is a subsidy given by the government to transportation passengers, especially train passengers. Subsidies are useful to help people achieve prosperity. However, in its implementation, the PSO subsidy has not been well-targeted so that it has the potential to use subsidies that are not on target, causing a waste of budget that could have been used for other infrastructure development. PSO subsidies have been given from the government to service providers or operators of transportation facilities, namely PT KAI (Persero). The Ministry of Transportation through the Directorate General of Railways (DJKA) has a discourse to limit PSO according to criteria. However, restrictions need to be accompanied by an efficient usage system because KRL users are quite large and fast so that effectiveness in using the payment system must be prioritized so that queues do not occur. As a result of the review, innovation is needed to ensure PSO subsidies are right on target, one of which is CARTO SD (Card to PSO Smart Identification) technology. CARTO SD is an innovation that uses RFID and ESP32 technology to verify passengers who are entitled to receive PSO subsidies. RFID is used to identify passengers through e-money cards that contain passenger databases, while ESP32 enables remote data communication by utilizing Wifi and Bluetooth connections efficiently. The system consists of two main components: e-money card and passenger data verification tool. After the verification process, passengers who are entitled to subsidies will be given discounts during the payment process, while passengers who are not entitled can still use train services at normal rates. This innovation is expected to increase the effectiveness and efficiency of PSO subsidy implementation, reduce the potential for budget abuse, facilitate real-time monitoring and reporting of subsidy usage, and provide convenience for eligible passengers. This technology also has the potential to be further developed and implemented in other modes of transportation, thus creating a more integrated system in managing public transportation subsidies.

Keywords : PSO Subsidy, CARTO SD, Passenger Verification, RFID, ESP32.

Improving the Quality of Port Human Resources in Supporting the Implementation of Inaportnet at Ports in Indonesia

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Abstract

The implementation of Inaportnet as an electronic-based port service information system in Indonesia aims to improve efficiency, transparency, and quality of service at the port. However, the successful implementation of this system is highly dependent on the quality of human resources (HR) involved. This article discusses efforts to improve the quality of port human resources in supporting the implementation of Inaportnet at ports in Indonesia. Various training strategies, information technology skills development, and knowledge improvement related to regulations and operational standards applied in the Inaportnet system are the main focus. In addition, the challenges faced in the HR development process, including resistance to change, technological capability gaps, and limited supporting infrastructure, are discussed. Through this study, it is hoped that appropriate solutions can be found to accelerate the adaptation of port human resources to technological developments and global demands in the Indonesian maritime sector.

Keywords : Inaportnet, HR, Port Human Resources.

Designing Of An Online Application For Teaching Honoraria In Short Courses At STIP Jakarta

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Abstract

Expanding the advantages of constantly connected internet access is the goal of the Internet of Things (IoT) concept. Creating an online application for managing honoraria for teaching short courses is one way that IoT is being implemented. Research and development (R&D) is the focus of this research project. The methodology used research model is procedural. The information collection process is conducted factually via the four out of ten phases technique, which includes potentials and challenges, information gathering, product design, and design validation. Product validation is carried out by the business development division, finance department, and IT section of STIP. The outcome is a development model or product design that creates an online honorarium payment system to increase the effectiveness and efficiency of the procedure. The duration, payment process, lecturers' data, and the validity term of the instruction are all automatically monitored by this electronic circuit. The research aims to develop a monitoring system application based on an online honorarium management platform.

Keywords : Application, Internet of Things, Short Courses, Honoraria.

Qualitative Study of Content-Based Instruction in Maritime English Learning

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Abstract

This study investigates the impact of the Content-Based Instruction (CBI) approach on Maritime English learning among fourth-semester cadets at Sorong Merchant Marine Polytechnic. Using a qualitative method, observations were conducted over two months to assess cadet engagement, participation, and language use during CBI-based lessons. The findings indicate that integrating technical maritime content, such as navigation and emergency communication, significantly increased cadet motivation and engagement by making learning more relevant to their future careers. Cadets showed notable improvements in using specialized maritime terminology in both spoken and written tasks, demonstrating CBI's effectiveness in facilitating vocabulary acquisition and practical language skills. However, challenges emerged, including varying levels of English proficiency, which affected some cadets' ability to engage fully. While CBI supports technical language use, it does not entirely address foundational language gaps, such as grammar and pronunciation, suggesting a need for supplemental instruction. Overall, CBI is a promising approach for Maritime English education, enhancing language proficiency and professional skills, but further adaptations are required to accommodate all proficiency levels and ensure comprehensive learning outcomes.

Keywords : Content-Based Instruction, Maritime English, Qualitative Study.

