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目錄

中華航運學會 2023 年
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IMO2020 限硫令對高雄港周邊空氣品質之影響

The Impact of IMO 2020 Fuel Oil Sulfur Limit on Air Quality Around Kaohsiung Port

梁芸瑄 Yun-Hsuan Liang、林珮珺 Pei-Chun Lin

摘要

國際海事組織(IMO)限硫令在 2020 年 1 月生效，船舶燃油硫含量限制從 3.5%m/m 降到 0.5%m/m。本研究主要目的為探討 2019 年針對高雄港提前實施 IMO 低硫政策是否有效降低港區船舶排放汙染物質，運用時間序列模型預測比較無實施低硫政策與實際觀測到污染物濃度之間差異，透過差異中差異法，以暴露於航運空氣汙染與海岸的接近程度作為區分，比較限硫令前後實驗組及對照組，判斷政策實施對改善高雄港空氣品質效果是否顯著，研究結果顯示政策實施後實驗組二氧化硫濃度下降了 33.31%，氮氧化物及懸浮微粒並沒有明顯減少，表示使用低硫油對於高雄港改善二氧化硫濃度為有效政策，政府及港口當局可以持續監測港口的空氣污染物濃度，並制定相關減排政策，以利空氣品質改善與港口永續發展。

關鍵詞：IMO2020 限硫令、時間序列分析、差異中差異法

Abstract

This study explores whether Taiwan's implementation of the IMO low-sulfur policy can effectively reduce pollutants by ships in the port area. This study used the ARIMA time series model to predict and compare the differences between the pollutant concentrations without the implementation of low-sulfur policies and the actual observations. Through the difference-in-difference method, the exposure to shipping air pollution and the proximity of the coast is used as a distinction, and the experimental group and the control group. The result of the study shows that after the implementation of the policy in 2019, the concentration of sulfur dioxide in the experimental group decreased by 33.31%, while nitrogen oxides and suspended particulates did not decrease significantly. It indicated that the low-sulfur oil is an effective policy for improving the concentration of sulfur dioxide in Kaohsiung Port. The government and port authorities should continue monitoring the concentration of air pollutants in the port and formulate relevant emission reduction policies to improving the air quality and sustainable development of port.

Keywords: IMO2020, Time series analysis, Difference in difference

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船用燃料限硫合規方案評估研究

A Study for Evaluating Compliance Options of Marine Fuel Sulfur Limits

朱經武 Ching-Wu Chu、許秀麗 Hsiu-Li Hsu、廖珍慧 Chen-Hui Liao

Abstract

This paper aims to provide a decision-making approach for evaluating compliance options of IMO2020 sulfur limit based on a case study.

A cost model is developed based on a fuel switching strategy. In the first stage, based on the fuel consumption, the fuel price per ton and the fuel operating cost of different scenarios can be calculated; in the second stage, we estimate the payback period of a scrubber from two parts: net cash flow and total fuel cost savings.

We found that installing the exhaust gas cleaning system not only meets IMO 2020 sulfur limit but also has obvious cost advantages.

This research contributes to integrating the relevant strategies and new knowledge of maritime transport in response to IMO 2020 sulfur limit. It provides ship owners/operators with long-term business investment plans.

Keywords Compliance options, Payback period, Exhaust gas cleaning system, scrubber

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臺灣港口發展船員更換區位研究

Analysis on Location Choice for Crew Change Transshipment Port Development in Taiwan

王彥蓉 Yen-Jung Wang、江柏鑫 Po-Hsin Chiang、賀天君 Tien-Chun Ho

摘要

與其他設施選址問題相同，國際船員更換港口選擇問題需考慮多項標準，由於此過程包含不確定性，故將 fuzzy logic 導入此過程中以獲得更準確的結果。本文基於散裝航運業者導向，針對停靠臺灣之貨櫃與散裝航運業者進行問卷調查，藉由貨運結構、轉運成本、轉運時間、環境因素、地理位置與基礎建設構面，構建臺灣港口發展國際船員更換區位選擇關鍵影響因素評估模式，並採用 FAHP 獲得航商之主觀意見，再透過 FTOPSIS 來探求航商於臺灣港口更換國際船員優先順序之客觀意見，並對其關鍵影響的因素和船員換班中心的港口進行優先排序，和採用相似度排序偏好技術對航運公司的理想解決方案進行排序。研究結果顯 示，腹地經濟為主要關鍵因素，高雄港則為船員最適更換場所。

關鍵詞：冠狀病毒、船員更換、轉運港口、模糊多準則決策

Abstract

Since this process includes uncertainties, it is suitable to integrate fuzzy logic to this process to obtain more accurate results. This study is based on the orientation of container and tramp shipping lines, and the questionnaires survey for international shipping companies. Based on cargo structure, transshipment costs, transshipment time, environmental, location and infrastructure, this paper obtained by questionnaires and using the fuzzy delphi-analytic hierarchy process to define the relevance, importance, and compute the subjective integration weights of all sub-criteria above the alternatives layer. After that, using the technique for order preference by similarity to an ideal solution, and utilizing the entropy weighting method to adjust the subjective integration weights of objective sub-criteria above the alternatives layer and ranking their priority of key influential factors and the crew change center port to help shipping companies make decisions. The results show that the hinterland economy is valued the most, and Kaohsiung port is the most suitable place for crew replacement.

Keywords: COVID-19, Crew change, Transshipment hub, Fuzzy multi-criteria decision making

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組織認同與情緒勞務負擔之關聯探討—以航空公司空服員為例

A study of Organization Identification and Emotional Labor—Taking Airline Fly Attendants for example

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摘要

隨著時代的變遷，產業快速的發展，航空產業更是如此。增加員工對於組織的認可，減少其情緒勞務的負擔將是提升公司發展的一項重要變數。本研究將對於航空公司的空服員對於組織的教育訓練、組織認同以及情緒勞務負擔進行探討，而減少新進同仁對於教育訓練的恐懼，並且提升空服員對航空公司的組織認同，可有效降低空服員的心理壓力衝擊。本研究將利用 Google 表單製作問卷進行資料收集，並且利用 ANOVA 與迴歸進行資料分析，對於日後航空產業的組織模式，提供更為有效的管理建議。

關鍵字：情緒勞務負擔、組織認同、教育訓練、空服員

Abstract

With the changes of the times, the industry develops rapidly, especially the aviation industry. Increasing employees' recognition of the organization and reducing their emotional labor will be important variables to improve the company's development. This study will discuss the education training, organizational identification and emotional labor of airline flight attendants in the organization and reducing the fear of newcomers to education and training, and improving the flight attendants' organizational identification with the airline can effectively reduce the impact of psychological stress on flight attendants. This research will use Google form to make questionnaires for data collection, and use ANOVA and regression for data analysis, and provide more effective management suggestions for the future organizational model of the aviation industry.

Keywords: Organization identification, Education training, Emotional labor, Fly attendant

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臺灣航空運輸業碳排措施分析與政策擬定

Analysis and Policy Formulation of Carbon Emission Reduction Measures in the Taiwan's Aviation Transportation Industry

許又仁 Yu-Jen Hsu、賀天君 Tien-Chun Ho、樓俊欣 Jun-Xin Lou

摘要

當前氣候災難頻繁，二氧化碳排放加劇其發生。為管制減量溫室氣體，碳定價、碳交易等規範應適時實行，本研究藉由專家訪談法，透過訪談、整理和總結資訊等方式，分析臺灣航空業應如何應對氣候變遷，以及實行何種策略可以減緩碳排放的影響，達成碳中和的目標。本研究以航空專家的立場，來看航空業碳排放相關的減排措施及碳定價、碳交易等相關制度。研究發現，航空業在減少溫室氣體方面已採取相關的措施，如使用永續航空燃料、航路優化等。此外，依照 ICAO 的規定，航空業也制訂了更完善的碳交易手段，然而專家提到，碳交易的執行勢必會影響航空運輸的價格。此類研究方法預計針對未來臺灣航空產業，在分析擬定減排措施時，能以其中相關建議做為參考依據。

關鍵字：碳排放、航空運輸、專家訪談

Abstract

Climate disasters continue to occur all over the world and are closely related to the great amount of greenhouse gas emissions such as carbon dioxide. With so many countries' economies growing, the ongoing production of greenhouse gases has also had a polarizing effect on the earth, with droughts, floods, and other disasters that used to occur only once every few years now occurring more frequently. The concepts of carbon pricing, carbon trading, and carbon credits are regulatory or legal frameworks developed to regulate and reduce greenhouse gas emissions. This study uses the expert interview method to interview individuals with a high degree of professional knowledge in the aviation industry. The purpose of this research is to analyze how Taiwan's aviation industry should respond to climate change and what strategies can be implemented to more effectively mitigate the impact of carbon emissions and achieve the goal of carbon neutrality, through interviews, compilation, and summarization of information based on the professional opinions of various experts. This study examines the aviation industry's carbon emission-related measures, as well as the related systems of carbon pricing and carbon trading, from the perspective of an aviation expert. The results of this study show that the aviation industry has already taken relevant actions to reduce greenhouse gas emissions, such as using SAF and optimizing flight routes, as well as setting up more specific and more comprehensive carbon trading methods in accordance with the relevant regulations of ICAO. However, experts also pointed out that the implementation of carbon trading is bound to affect the cost

of air transportation, such as airline ticket fares or air freight fees. This type of research is expected to provide an important reference for Taiwan's aviation industry when analyzing or formulating emission reduction measures to provide a reference for mitigation and related policies.

Keywords: Carbon emissions, Aviation transportation, Expert interview method.

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航運企業 ESG 發展之個案探討

Individual Study of ESG Development in Shipping Enterprises

彭巧妤 Chiao-Yu Peng[1]、李孟璁 Mason Lee[2]、吳芊萱 Chien-Hsuan Wu[3]、劉昌儒 Chang-Ju Liu[4]

摘要

ESG 企業永續責任為新型態評估企業數據與指標，此架構能刺激企業表現、兼顧環境及整體投資回報，而聯合國訂定 17 項永續發展目標，內容包括社會、經濟、環境等多面向，鼓勵企業朝向永續發展目標。長榮海運致力發展海洋相關 ESG 永續概念，並發行永續報告書與業界交流，本研究探討長榮海運永續報告書之海洋項目，並邀集航運專業之專家及學者，透過德爾菲法彙整專家意見並篩選出 3 個構面及其下層 11 項指標，後用層級分析法計算權重，結果顯示社會面的「訓練與教育」最重要，其次是治理面的「供應商社會評估」及環境面的「生物多樣性」，透過這個結果能協助未來長榮海運在應用 ESG 架構時，更清楚不同指標的權重關係，並評估公司是否有達到永續經營及投資決策。

關鍵字:航運業、ESG 企業永續責任、德爾菲法、層級分析法

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消費者使用金流平台先買後付意願之研究

Research on the Willingness of Customers to Buy Now and Pay Later Using a Payment Flow Platform

陳少云 Shao-Yun Chen、游俊廷 Chun-Ting You、郭思瑜 Szu-Yu Kuo

摘要

金流服務為網路購物重要的消費環節，先買後付(Buy Now Pay Later, BNPL)付款模式不需要繁鎖的信用資料申請，允許消費者在購物時向電子商務平台進行分期付款，提供消費者另一種付款選擇方案。本研究以科技接受模式為基礎，使用迴歸分析來探討消費者使用先買後付的「知覺易用性」、「知覺有用性」、以及「使用態度」之間的關係。針對台灣地區有網路購物意願的消費者進行問卷發放，總共回收 153 份有效問卷。結果顯示，消費者使用無卡分期的「知覺易用性」對於「知覺有用性」有正向影響；「知覺易用性」對於「使用態度」有正向影響；「知覺有用性」對於「使用態度」有正向影響。研究結果可提供電子商務平台營運業者，作為未來在經營方面之建議。

關鍵字: 金流 服務 、 先買後付、科技接受模式

Abstract

Payment flow service is critical consumption in online shopping. The Buy Now Pay Later (BNPL) payment model is an advantage that does not require credit information applications and allows consumers to shop by paying in instalments to e-commerce platforms. This provides consumers with another payment option. According to the Technology Acceptance Model (TAM), this study employed regression analysis to evaluate the relationship between perceived ease of use, perceived usefulness, and attitude toward using. A total of 154 usable questionnaires were collected in Taiwan. The results indicated that perceived ease of use has a positive impact on perceived usefulness; perceived ease of use has a positive impact on attitude toward using; and perceived usefulness has a positive impact on toward using. The research outcome can be provided to the e-ecommerce industry as suggestions for future operations.

Keywords: Payment flow service, Buy now pay later, Technology acceptance model

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疫情期間船員心理健康問題分析與解決方案排序

Analysis of Mental Health Problems of Crew during the Pandemic and Sequencing the Solutions

王唯凡 Wei-Fan Wang、黎格彤 Ko-Ting Li、吳芊諭 Chian-Yu Wu、樓俊欣 Jun-Xin Lou、賀天君 Tien-Chun Ho

摘要

由於疫情嚴峻導致船員無法如以往，在船舶靠港時可讓船員們下船舒緩身心，因此本研究探討船員在疫情期間對工作壓力與疲勞是否有影響。本研究係以職業壓力指標（OSI）為基準，利用問卷方式，調查船員對於各項壓力之感受程度，再以模糊德爾菲法作分析，針對船員工作性質進行壓力源各項關係之探討，結果顯示船員工作壓力程度以「服務船舶的船齡過於老舊」為最高，而船員疫情期間憂鬱狀況解決方案以「良好的工作氣氛」為首要，整體壓力源評估值屬於「總是會發生」至「從未發生過」等級。此結果將可提供各航運公司於疫情期間藉由改善管理措施之策略以降低船員身心壓力，並已達成提升航行安全之目的。

關鍵詞：疫情、職業壓力指標、航行安全

Abstract

This paper explores whether crew had an impact on work stress and fatigue throughout the pandemic. As the severity of the pandemic prevented crew from not being able to go to their ship as usual, they were allowed to disembark and relax when the vessel was in port. This paper used questionnaire based on Occupational Stress Indicator (OSI) to investigate critical degrees of stress on crews. The collected data was then analyzed with analysis of variance and analysis of Fuzzy Delphi Method (FDM) find stress factors and relationships among crew's background, stress degree, and response. The results pointed out that the highest level of work stress among the crew was related to the age of the ships served on. While the top solution to alleviating the crew's susceptibility to depression throughout the pandemic was the atmosphere 2 created among crew members. The whole evaluation value of all stress factors was between always happening and never happening. The results could help shipping companies realize the stress factors affecting crew members and instigate effective solutions to reduce their stress.

Keywords: Pandemic, Occupational stress indicators, Safety of navigation

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我國港口永續環境指標之評估[1]

The Evaluation of Sustainable Environment Indicators at Taiwanese Ports

方顗婷 Yi-Ting Fang、戴輝煌 Hui-Huang Tai

摘要

本文將臺灣港口的永續環境指標歸納成七大主要指標，均符合國際上對於永續發展之趨勢，後續經由分析發現：港口之空氣品質維護、水資源管理與能源使用轉型此三項，對港口而言，係為最重要的驅動指標，未來我國港口應透過這些指標之引導與實踐，來改善最重要的港市合作與友善社區等問題，同時可以維持港區生態環境之保護。此外，若是沒有政府對於永續政策與活動的推廣，則不管是民營企業或是國營事業，皆難以持續推展與永續相關的各種活動。

關鍵詞：永續環境指標、永續發展、港市合作、港區生態環境

Abstract

The indicators of sustainable environment of Taiwanese ports can be grouped into seven categories and which are in line with the international trend of sustainable development. This paper finds that air quality maintenance, water management, and energy using and transformation, which are the most significant driving indicators for ports. In the future, we can use the guidance of these indicators to improve the cooperation of port-city and friendly communities, and at the same time maintain the ecological environment of the port area. In addition, without the government's promotion of sustainability policies, it will be difficult for both private and public enterprises to continue to promote sustainability-related activities.