Development E - Modules To Improve Cadet Problem-Solving Skills In The Ship Electrical Course (Case Study On Ship Electrical Review)

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Abstract

This research aims to develop learning modules for ship electrical courses that are valid, effective, practical in improving problem solving skills referring to the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The research instrument consists of expert validation sheets, cadet practicality assessment sheets and learning outcomes tests. The results showed that a). The e-modules developed are feasible to be applied in ship electrical learning based on the percentage of material experts 100%, media experts 91.67% and user experts 90% with valid criteria and based on the percentage of practicality consisting of visual appearance aspects 89%, material presentation aspects 85%, software utilization aspects 85% with practical criteria. b). Based on the effectiveness analysis on the results of the percentage of cadet responses consisting of aspects of ease 75.31%, aspects of satisfaction 77.81% and aspects of interest 77.81% with good criteria in improving problem solving ability from the aspect of understanding problems 92.59%, aspects of making problem solving plans 82.72%, aspects of implementing problem solving plans 58.44% and aspects of interpreting problem solving results obtained 59.26% with very good criteria.

Keywords : E-Module, Valid, Effective, Practical, Problem Solving.

Integrating Green Technologies and Digital Tools in Maritime Vocational Education for Sustainable Practices

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Abstract

The maritime industry faces increasing pressure to adopt sustainable practices, creating a demand for professionals skilled in green technologies and environmental awareness. This research explores the integration of green technology and digital tools into maritime vocational education, addressing the need to align educational outcomes with evolving industry demands. The study's original value lies in evaluating how digital learning platforms, including virtual reality (VR) and simulations, can enhance the teaching of sustainability in maritime contexts, an area under-explored in previous studies. The primary objective was to examine how these tools improve student engagement and preparedness in implementing sustainable practices in port and shipping operations. A qualitative methodology was employed, involving interviews with maritime professionals, lecturers, and graduates. The analysis revealed that the integration of these technologies leads to significant improvements in student learning outcomes, particularly in their understanding of sustainable maritime operations. The results demonstrate that green technology-focused curricula, supported by digital tools, effectively align educational programs with industry needs. The findings offer practical insights for maritime institutions, emphasizing the importance of evolving vocational training to meet the challenges of sustainability in the industry.

Keywords : Green Technology, Digital Tools, Maritime Education, Sustainability, Vocational Training.

Development in Navigational and Engineering Technology

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Abstract

This research explores the integration of maritime environmental education into the English curriculum of vocational maritime and transportation institutes in Indonesia. As environmental regulations and sustainability become increasingly crucial in global shipping operations, there is a growing need for maritime professionals to understand and communicate complex environmental issues. The study examines how environmental topics are incorporated into English language instruction and how this integration enhances student preparedness for operational and environmental challenges in the maritime industry. The research focuses on collaborations between educational institutions and the maritime industry/environmental organizations, analyzing the experiences and perspectives of maritime professionals, educators, and graduates. Using a qualitative approach and descriptive analysis, the study highlights the practical benefits of this educational model. The results demonstrate that integrating environmental education significantly improves graduates' readiness to meet the industry's environmental and operational demands.

Keywords : Curriculum, Environmental Issues.

Integrating Green Technology into Maritime Education: A Pathway to Sustainable Development in Indonesia

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Abstract

This research emphasizes the critical importance of vocational education in fostering a sustainable maritime industry in Indonesia. By incorporating green technology into maritime education curricula, institutions can better equip students to address the evolving environmental challenges within the industry. The study highlights how innovative teaching methods increase student awareness of sustainability, providing them with essential knowledge and skills for implementing sustainable practices in their future careers. Additionally, collaboration between industry professionals, educators, and graduates ensures that educational content remains relevant to real-world demands, thus preparing students to contribute to the maritime industry's sustainability goals. This approach not only improves graduates employability but also promotes a culture of sustainability within the sector.

Keywords : Green Technology, Maritime Education, Sustainable Development, Vocational Education, Indonesia, Environmental Stewardship, Sustainability Awareness, Industry Collaboration, Employability, Innovative Teaching Methods.

Integrating Green Technology and Environmental Considerations in Maritime Education: The Role of the Human Element

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Abstract

This research explores the effectiveness of integrating green technology and environmental considerations in maritime education, focusing on the human element's role in sustainable transportation practices. Through qualitative descriptive research, data were gathered from interviews with two lecturers and two graduates from a transportation institute. The findings indicate that vocational programs are successfully embedding sustainability into curricula, with a score of 9/10 in key indicators such as curriculum integration, graduate preparedness, and industry relevance. The study reveals that while theoretical knowledge is well-covered, there is a need for more practical training opportunities. The use of innovative teaching methods, such as simulations, has proven effective in enhancing students' understanding of green technologies. Recommendations include strengthening industry collaborations, expanding practical learning, and increasing environmental awareness initiatives. This research underscores the critical role of maritime education in preparing future professionals to meet the challenges of green technology adoption and contribute to long-term sustainability in the maritime sector.