Keywords: The indicators of sustainable environment, Sustainable development, Cooperation of port-city, Ecological environment of the port area

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我國海商法有關電子載貨證券修法之研究

A Study on the Amendment Related to Electronic Bill of Lading in Taiwan's Maritime Law

吳雨純 Yu-Chun Wu、蔡信華 Hsin-Hua Tsai

摘要

電子載貨證券符合今數位化科技及永續發展之趨勢，透過區塊鏈技術於電子載貨證券之應用，興起許多電子載貨證券之數位化平台，且在航商們及相關國際組織的大力推動下，將有望達到電子載貨證券之全面化實施之可能。然電子載貨證券之使用所面臨的最大問題為法律之規範不明確，我國雖有電子簽章法可支持海商法中未規範到電子載貨證券的部分，但因載貨證券為航運及國際貿易之重要存在，故我國海商法仍有其必要明文規範電子載貨證券。本研究就載貨證券之定義、功能及相關國際公約之規定作為研究基礎，探討電子載貨證券於法規適用上之問題，再針對我國海商法有關電子載貨證券之法規適用不明確之部分，參考國際公約規範及國內海商法修正版本提出修法建議。

關鍵詞：海商法、電子載貨證券(提單)、運送單證、電子可轉讓記錄示範法

Abstract

Electronic bills of lading(eBL) are in line with the current trend of digital technology and sustainable development. With the use of blockchain technology in electronic bills of lading, many digital platforms have emerged. Under the promotion of shipping companies and relevant international organizations, it is expected that the comprehensive implementation of electronic bills of lading is achievable. However, the biggest challenge facing the use of electronic bills of lading is the lack of clear legal regulations. Even though Taiwan's Electronic Signatures Act supports the part of the Maritime Law that does not regulate the electronic bill of lading. Due to the bills of lading is crucial for shipping and international trade, Taiwan's Maritime Law still needs to explicitly regulate electronic bills of lading. This study is based on the definition and function of a bill of lading and the provisions of relevant international conventions to discuss the issue of the application of laws and regulations on electronic bills of lading and suggests amendments to the unclear regulations of Taiwan's Maritime Law, referring to international conventions and the domestic revised version of maritime law.

Keywords: Maritime Law, Electronic bill of lading (eBL), Transport document, UNCITRAL model law on electronic transferable records

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船員航海印象、基本心理需求滿足與幸福感關聯探討

Discussion on the Relationship between Sailor's Impression of Sailing, Satisfaction of Basic Psychological Needs and Well-being

蔡欣妤 Hsin-Yu Tsai、洪孟琳 Meng-Lin Hong、余坤東 Kung-Don Ye

摘要

本研究以本國籍現役商船船員為研究對象，使用自我決定理論探討船員基本心理需求滿足，及探討航海印象對基本心理需求滿足的影響；基本心理需求滿足對幸福感的影響，研究以問卷調查方式進行調查，共回收 400 份問卷，並以結構方程模式及層級迴歸進行資料分析，以驗證本研究之假設。實證結果如下：

1.四海為家與產業重要性之航海印象會影響基本心理需求滿足。

2.工作待遇與工作生活平衡、風險之航海印象不太會影響基本心理需求滿足。

3.基本心理需求滿足會影響幸福感。

本研究根據研究結果，提供實務建議及未來研究之方向，希望能對學術單位及航運產業有所助益和提供貢獻。

關鍵字：航海印象、自我決定理論、基本心理需求、幸福感

Abstract

This study takes the sailors of active duty merchant ships of their own nationality as the research objects, and uses the self-determination theory to explore the satisfaction of basic psychological needs of sailor, and to explore the influence of impression of sailing on the satisfaction of basic psychological needs; the influence of satisfaction of basic psychological needs on well-being. A total of 400 questionnaires were collected, and the data were analyzed by structural equation model and hierarchical regression to verify the hypothesis of this study.

The results of the study are as follows:

1. The nautical impression of the importance of home and industry will affect the satisfaction of basic psychological needs.

2. The nautical impression of work treatment, work-life balance and risk will not affect the satisfaction of basic psychological needs.

3. Satisfaction of basic psychological needs affects well-being.

Based on the research results, this research provides practical suggestions and directions for future research, hoping to help and contribute to academic institutions and the shipping industry.

Keywords: Impression of sailing, Self-determination theory, Satisfaction of basic Psychological needs, Well-being

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船舶打撈移除作業之重要因素研究

Research on Key Factors of Shipwreck Removal Operation

鄭宸宇 Cheng-Yu Cheng[1], 邱榮和 Rong-Her Chiu[2]

摘要

海上貿易之盛行，船舶在頻繁的海上運輸過程中由於自然或人為之原因發生海難。海難事故的發生使船舶成為殘骸，所遺留下來之殘骸如果棄置於原地，可能對航行或海洋環境造成危害。事故之發生難以避免，而事故之後續處理方法能減少其造成之影響，在這個注重環境永續性的時代尤為重要。然而關於船舶殘骸移除作業之研究鮮少探討其作業時之重要因素。本研究透過文獻回顧之方法，設計專家問卷，並用層級分析法來了解船舶殘骸移除作業中，哪些因素是影響其作業之重要因素。

關鍵詞：海難事故、船舶殘骸、殘骸移除作業、AHP

Abstract

With the prevalence of maritime trade, shipwrecks occur due to natural or man-made reasons during frequent maritime transportation. The occurrence of a maritime accident makes the ship a wreck, and if the wreck left behind is abandoned in place, it may cause harm to navigation or the marine environment. The occurrence of accidents is unavoidable, and the follow-up treatment methods of accidents can reduce their impact, which is especially important in this era of environmental sustainability. However, few studies on shipwreck removal operations have explored the key factors in the operation. Through literature review, this research designs expert questionnaires and uses AHP method to interpret which factors are key factors affecting the operation of ship wreck removal.

Keywords: Marine accident, Shipwreck, Wreck removal operation, AHP

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疫情下海運承攬運送業財務風險之研究

Identifying Crucial Financial Risk for Ocean Freight Forwarder under the Covid-19

鍾其秀 Ci-Siou Jhong、楊清喬 Ching-Chiao Yang

摘要

本研究以新冠疫情為背景，研究目的為瞭解海運承攬運送業者(以下稱為海攬業)在新冠疫情期間，營運上主要面對之財務風險種類及其認知重要性。透過文獻回顧和專家訪談，共彙整出市場風險、信用風險、流動性風險以及作業風險等四個財務風險構面，以及 13 項財務風險因素。

本研究問卷對象為臺灣地區海攬業者之主管級人員，發放並回收有效問卷 10 份，後續利用層級分析法，研究結果得知疫情下最主要影響海攬業者營運績效之財務風險構面為信用風險，依序為作業風險、市場風險及流動性風險。整體而言，填答者認為財務風險項目中最為重要之前三項為違約風險，依序是貨主延遲付款風險、內部作業風險。期望本研究能提供海攬業者在遇到如新冠疫情之重大事件下，進行財務上有效控管。

關鍵字：新冠疫情、海運承攬運送業、財務風險、層級分析法。

Abstract

The purpose of this study is to understand the types of financial risks faced by ocean freight forwarders (hereinafter referred to as "OFFs") during the COVID-19 and their cognitive importance. Through literature review and expert interviews, there are four financial risk dimensions including market risk, credit risk, liquidity risk and operational risk, as well as 13 financial risk factors.

The subjects of this research questionnaire are the executives of OFFs in Taiwan. Ten valid questionnaires were issued and retrieved. Later, using the Analytic Hierarchy Process, the research results show that the financial risk dimensions which most significantly affect the operating performance of OFFs under the COVID-19 is the credit risk, followed by the operational risk, the market risk and the liquidity risk. Overall, the respondents consider that the top three of most important financial risk items are the default risk, followed by the risk of delayed payment by the shipper, and internal operational risk. It is expected that this study could provide OFFs with effective financial control in the severe events like COVID-19.

Keywords: COVID-19, Ocean freight forwarder, Financial risk, Analytic hierarchy process.

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我國導入自動駕駛船之考慮因素

Determinants for the Adoption of Autonomous Ships in Taiwan

楊清喬 Ching-Chiao Yang[1]、林幸茹 Xing-Ru Lin[2]

摘要

近年來隨資訊科技的技術進步與智慧化服務發展，無人載具、人工智慧、大數據等新型態技術被廣泛應用，而在動態的航運產業經營環境中，新科技應用成國際運輸業者追求高效率與低成本的關鍵。在 60 年代，船舶自動化開始應用於船舶機艙；70 年代後，將電腦化控制與管理應用於船舶管理，而 80 年代後，除了傳統的自動控制還加入電子海圖、電子羅盤、氣象導航及船隊動態控管等新技術大量使用於現行的船舶，而隨 5G 時代的來臨與全球化的趨勢下，國際間紛紛投入智慧化與數位化的研究，自駕駛船的議題也隨之興起。聯合國海事組織(IMO)下轄的海事安全委員會(MSC)也重新定義自動駕駛船(MASS)並依船員涉入程度將自動駕駛船區分為四個等級，並開始研議相關的法規條文。

隨無人載具與自動駕駛船的議題興起，國際間已有許多實務應用案例，我國相關航運產業與學術等相關單位也在近年開始研究與討論。本研究為了解我國導入自動駕駛船考慮的因素，透過文獻回顧以及專家訪談，提出一個四大構面以及 17 項次準則的層級架構。本研究透過專家問卷調查共回收 18 份資料，並利用層級分析法進行分析，研究發現安全是所有專家認為影響我國導入自動駕駛船舶的最重要因素構面，依序為技術、經濟、社會。整體而言，網路安全與系統可靠度是最重要的因素準則，其次為船員安全、船舶技術能力、經濟效益與航行區域條件。相關研究成果可供我國航港產業未來引進自動駕駛船時評估參考。

關鍵詞：無人載具、自動駕駛船、層級分析法

Abstract

Recently, with the development of advanced technology and intelligent services, new technologies such as unmanned vehicles, artificial intelligence, and big data have been widely used. In this dynamic shipping marketplace, the application of those new technologies has become the key for international transport operators to pursue efficiency and low cost. In the 1960s, ship automation had be applied to ship engine rooms; after the 1970s, computerized control and management were applied to ship management, and after the 1980s, in addition to traditional automatic control, electronic charts, electronic compass,

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weather navigation, and fleets were added New technologies such as dynamic control and management are widely used in current ships. With the advent of the 5G era and the trend of globalization, the international community has invested in research on intelligence and digitalization, and the topic of autonomous ships has also emerged. The Maritime Safety Committee (MSC) under the United Nations Maritime Organization (IMO) has also redefined the autonomous ship (MASS) and divided the autonomous ship into four levels according to the degree of crew involvement, and began to study related regulations.

With the rise of the topic of unmanned vehicles and autonomous ships, there are many practical application cases in the world, such as underwater unmanned workboats used in port areas, underwater robots used in national defense requirements, or unmanned surface vehicles (Unmanned Surface Vehicle, USV), etc. In Taiwan, the shipping industry and related research units also begin to address and survey this issue. In order to understand the crucial determinants for the adoption of autonomous ships in Taiwan. A framework with four dimensions and 17 sub-criteria was proposed based on literature review and expert interviews. The data for this study was collected by the expert questionnaire survey. In total, 18 valid respondents were collected and the AHP analysis was consequently conducted to identify the crucial factors. Results indicate that “safety” was perceived by experts as the most important factor dimension influencing the adoption of autonomous ships in Taiwan, followed by technical, economic, and society. In sum, results reveal that cybersecurity and reliable of the system was the most important criteria influencing the adoption of autonomous ships in Taiwan, followed by safety of seafarers, technical capability of ship, economic benefit, and condition of navigation. The findings will be used as a reference for evaluating the adoption of autonomous ships in Taiwan in the future.

Keywords: Unmanned vehicle, Autonomous ships, Analytic hierarchy process

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探討航空旅客機場美學體驗對機場評價之影響

Investigating the Influence of Air Passengers' Airport Aesthetic Experience on Airport Evaluation

呂錦隆 Jin-Long Lu[1]、周恩 Anne Chew[2]

摘要

本研究主旨是探討航空旅客在機場美學體驗下對機場評價之影響。隨著航空發展，各國人員交流平凡，進出機場已是現代人或多或少的經驗。機場的設計代表著一個國家的國門，旅客對該國機場的感受與評價。本研究以台灣桃園國際機場，和泰國曼谷蘇旺那普機場為研究，探討機場美學的設計給旅客的感覺。研究對象為去過桃園機場，和泰國曼谷蘇旺那普機場的台灣旅客包括台灣航空業人員，將機場的美學以 S-O-R 模式，分析機場美學體驗 ->影響感受 ->再影響滿意度與忠誠度，所得到的結果為正向，機場美學體驗對情緒有正向影響，正向情緒對機場滿意度與忠誠度也有正向影響。最後根據研究結果，提供此兩座機場旅客對美學體驗的知覺影響及建議。

關鍵字：台灣桃園國際機場，泰國曼谷蘇旺那普機場，美學體驗，S-O-R 模式

Abstract

The main purpose of this research is to investigate the influence of air passengers' airport aesthetic experience on airport evaluation. With the development of aviation, almost everyone has experience of travelling abroad nowadays. The design of the airport represents the gate of a country, as well as passengers' feeling and evaluation of the airport. The research airports are Taiwan Taoyuan International Airport and Suvarnabhumi Airport in Bangkok, Thailand to compare passengers' aesthetic experience of these two airports. The research subjects are Taiwanese passengers who have been to Taiwan Taoyuan International Airport and Bangkok, Thailand Suvarnabhumi Airport, including Taiwanese aviation industry personnel. The airport aesthetic experience is analyzed by S-O-R model, which explained by airport aesthetic experience ->influence emotion> then influence the satisfaction and loyalty of the airports. The result is positive, aesthetic experience has a positive effect on positive emotion, and positive emotion has a positive effect on positive satisfaction and loyalty. Finally, according to the research results, the perception and suggestions of passengers' aesthetic experience of these two airports are provided.

Keywords: Taiwan Taoyuan international airport, Suvarnabhumi airport, Aesthetic experience, S-O-R model

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供應鏈下彈性零工型工廠最佳化排程之探討

李致誠 Chih-Cheng Li、鄭亘涵 Husan-Han Cheng

摘要

面臨台灣高科技產業及工業工程產業的興盛發展，以往社會大多數企業並無意識生產排程之重要，使整體在供應鏈體系中產生延遲問題；此外，整體社會環境中，兩岸關係政治、生產缺工及物料上漲等因素，生產上的障礙越來越多，使各個生產架構複雜的產業，最佳化生產排程一直是一大難題，針對此類問 題，LEKIN 便能在此領域大展拳腳，LEKIN 內建 6 大類機台環境並提供 8 個派工法則，以及最終檢視的 7 個生產績效指標，而本文採用 6 大類機台環境中的「彈性零工型工廠」為主軸，應用多數高科技產業的機台環境，以及參考 3 種績效指標作為依據，作為本文主要的研究方法，提供加強決策者在使用 LEKIN 時有範例去操作執行。此研究主要思考彈性零工型工廠中，不同平行機台數量及不同工單之順序，在設定不同目標及績效準則中，生產排程有什麼變化及影響，於是運用 LEKIN 排程工具，設定目及績效，近一步將資料整理，形成圖表分析，做出是否增加機台數量或重新校正權重比例，再透過績效指標演算出結果進行討論，最終依據管理決策者需求採用其方針進行最佳化生產排程。

關鍵字：供應鏈、彈性零工型工廠、最佳化、排程

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論無人船之責任及船員議題

A Study on Liability of Maritime Autonomous Surface Ships and Seafarers Issue

姚彥如 Yen-Ru Yao、蔡信華 Hsin-Hua Tsai

摘要

因應現代智慧運輸時代的來臨，無人船開始投入航運產業後，現有的國際法或國內法將受到相當挑戰，無人船必須於國際法或國內法中建立相應的制度。國際海事組織（International Maritime Organization, IMO）已將海面自主航行船舶（MASS）定義為一種在不同程度上可以獨立於人機交互而運行的船舶，並確立四個自主等級。本研究的主要目的，是以國際法、海事法的現存規定為基礎，探討無人船對國際法制的影響，並分析目前國際社會對無人船舶在國際法上的回應。本研究分析包括：海洋法公約中船舶的定義、國際海事組織的人員與船舶安全技術規範、岸上操作員之身分地位等，並從公法、私法及海上事故責任制度，分析現今我國海事相關法規所需之修正、制定，提供未來建立完備之相關規範之建議。

關鍵詞：智慧運輸、無人船舶、國際海事組織、岸上操作員

Abstract

To deal with the new generation of intelligent transportation, people start to develop maritime autonomous surface ships (MASS) in shipping industry, which means international law and national law will meet some challenges. Therefore, it is important to build a law framework for MASS. International Maritime Organization has already defined MASS as a ship which, to a varying degree, can operate independent of human interaction. IMO also dividesMASS into four levels. The purpose of this study is to discuss how MASS impact international law and analyze the current international response to MASS in international law. The analysis of this study includes the definition of the ships in United Nations Convention on the Law of the Sea, the regulations for personnel and ship safety in IMO and thelegalstatus of remote operators, etc. It also analyzes the necessary amendments and formulation of maritime regulations in Taiwan from the perspective of public law, private law, and maritime accident liability system, then provides suggestions for the establishment of complete regulations in the future.