Keywords : Green Technology, Maritime Education, Human Element, Environmental Sustainability, Vocational Training.

Enhancing Maritime Education: Collaborations for Sustainability and Green Technology

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Abstract

This research explores the collaboration between educational institutions and the maritime industry to promote sustainability and green technology. As environmental challenges intensify, understanding the effectiveness of these partnerships becomes critical. This analysis builds on existing literature by assessing the alignment of academic curricula with industry needs and identifying gaps in current practices. The primary research questions addressed the extent to which educational programs prepare graduates for sustainable practices and how industry engagement influences curriculum development. Utilizing a qualitative methodology, semi-structured interviews were conducted with maritime professionals, educators, and graduates to gather diverse insights. Results indicate a strong alignment between curricula and industry demands, with an average score of 9 out of 10 across key indicators. However, the findings also reveal opportunities for improvement, particularly in enhancing practical training experiences and formalizing feedback mechanisms. The analysis underscores the importance of continuous collaboration in refining educational programs, ultimately contributing to a more sustainable maritime sector. The practical implications suggest that fostering deeper industry partnerships and integrating experiential learning can better equip future maritime professionals to navigate environmental challenges effectively.

Keywords : Maritime Education, Sustainability, Green Technology, Industry Collaboration, Curriculum Alignment.

Enhancing Environmental Literacy in Maritime Education: A Study on Sustainable Practices

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Abstract

This study investigates the effectiveness of maritime education in fostering environmental literacy and promoting sustainable practices within the shipping and aquaculture sectors. Given the increasing urgency of sustainability issues in maritime management, this analysis seeks to address the gap in understanding how educational frameworks can better equip future professionals. The original contribution of this research lies in its focus on qualitative insights from diverse stakeholders—maritime professionals, educators, and graduates—thereby enriching existing literature. The primary objectives were to explore how sustainability is integrated into curricula, assess stakeholder engagement, and evaluate the effectiveness of experiential learning opportunities. Employing a qualitative methodology, semi-structured interviews were conducted, and thematic analysis was applied to interpret the findings. The results indicate a strong integration of sustainability within educational programs, with an overall effectiveness rating of 9 out of 10. However, areas for improvement were identified, particularly in curriculum updates and community engagement. The study concludes that by addressing these gaps, maritime education can enhance the readiness of graduates to navigate the complexities of sustainability, ultimately contributing to a more sustainable maritime industry.

Keywords : Maritime Education, Sustainability, Environmental Literacy, Stakeholder Engagement, Experiential Learning.

Enhancing Maritime Education: Collaborations for Sustainability and Green Technology

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Abstract

This research explores the collaboration between educational institutions and the maritime industry to promote sustainability and green technology. As environmental challenges intensify, understanding the effectiveness of these partnerships becomes critical. This analysis builds on existing literature by assessing the alignment of academic curricula with industry needs and identifying gaps in current practices. The primary research questions addressed the extent to which educational programs prepare graduates for sustainable practices and how industry engagement influences curriculum development. Utilizing a qualitative methodology, semi-structured interviews were conducted with maritime professionals, educators, and graduates to gather diverse insights. Results indicate a strong alignment between curricula and industry demands, with an average score of 9 out of 10 across key indicators. However, the findings also reveal opportunities for improvement, particularly in enhancing practical training experiences and formalizing feedback mechanisms. The analysis underscores the importance of continuous collaboration in refining educational programs, ultimately contributing to a more sustainable maritime sector. The practical implications suggest that fostering deeper industry partnerships and integrating experiential learning can better equip future maritime professionals to navigate environmental challenges effectively.

Keywords : Maritime Education, Sustainability, Green Technology, Industry Collaboration, Curriculum Alignment.