Keywords: Intelligent transportation, Maritime autonomous surface ships (MASS), International maritime organization (IMO), Remote operators

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基隆港貨櫃碼頭自動化作業可行性探討

Feasibility Investigation of Container Terminal for Automation Operations of Keelung Port

曾柏興 Po-Hsing Tseng、張柏麟 Bo-Lin Zhang

摘要

基隆港在1984年曾是全球排名第七名之貨櫃碼頭，目前約排名第113名[1]，排名下滑原因之一為自動化碼頭趨勢所導致，近幾年面對鄰近港口的競爭。基隆港如何改善其設備與裝卸效率來吸引航商彎靠已成為重要的研究議題。根據文獻回顧，本研究以深度訪談法探討主要挑戰與提出可行的策略給港務管理當局、碼頭業者與利害關係人。研究發現港口資源與環境限制(如腹地條件與整合不同碼頭業者的困難性)進行自動化貨櫃碼頭最大阻力，難以產生規模經濟效益，管理與政策意涵於結論中進行討論。

關鍵詞：基隆港、貨櫃碼頭、自動化

Abstract

In 1984, the Port of Keelung had the seventh-largest container terminal in the world but today ranks approximately 113th[2]. One potential reasons for this drop is due to the quick spread of automated terminal in the other ports. With the trend being towards fierce competition from neighboring ports, a key question has become how to enhance operational efficiency in Keelung Port through introducing automated facilities. Based on the literature review, this research conducts on expert interviews to explore key challenges and then present feasible strategies for the authorities, terminal operators, and stakeholders. The results show port resource and environmental limitations (e.g., hinterland conditions, the difficulty in integrating the various terminal operators) might affect the container volume growth and consequently reduce the possibility of introducing automatic facilities due to the scale of economic consideration. Managerial and policy implications are discussed in the conclusions.

Keywords: Port of Keelung, Container terminal, Automation

[1] 本研究未將臺北港未納入基隆港進行探討。

[2] Taipei Port is not included in Keelung Port in this paper.

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訊息框架影響航空旅客預選機上餐點意願之探討

Exploring Message Framings Influence Air Passengers' Intention for the Pre-order Service of In-Flight Meal

翁如娟 Ju-Chuan Weng、呂錦隆 Jin-Long Lu

摘要

機上餐點浪費是航空業不容輕忽的問題，為此，不少航空公司開始推行預選機上餐點服務以減少浪費。但相關文獻指出旅客對此服務所知仍有限，且多僅提供給商務艙旅客使用，故航空公司如欲進行推廣，仍有努力空間。本研究應用輕推理論中之五種訊息框架，分別是獲得、損失、同儕效應、具體解決與抽象解決，來探討不同訊息框架影響旅客預選機上餐點的意願。透過蒐集 327 位旅客進行樣本分析，結果發現機上餐點對旅客的重要程度顯著影響旅客使用預選餐點服務之意願。此外，從獲得、具體解決與抽象解決等三種觀點所提供之訊息顯著提升旅客預選餐點意願；獲得與抽象解決框架的效果顯著優於損失與同儕框架。本研究結果可供航空公司推廣預選機上餐點服務之參考。

關鍵字：機上餐點、預選服務、訊息框架、共變異數分析

Abstract

Airline food waste is an unignorable issue within the aviation industry. To tackle this issue, many airlines have started to implement the pre-order service of in-flight meals. Passengers are asked to pre-order meals before boarding the flight so that the airlines can prepare the exact amount of meals for passengers' needs to reduce food waste. However, some literature pointed out that passengers still have limited awareness about the in-flight meal pre-order service, and most of this pre-order service is only provided to business class passengers. Therefore, if airlines are going to promote the pre-order meal service to fully understand the passengers' needs for food and reduce food waste, there is still room for effort. This study uses five message frames in nudge theory, namely gain, loss, peer effect, concrete solution, and abstract solution, to explore how these different message frames affect airline passengers' willingness to use the pre-order in-flight meal services. Through the analysis of a sample of 327 air passengers, it was found that the importance of in-flight meals to passengers significantly affects passengers' willingness to use the pre-order meal services. Furthermore, female passengers are more willing to use this pre-order meal service than male passengers. In addition, the information provided by the information frames from the three perspectives of gain, concrete solution, and abstract solution can significantly enhance passengers' willingness to use the pre-order meal services, and the effects of the gain messages and abstract solution messages are significantly better than the loss messages and

peer effect messages. The results of this study can provide empirical insights to airlines to promote pre-order in-flight meal services.

Keywords: In-flight meal, Pre-order service, Message framings, ANOVA analysis

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結合科技接受模式、便利性與知覺價值探討旅客持續使用機場自動查驗通關系統意願之研究

Integrating Technology Acceptance Model, Convenience and Perceived Value to Explore Air Passengers' Continued Use Intention of Airport E-gate System

陳方元 Fang Yuan Chen、劉昌宇

摘要

隨著航空運輸的蓬勃發展，近幾年國民出入境旅客屢創新高，面對日漸繁忙的機場情況，機場通關程序從傳統人力查驗通關發展出「入出國自動查驗通關系統（e-Gate）」。本研究運用科技接受模式（TAM）之基礎架構，結合便利性與知覺價值構面，探討旅客持續使用自動查驗通關系統之意願。本研究針對桃園國際機場之旅客進行紙本問卷調查，總共回收有效問卷 539 份，運用統計軟體 SPSS 24 及 Amos 22 進行分析，透過結構方程模式（Structural Equation Modeling, SEM）進行研究假說的驗證。研究的結果顯示便利性為影響持續使用意願最重要之因素。另外，知覺易用性、知覺有用性及便利性對知覺價值擁有正向且顯著的影響效果；知覺易用性、便利性及知覺價值對使用者態度擁有正向且顯著的影響效果；知覺價值與使用者態度對持續使用意願擁有正向且顯著的影響效果。最後，本研究依據研究結果，針對政府單位及機場公司提出相關建議與實務意涵予以參考並提出後續研究方向。

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運輸連結性與貿易之關聯性－系統性文獻回顧

Transport Connectivity and Trade Relativity – Meta Analysis Approach

閻姿慧 Barbara T.H. Yen[1]、黃寬丞 Kuan-Cheng Huang[2]、 陳信豪 Eric S.H Chen[3]

摘要

在全球化的浪潮下，全球的貿易總額在過去 10 年成長幅度超過 3 倍。影響國際貿易的因素眾多，其中國際物流的連結性獲得越來越多的關注和討論。現有文獻中明確提及「連結性」者多使用定期航運連結性指標衡量海運連結性。然而除此之外，連結性也經常被以不同的方式定義，諸如交通基礎設施品質和物流績效都能算是廣義的運輸連結性。因此本研究回顧現有討論運輸連結性對於貿易額影響之文獻，整理運輸連結性之定義和分析現有衡量指標之特性，並透過系統性文獻回顧找出顯著影響貿易額之變數，以探討運輸連結性與貿易額的關係。最後根據模型的分析結果，提出改善運輸連結性的建議，以期增加貿易額。

關鍵字：運輸連結性、國際貿易、統合分析、系統性文獻回顧

Abstract

Due to the trend of globalization, the total volume of global trade has grown more than threefold over this decade. From previous studies, many factors have confirmed to have significant impacts to international trade, and the connectivity of international logistics. However, there is no common agreement of which factors are the most important and critical ones. Some literature measures "connectivity" with liner shipping connectivity index. Connectivity, however, can also be defined in different ways, such as the quality of transport infrastructure and logistics performance. In order to identify what are the critical factors that would influence transport connectivity on international trade, this study delivers a systematical literature review via meta-analysis. From model results, several factors are found to have significant impacts to connectivity and thus to international trade. For example, logistics performance that has been viewed as a proxy to transport connective is one of the critical factors and brings significant positive impact to international trade. Finally, this study concludes with policy recommendations and research limitations.

Keywords: Transport connectivity, Global trade, Meta-analysis, Systematical literature review

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後疫情國際供應鏈韌性層級架構分析-以郵輪產業為例

Analysis on the Resilience Hierarchy of the International Supply Chain after the Epidemic：A Case Study of Cruise Industry

洪雅涵 Ya-Han Hung、蔡豐明 Feng-Ming Tsai

摘要

海運的供應鏈具有涉及多個國家的性質，因 Covid-19 大流行的影響，對郵輪供應鏈產生前所未有的衝擊，各國政府更意識到郵輪供應鏈風險管理和脆弱性的重要性，為了防止供應鏈中斷，解決不確定性的增加、脆弱性和不可預見的供應鏈中斷，本研究目的為從質化研究中識別出有效的供應鏈評估準則並建構在不確定性下的理論和層級的框架，應用模糊德爾菲法驗證郵輪產業供應鏈韌性措施的可靠性，並消除無效和不必要的評估準則，應用模糊決策實驗室分析法，去除專業人員對質化研究的主觀偏好，確定有效評估準則，再從評估準則的因果關係中建立層級模型。最後針對郵輪供應鏈提出架構模型，擴展當前文獻並確定郵輪供應鏈韌性之實踐，提升供應鏈風險管理與韌性的展現，舒緩降低郵輪供應鏈的動盪。

關鍵詞：郵輪供應鏈韌性、郵輪產業、模糊德爾菲法、模糊決策實驗室分析

Abstract

The nature of maritime supply chain that being transnational and involving numerous organizations caused high exposure toward various natural and human made risks. Since 2019, the world has been affected by the Covid-19 pandemic, the supply chain has had an unprecedented impact. In order to sustainably survive, the better supply chain resilience in required within the cruise industry, the purpose of this study is to identify effective supply chain attributes from qualitative research and construct a theoretical and hierarchical framework under uncertainty, apply fuzzy Delphi method and the fuzzy decision-makin g laboratory analysis method to determine the effective attributes, and establish a hierarchical model from the causal relationship of the attributes. The results of this study propose a framework model for the cruise supply chain, expand the current literature and determine the practice of the resilience of the cruise supply chain, and provide a reference for recovery plans after major shocks in the future, improve supply chain risk management and resilience, and ease the decline.

Keywords: Supply chain resilience, Cruise industry, Fuzzy delphi, Fuzzy DEMATEL

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以生命週期評估為基礎之低碳蔬果物流最佳化模式

Optimization of Low-carbon Fruit and Vegetable Logistics Based on Life Cycle Assessment

吳沛儒 Pei-Ju Wu、黃詩涵 Shih-Han Huan

摘要

蔬果物流在日常民生需求扮演重要角色，但物流過程之碳排放卻會對環境造成衝擊。因此，本研究嘗試結合生命週期評估法，發展低碳蔬果物流之最佳化模式，以最小化蔬果運籌之 碳排放量以及整體成本。具體而言，本研究首先訪談蔬果業者實務上生產與配銷之運籌模 式，以及面對淨零碳排壓力下之困境；進而，透過生命週期評估法，分析蔬果從生產、配 送、倉儲、銷售之碳排放；最後，建構最小成本與碳排之蔬果物流網路最佳化模式。在學 術貢獻上，本研究以真實蔬果物流為例，結合生命週期評估法與數學規劃，發展低碳蔬果 物流之最佳化模式；在實務上，本研究解決蔬果物流邁向淨零碳排之問題。

關鍵詞：蔬果物流、淨零碳排、生命週期評估、最佳化模式

Abstract

Fruit and vegetable logistics play an important role in daily life. However, the carbon emissions of the logistics process have an impact on the environment. Therefore, this study attempts to develop an optimal model for low-carbon fruit and vegetable logistics through the combination of life cycle assessment methodology in order to minimize carbon emissions and overall costs of fruit and vegetable operations. Specifically, this study first examined the practical ways in which fruit and vegetable operators produce and distribute, and the dilemmas they face under the pressure of net- zero carbon emissions. Then, this study analyzed the carbon emissions of fruit and vegetables from the production, distribution, storage, and sale of fruit and vegetables using a life cycle assessment methodology. Finally, this study has constructed an optimal model of the logistics network for fruit and vegetables with a minimum of costs and carbon emissions. In terms of academic contribution, this study incorporates life cycle assessment methodology and mathematical planning to develop an optimal low-carbon fruit and vegetable logistics model through real fruit and vegetable cases. In practical terms, this study deals with the problems of the logistics of fruit and vegetables on the way to net-zero carbon emissions.

Keywords: Fruit and vegetable logistics, Net-zero carbon emissions, Life cycle assessment, Optimization model

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區塊鏈應用於航運業資安漏洞與解決策略之實證研究-結合航運業者與科技業者之觀點

An Empirical Study on the Application of Blockchain to Address Cybersecurity Vulnerabilities and Strategies in the Shipping Industry-Perspectives from both the Shipping and Technology Industries Combined

陳威安 Wei-An Chen、黃聖騰 Sheng-Teng Huang

摘要

台灣地理位置四面環海，航運業為本國經濟的重要產業之一，不幸的是區塊鏈存有的資安漏洞為航運業導入 這項新科技 的重要瓶頸，駭客攻擊和資安問題都時常發生。研究目的在於探討區塊鏈技術在於台灣航運業中的應用，以解決資安漏洞的問題，並給予改善策略，來提升資安水平。本研究採用多層次品質機能展開法結合重要性績效分析法，來評估區塊鏈應用台灣航運業的資安漏洞。多層次品質機能展開法能同時建構服務提供者科技業者和顧客 航運業者的品質屋，克服上述問題計算出更精確的技術需求，可得到符合雙方需求的解 決方案。 本 研 究 結合產官學的角度進行多面向的分析，研究成果可供提升航運區塊鏈資安決策參考，同時也可作為未來航運區塊鏈相關研究的參考文獻。

關鍵字：航運業、 資安漏洞、 區塊鏈、 多層次品質機能展開法

Abstract

Taiwan's shipping industry is a crucial component of its economy, given its geographical location surrounded by the sea. Unfortunately, cybersecurity vulnerabilities are a significant bottleneck for the industry's adoption of blockchain technology.This research aims to explore the application of blockchain technology in the Taiwanese shipping industry to address these vulnerabilities and provide improvement strategies to enhance cybersecurity levels. The study uses a multilayer QFD approach combined with Importance-Performance Analysis (IPA) to evaluate the application of blockchain in addressing cybersecurity vulnerabilities.The approach can simultaneously construct the House of Quality (HoQ) of service providers(technology industry) and customers(shipping industry) to overcome the above issues and calculate more accurate technical requirements. Furthermore, providing solutions to meet both needs. This study combines the perspectives of industry, government, and academia to conduct multi-dimensional analysis, the results of this study can serve as a reference for improving the decision-making of blockchain security in the shipping industry and also as a reference for future research on blockchain in the shipping industry.

Keywords: Shipping industry, Cybersecurity vulnerabilities, Blockchain, Multilayer QFD

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報關行應用區塊鏈技術在貿易單據簽審平台之可行性研究

Feasibility Study on the Application of Blockchain Technology in Trade Document Execution Platform for Customs Broker

周正捷 Cheng-Chieh Chou、楊鈺池 Yi-Chih Yang

摘要

海運業導入區塊鏈技術已是大勢所趨，惟缺乏報關人員應用此技術於作業流程之考量，故本研究歸納區塊鏈於海運產業鏈應用之文獻及專家意見，分析報關人員應用區塊鏈整合平台之障礙，並採用灰關聯分析法對其障礙間的關係加以排序比較，以提出政府機構未來在開發簽審整合平台時之參考與建議。經由實證分析後發現報關人員應用區塊鏈整合平台之可行性包括四個構面和十個評量因素。首先構面方面，報關業者對於信任安全此項最為重視：在評量因素方面，對擔心駭客的攻擊最為重要，其次是擔憂共享資訊導致公司機密外露，再來是報關業者投入區塊鏈技術之成本高昂。因此政府機關推動報關人員應用區塊鏈整合平台需考量前述評量因素，以提升整合平台之使用率。

關鍵詞：報關業、區塊鏈技術、簽審流程整合、灰關聯分析

Abstract

The introduction of blockchain technology in the shipping industry is a general trend, but there is a lack of customs declaration personnel considering the application of this technology in the operation process. Therefore, this study summarizes the relevant literature and expert opinions on the application of blockchain in the shipping industry chain, and analyzes the application of blockchain technology by customs declaration personnel. The obstacles of the chain integration platform, and use the gray relational analysis method to rank and compare the relationship between the obstacles, so as to put forward the suggestions for the government agencies in the future development of the documents examination and permission integration platform. After empirical analysis, it is found that the feasibility of customs declaration personnel applying the blockchain integration platform includes four dimensions and ten evaluation factors. First of all, in terms of dimensions, the customs declaration industry pays the most attention to the trust and security: in terms of evaluation factors, fear of cyber hacking attacks is the most important, followed by the Concerned about sharing information leading to disclosure of company secrets, and then the the high cost of investing in blockchain technology for customs brokers. Therefore, government agencies must consider the aforementioned evaluation factors to promote the

application of blockchain integration platforms by customs declaration personnel, so as to increase the utilization rate of integration platforms.