Innovation in Maritime Environmental Education: Integration into English Curriculum in Vocational Maritime Institutes in Indonesia

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Abstract

This research explores the integration of maritime environmental education into the English curriculum of vocational maritime and transportation institutes in Indonesia. As environmental regulations and sustainability become increasingly crucial in global shipping operations, there is a growing need for maritime professionals to understand and communicate complex environmental issues. The study examines how environmental topics are incorporated into English language instruction and how this integration enhances student preparedness for operational and environmental challenges in the maritime industry. The research focuses on collaborations between educational institutions and the maritime industry/environmental organizations, analyzing the experiences and perspectives of maritime professionals, educators, and graduates. Using a qualitative approach and descriptive analysis, the study highlights the practical benefits of this educational model. The results demonstrate that integrating environmental education significantly improves graduates' readiness to meet the industry's environmental and operational demands. The study also emphasizes the importance of expanding experiential learning opportunities and strengthening collaborations with environmental organizations to further enhance vocational training. This research offers new insights into interdisciplinary education for the maritime industry, contributing to the development of sustainable shipping practices.

Keywords : Maritime Environmental Education, Vocational Maritime Institutes, English Curriculum, Interdisciplinary Education, Sustainable Shipping.

Innovative Teaching Methods for Environmental Awareness in Maritime Education: A Qualitative Analysis of Applied Practices

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Abstract

This research investigates the effectiveness of innovative teaching methods in enhancing environmental awareness within maritime education, with a specific focus on the shipping and port management sectors. Recognizing the increasing demand for sustainable practices in the maritime industry, the study explores how these methods prepare students to meet the industry's evolving environmental and regulatory challenges. Building on gaps identified in previous research on maritime education, this study aims to determine how experiential and problem-based learning approaches contribute to both academic and practical readiness. A qualitative methodology was employed, gathering perspectives from three groups: maritime professionals (entrepreneurs, officers, and managers), educators (lecturers and trainers in maritime science), and recent graduates working in maritime industries. Through interviews and descriptive analysis, the research explored how simulation-based learning, case studies, and fieldwork enhance environmental responsibility and regulatory compliance. The results indicate that innovative teaching techniques, such as simulations and real-world problem-solving, significantly improve students' preparedness for industry challenges, particularly in sustainability and environmental management. These findings suggest that maritime education should prioritize experiential learning to bridge the gap between theory and practice. The study concludes that such methods not only improve environmental awareness but also align educational outcomes with industry demands, offering practical tools for fostering responsible maritime professionals.

Keywords : Maritime Education, Environmental Awareness, Experiential Learning, Sustainable Practices, Qualitative Research.

Enhancing Maritime Environmental Education through Green Technologies and Stakeholder Engagement

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Abstract

This research addresses the critical need for sustainable practices in maritime education, focusing on the integration of green technologies within vocational training programs. Given the increasing environmental challenges faced by the maritime industry, the study aims to evaluate current educational practices and their effectiveness in preparing students for real-world applications. The original contribution of this analysis lies in its qualitative exploration of perspectives from maritime professionals, educators, and recent graduates, filling a gap in existing literature on the topic. Key research questions include: How effectively are green technologies integrated into the curriculum? What are the perceptions of stakeholders regarding teaching practices? The methodology involved semi-structured interviews and focus group discussions, resulting in a rich qualitative dataset. Findings indicate a strong commitment to sustainability among educators, yet reveal gaps in practical application and digital tool integration. The results highlight the importance of experiential learning and industry collaboration to enhance educational outcomes. Ultimately, this research provides valuable insights for refining maritime curricula, promoting environmental stewardship, and better preparing graduates for the challenges of the maritime sector.

Keywords : Maritime Education, Environmental Sustainability, Green Technologies, Vocational Training, Stakeholder Engagement.

Enhancing Sustainability in Maritime Education: Collaborations Between Institutions and Industry

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Abstract

This research examines the collaboration between educational institutions and the maritime industry to promote sustainability and green technologies. As environmental challenges intensify, understanding how these partnerships function is crucial for developing future maritime professionals equipped to address these issues. This study builds on previous research by emphasizing the need for effective communication and engagement between stakeholders. The primary objectives were to explore the effectiveness of collaborations, identify key indicators of success, and assess student engagement in sustainability initiatives. Utilizing a qualitative methodology, the analysis involved semi-structured interviews and focus group discussions with maritime professionals, educators, and graduates. Findings revealed a generally effective partnership, characterized by clear role definitions and active student participation, achieving an average effectiveness score of 8.0. However, gaps in curriculum alignment with industry needs were identified. The research concludes that strengthening these collaborations and enhancing feedback mechanisms can better prepare students for the evolving demands of the maritime sector. This study offers practical recommendations for both educational institutions and industry stakeholders, emphasizing the importance of continuous improvement and innovation in fostering a sustainable maritime future.

Keywords : Maritime Education, Sustainability, Green Technology, Collaboration, Student Engagement.