Keywords: Customs broker, Blockchain technology, Signing and review process integration, GRA

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貨櫃航商採行碳中和發展對策之研究

Research on Carbon Neutral Development Strategies Adopted by Container Shipping Companies

張靜文 Chin-Wen Chang、楊鈺池 Yi-Chih Yang

摘要

海運占全球貿易運輸的 90%，伴隨國際航運發達卻造成了海上汙染日趨嚴重，「碳中和」一詞也成為近年熱門討論議題。貨櫃航商採行碳中和發展對策應對海洋汙染及氣候變遷成為本研究目的。本研究蒐集碳中和相關文獻及航運業實施碳中和之案例，使用灰色關聯分析法找出貨櫃航商採行碳中和對策之影響評量因素，並提出碳中和發展對策供貨櫃航商參考。經實證分析發現，在構面方面，貨物相較其他三個構面重要，其次是系統，再來是船舶，最後是燃料；在評量因素方面：船舶汰舊換新相較於其他十四項因素重要，其次是運用氣象導航，再來是追蹤燃油效率，因此貨櫃航商可以參酌前述評量因素作為優先之碳中和發展對策。

關鍵詞：碳中和、氣候變遷、灰關聯分析

Abstract

Shipping accounts for 90% of global trade and transportation. With the development of international shipping, marine pollution has become increasingly serious. The term "carbon neutrality" has also become a hot topic of discussion in recent years. It is the purpose of this study that container shipping companies adopt carbon-neutral development countermeasures to deal with marine pollution and climate change. This study collects relevant literature on carbon neutrality and cases of carbon neutrality in the shipping industry, uses gray correlation analysis to find out the factors affecting the evaluation of container shipping companies' adoption of carbon neutrality countermeasures, and proposes carbon neutral development countermeasures for container shipping business reference. Through empirical analysis, it is found that in terms of facets, cargo is more important than the other three facets, followed by systems, then ships, and finally fuels; in terms of evaluation factors: the replacement of old ships with new ones is more important than the other 14 items Factors are important, followed by using weather navigation, and track fuel efficiency. Therefore, container shipping companies can refer to the aforementioned evaluation factors as a priority carbon-neutral development strategy.

Keywords: Carbon neutrality, Climate change, GRA

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兩岸直航政策對經貿層面的影響

Study on the Impact toward Economic and Trade Development from Cross-Strait Direct Flight Policy

趙芳儀 Fang-Yi Chao、張玉君 Yu-Chun Chang

摘要

兩岸直航自 1979 年提出，從口號到施行、從國內到國外局勢，都有相當大的起伏變化，四十多年來 依舊是熱門話題 ，係因直航非單純的經濟效益計算 更 涉及 政策施行後帶來的政、軍、經、社等各層面影響。本文在第二部分爬梳兩岸直航政策的流變，第三部份簡要闡述中國經濟治略 ，第四部分從經濟治略看兩岸直航後的經貿層面影響，第五部分總結。本文認為兩岸直航後，經貿關係更加緊密，台商在兩岸相關決策上的利益團體角色越形重要。兩岸直航後，填補了中國市場這塊原本缺失的航網涵蓋面， 但不囿於兩岸航線及陸客來台，將兩岸航網與國際航網連結、積極擴展其他國家航線及旅客，善用臺灣 地理優勢，提升機場航網可及性、國際競爭力才對臺灣 經貿發展有實質助益。

關鍵詞：兩岸直航、經濟治略、兩岸 經貿

Abstract

Cross-Strait direct flight policy has been a contentious topic since 1979, given its far-reaching implications for political, military, economic, and social factors. This paper comprises five parts, with an introduction followed by the evolution of the cross-strait direct flight policy. The third part outlines a brief overview of China's economic statecraft strategy. In the fourth part, the economic and trade impacts of direct cross-strait flights from China's economic statecraft perspective are examined. Lastly, the fifth part provides a summary. This paper argues that the economic and trade relationship has become closer than ever following the introduction of direct flights between the two sides of the strait. Taiwanese business people now play a more significant role in cross-strait policy-making. Moreover, the direct cross-strait flight has helped fill the gaps in the air network coverage in the Chinese market. Not just for cross-strait routes and mainland passengers coming to Taiwan, it has connected the cross-strait air network with the international air network and actively expanded routes and passengers from other countries. The paper suggests that leveraging Taiwan's geographical advantages to improve the accessibility of its airports, aviation network, and international competitiveness will substantially benefit its economic and trade development.

Keywords: Cross-strait direct flights, Economic statecraft, Cross-strait economic and trade development

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層級分析法應用於港口物流供應鏈回復力關鍵影響因素之評估

Assessing Critical Factors Affecting Port Logistics Supply Chain Resilience with Analytic Hierarchy Process

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摘要

隨著科技發展與環境快速變化，國際物流供應鏈風險不斷增加。港口為國家貿易門戶、 海運運輸樞紐，若因風險事件導致營運中斷， 將使供應鏈參與者遭受 損失。系統受干擾後迅速恢復原有服務效率及品質的能力，為系統的回復力 (Resilience)。為了解 港口物流 供應鏈 回復力 關鍵影響 因素有哪些，港口營運單位應如何針對有限資源進行改善，以最有效方式提升系統回復力，本文根據資源基礎分類建立「人員與專業、機具與設施、資訊與系統、組織與策略」四大評估構面及 16 項評估準則，並採用層級分析法進行實證分析找出關鍵回復力 影響因素。研究結果可供港口營運及管理當局做未來策略規劃參考 。

關鍵詞：港口物流、回復力、資源基礎、層 級分析法

Abstract

With the rapid change of technology and environment, the risks of the international logistics supply chain are increasing. As the national trade gateways and maritime transport hubs, any disruption at a port can result in losses for supply chain participants. The ability of the system to quickly restore to original service quality after disruption is call system “resilience”. To understand the key factors affecting the resilience of port logistics supply chain, and how port operators should improve the resilience of the system in the most effective way, this paper establishes four evaluation components and 16 evaluation criteria based on the resource-based theory, including personnel and profession, machinery and facilities, information and system, organization and strategy. The Analytic Hierarchy Process is used to identify the key resilience affecting factors. The research results can provide as a reference for port operations and management authorities in future strategic planning.

Keywords: Port logistics, Resilience, Resource based view, Analytic Hierarchy Process

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Covid-19 對遠東貨櫃航運路網之影響

The Impact of the Covid-19 on the Far East Container Shipping Network

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摘要

海洋運輸承攬了全球 80%以上的貨物流動，其中亞洲內部貨運量更是遠高於其他地區，而疫情的爆發使海洋運輸受到嚴重的衝擊，因此本研究利用社會網路分析法來針對遠東區域之近洋航線進行分析，研究發現以下幾點：(1) 小港口受到疫情的影響與變化較大；(2) 整體而言，2020 年大多數港口之轉運能力及重要性明顯提升；(3) 加權度中心性顯示 2019 至 2020 年多呈現負變動率，顯示疫情的爆發導致船舶靠港次數下降。(4) 高雄港之船舶靠港次數明顯相較其他相似轉運能力的港口高，且高雄港在疫情後的轉運能力有所提升。透過本研究充分了解疫情之下路網的轉變，往後可藉此訂定相關的因應措施，以降低衝擊帶來之傷害。

關鍵字：covid-19、社會網路分析法、亞洲港口、可視圖

Abstract

Maritime transportation accounts for over 80% of global freight flow, with intra-Asia cargo volume far exceeding that of other regions. The outbreak of the pandemic has had a severe impact on maritime transportation. Therefore, this study uses Social Network Analysis (SNA) to analyze the far east regional near-sea shipping line. The study found the following: (1) Small ports are more affected and subject to greater changes due to the pandemic. (2) Overall, the transshipment capacity and importance of most ports increased significantly in 2020. (3) Weighted degree centrality showed a negative growth rate from 2019 to 2020, indicating that the outbreak of the pandemic caused a decrease in the number of port calls. (4) Kaohsiung Port has a significantly higher number of port calls than other ports with similar transshipment capacity, and its transshipment capacity has improved during the pandemic. Through this study, we thoroughly understand the changes in the shipping network during the pandemic, and can develop relevant response measures in the future to mitigate the damages caused by such disruptions.

Keywords: Covid-19, Social network analysis, Asian ports, Visualization graph

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建構定期航商貨櫃需求預測模型

Constructing a Predictive Model for Liner Shipping Container Demand

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摘要

2022 航運市場漸漸回穩，因此備櫃量的多寡也直接影響到航運公司在營運成本上的關鍵因素。因此本研究根據國內某定期航運公司所提供之過往資料，擬建構貨櫃量推估計算之預測模型，將本研究整理之變數套入計算求解，並且與該定期航運公司討論相關變數之擬定，更接近實務層面。歸納其影響備櫃量之因素進行類神經網路預測模型之建構後，預測未來 2023 可能之備櫃需求量以提出各策略之運用範疇，透過實例分析與模型驗證，驗證模式之適用性，並對結果加以分析，找出影響貨櫃推估之主要因素及較佳之貨櫃推估策略，並提供給各大定期航運公司在未來備櫃量推估上的實質建議予參考，即可反映市場供需的影響，達到更加的經濟效益。

關鍵字：貨櫃航商、倒傳遞類神經網路、貨櫃量需求預測

Abstract

The shipping market gradually stabilized in 2022, and the amount of container preparation directly affects the key factor of operating costs for shipping companies. Therefore, based on the past data provided by a domestic scheduled shipping company, this study aims to construct a predictive model for estimating container volume. The variables compiled in this study will be applied to calculate and solve the model, and the relevant variables will be discussed with the scheduled shipping company to be closer to practical level. After summarizing the factors that affect container volume, a neural network prediction model will be constructed to predict the possible container demand in 2023, and various strategies will be proposed based on the application scope. The study will provide practical recommendations for major scheduled shipping companies to reference for future container volume estimation, reflecting the impact of market supply and demand and achieving better economic efficiency.