Acceptance of The Use of Google Form and Google Drive in The Thesis Guidance of STIP Marunda Cadets. Investigation of The Use of UTAUT2 Model

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Abstract

The use of Google Form and Google Drive by cadets at STIP Marunda is growing, and a number of factors can affect how cadets behave and accept these digital tools. The Unified Theory of Acceptance and Use of Technology (UTAUT) is one tool used to gauge these elements. This study aimed to assess STIP Marunda cadets' behavioral intentions regarding their adoption and utilization of Google Drive and Google Forms for thesis guidance. The extended UTAUT2 model (Tamilmani, Kuttimani, et al.,2021), which was modified for the STIP Marunda setting, was used in the study. 75 cadets participated in the study by answering an online survey. The three most significant predictors of cadets' behavioral intention to use Google Form and Google Drive for thesis guidance were hedonic motivation, performance expectancy, and habit (the largest influence). Behavioral Intention was the most significant predictor of actual use of these technologies. Experience, age, and gender had no moderating influence. The results of this study have implications for improving the digital tools used in thesis supervision at STIP Marunda and help to understand how cadets accept Google Forms and Google Drive.

Keywords : Google Form, Google Drive, UTAUT.

Students' Understanding Of Electronic Laboratory At STIP

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Abstract

Electronic lesson is one of the subject at Engineering Department of STIP. This subject is mandatory according to IMO Model Course 7.04 and 7.02. This subject is delivered more with practice which is 67% while theory is 33%. This research aims to describe the Electronics laboratory understanding of Engineering Students of STIP regarding laboratory equipment and its functions. This research was carried out at STIP, among 133 students of the Engineering Department, batch 62. The instruments used in this research were tests and questionnaire sheets. The results of this research are that the Electronic laboratory understanding of students at Engineering Department of STIP is influenced by several aspects, including the aspect of interest in electronics activities which 88.72% of students agree and 12.03% strongly agree. Another aspect that influences is the aspect of knowing the conditions of electronics practicum activities in the laboratory where the results 16.54% of students agree and 4.51% disagree. Followed by the time aspect of practicum implementation where the results 87.22% of students agree and 13.53% strongly agree. Then aspects of preparation and implementation of electronics practical activities where the results 93.98% of students agree and 4.51% strongly agree and 2.26% disagree. Lastly is the report and practicum evaluation aspect where the results 93.98% of students agree and 4.51% strongly agree.

Keywords : Electronic Lesson, Laboratory, Student.

Optimizing Scopus AI to Enhance English for Specific Purposes (ESP) Learning

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Abstract

This research would like to enhance English for Specific Purposes (ESP) learning using Scopus AI effectively. In the advancement of digital education swiftly, the adoption of AI technologies such as Scopus AI could go a long way in enabling individuals access pertinent academic resources easily. Through this research piece, a thorough review of available literature is done drawing on Scopus data to demonstrate how AI can contribute towards personalization of ESP learning experiences which takes care of personal requirements like; Business English, Medical English and other specialized area. Nevertheless, it has been revealed that when one uses Scopus AI their search would be more precise thus saving time both for teachers and students while at the same time improving quality of their studies material. However there is still an important though unclear future scenario in which Scopus AI could be taken up to develop educational practices within the domain by adjusting itself according to the changing needs of students specialized in ESP. When put in language education with reference to ESP, AI-driven systems offer a route to more adaptive, efficient. and individualised learning outcomes.

Keywords : Scopus AI, English for Specific Purposes, Optimized, Enhance English.

Innovative Training Methods for Maritime Management Effectiveness: A Systematic Review

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Abstract

This study aims to explore the impact of innovative training methods on the effectiveness of maritime management through a Systematic Literature Review (SLR) approach. In the rapidly evolving modern era, traditional training methods in the maritime industry are deemed insufficient to meet the complex and dynamic skill demands. Therefore, this study seeks to identify and analyze recent literature regarding the effects of innovative training methods, such as virtual reality (VR) simulations and interactive digital learning, on enhancing workforce competencies and management effectiveness in the shipping sector. Data was collected from various relevant academic sources, including Scopus and Web of Science, focusing on articles published within the last ten years. The SLR findings indicate that innovative training methods positively influence both the technical and managerial competencies of the maritime workforce, contributing to improved operational efficiency and safety in the workplace. The findings also reveal challenges in implementing technology-based training methods, such as the need for adequate infrastructure and organizational support. This study provides valuable insights for shipping companies and maritime educational institutions to adopt more adaptive, technology-based training strategies to develop a workforce capable of facing the industry's dynamic future challenges. Through the SLR approach, this study enriches the literature on the relationship between training innovation and management effectiveness in the maritime sector.

Keywords : Innovative Training Methods, Maritime Management Effectiveness, SLR, Workforce Competencies, VR Simulation, Digital Learning.

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