Keywords: Liner shipping, Back-propagation network, Forecasting of container demand

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集群分析改善港口國管制作業之研究

Using Clustering Analysis to Improve Port State Control Inspection

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摘要

港口國管制 Port State Control (PSC)為港口依國際規範管制外籍船隻出入該國港口，監督船舶遵守執行國際公約以降低海上船難事故，由於檢查時間及人力有限且檢查項目繁瑣，PSC 檢查成效仍有不足之處。

本研究使用資料探勘的集群方式，對 2017 到 2021 年臺灣 PSC 檢查歷史記錄資料進行分析，利用階層式分群法（Hierarchical Clustering）對檢查缺失進行船舶的分群，找出相似缺失分類屬性的船舶，進而統計分析群組內之船舶特徵（如船種、噸位、船齡等），找出隱藏的船舶特徵與檢查缺失群組的關聯性，結果顯示較佳分群數為 4 組，其中散裝船與雜貨船為大宗，占比 71.27%，油輪與化學輪之檢查缺失數大於 7 達 52.13%，本研究結果可提供港口國管制檢查作業中船舶篩選的參考，以有效提升檢查之作業效率。

關鍵詞：港口國管制、資料探勘、集群分析、階層式分群法

Abstract

Port State Control (PSC) is an international system in that ports control foreign ships entering and leaving ports, rendering ships comply with international conventions to reduce maritime accidents. However, due to the limited workforce and considerable inspection items, the effectiveness of PSC inspections still has room for improvement.

This study employs a data mining technique, clustering, to analyze the PSC inspection records in Taiwan from 2017 to 2021. The hierarchical clustering method is utilized to cluster ships based on their inspection deficiencies, such as ship type, tonnage, and age. This approach enables us to identify hidden relationships between ship characteristics and deficiencies within each ship cluster. The results show that the proper number of groups is four. In one of the groups, bulk carriers and general cargo ships are the majority, accounting for 71.27%. The proportion of oil tankers and chemical tankers with more than seven deficiencies is as high as 52.13%. The results can be used in ship selection for PSC inspection and the future efficiency improvement of PSC operations.

Keywords: Port State Control, Data mining, Clustering analysis, Hierarchical clustering

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後疫情郵輪港口治理之研究: 回顧與展望

The Research on Post-pandemic Cruise Port Governance: Review and Prospect

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摘要

本研究係以文獻回顧的方式，透過國家圖書館「臺灣博碩士論文知識加值系統」、「Airiti Library 華藝線上圖書館」、Google Scholar 及 Web of Science Core Collection (簡稱 WOS) 等資料庫系統平臺，檢索與「後疫情」、「郵輪港口」及「港口治理」等關鍵詞相關之中英文著作、博碩士論文、研究報告及學術期刊等共 196 本(篇)，其中中文部分有 64 本(篇)，英文部分有 132 本(篇)。本研究旨在蒐集近 20 年以來，以時間為經、空間為緯，將渠等之文本，如研究範疇、研究方法、結論與建議等作系統性歸納整理與分析，藉以梳理出相關研究脈絡，進而探討未來之研究方向及可能面臨的問題。俾利提供對相關領域有興趣的研究者；政府、港口管理、郵輪公司及郵輪旅遊等相關單位未來政策規劃及推動之參考依據。

關鍵字: 後疫情、郵輪港口、港口治理、文獻回顧

Abstract

This study is based on a literature review of 196 sources, including books and articles in Chinese and English, doctoral and master's theses, research reports, and academic journals related to the keywords "post-pandemic," "cruise port," and "port governance," were retrieved from various database system platforms, such as the National Digital Library of Theses and Dissertations in Taiwan's National Central Library, Airiti Library, Google Scholar, and Web of Science Core Collection (WOS), etc. Among them, 64 sources were in Chinese, and 132 sources were in English. This study aims to systematically collect, organize, and analyze relevant literatures over the past 20 years, using time as the longitude and space as the latitude. This includes research scope, research methods, conclusions, and recommendations, so as to identify the research context, and then discuss future research directions and potential challenges. The findings of this study can serve as a reference for researchers interested in related fields, as well as for government agencies, port management, cruise companies, cruise tourism, and other relevant entities in policy planning and implementation.

Keywords: Post-pandemic, Cruise port, Port governance, Literature review

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綠色人力資源管理、綠色供應鏈實務、企業社會責任與永續績效之關聯性研究

The Relationship between Green Human Resource Management, Green Supply Chain Practices, Corporate Social Responsibility and Sustainable Performance

郭彥谷 Yen-Ku Kuo、魏筱昀 Siao-Yun Wei、郭宗賢 Tsung-Hsien Kuo

摘要

隨著環境保護意識日益高升，企業經營必須調整各項作為以因應綠色管理的浪潮。由於各種變革與領導方式都需要由員工管理方面著手，故能夠達成永續發展的成效也勢必需要依賴綠色人力資源管理，不論從招募、甄選、教育訓練等各項重要活動中需要強調綠色管理的方式，更要強調每一項企業決策流程的綠色思維，才能確保組織朝向永續之方向。物流業者的經營在運輸業中對於環境的負擔無法忽視，亦需要有良好的綠色人力資源管理措施來促成綠色供應鏈實務，才能達成永續績效的產生，其中物流業管理者所認知之企業社會責任對於上述關係的影響非常重要，亦是本研究探討的重點。本文以台灣物流業中高階管理者為對象，使用滾雪球法回收問卷，共得 438 份有效樣本，以此資料進行綠色人力資源管理、綠色供應鏈實務、企業社會責任與永續績效之關係探討。透過文獻推論各項假設之後，再以驗證性因素分析（Confirmatory factor analysis, CFA）呈現各概念之信、效度，最後以潛在結構模式（Latent variable modeling, LVM）與多元層級迴歸分析（Multiple hierarchical regression analysis, MHRA）檢驗各項假設。結果發現物流業管理者若察覺或施行愈多的綠色人力資源管理，則可讓組織的綠色供應鏈實務更加順利，並達到永續績效；同時，承擔更多企業社會責任亦能加深主要關係的實現。結論提出相關建議，可使得物流業在經營發展的各項管理措施中更能落實綠色永續的思維。

關鍵詞：綠色人力資源管理、綠色供應鏈、企業社會責任、永續績效

Abstract

As environmental awareness increases, businesses must adjust their practices to respond to the trend of green management. Since all changes and leadership styles need to be initiated by the management team, achieving sustainable development also requires the dependence on green human resource management. From recruitment, selection, education, training, and other important activities, green management must be emphasized. Moreover, the green mindset must be emphasized in every decision-making process of the organization to ensure that it moves towards sustainability. The logistics industry cannot ignore the environmental burden in the transportation industry and also requires good green human resource management measures to promote green supply chain practices to achieve sustainable performance. The impact of corporate social responsibility on the aforementioned relationship is crucial and is the focus of this study. This study uses a snowball sampling method to collect questionnaires from 438 high-level managers in Taiwan's logistics industry to explore the relationship between green human resource management, green supply chain practices, corporate social responsibility, and sustainable performance. After inferring various hypotheses from the literature, confirmatory factor analysis (CFA) is used to present the reliability and validity of each concept, and multiple hierarchical regression analysis (MHRA) and latent variable modeling (LVM) are used to test various hypotheses. The results show that the more green human resource management is perceived or implemented by logistics industry managers, the smoother the organization's green supply chain practices become, and the sustainable performance is achieved. Assuming more corporate social responsibility can also deepen the realization of the primary relationship. The conclusion provides recommendations to enable the logistics industry to implement green sustainable thinking in various management measures for business development.

Keywords: Green human resource management, Green supply chain, Corporate social responsibility, Sustainable performance

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全球性貨櫃碼頭營運商效率分析之研究

A Study on the Efficiency of Global Container Terminal Operators

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摘要

本研究利用資料包絡分析法評估世界前 20 大 GTO（Global Terminal Operator, GTO）的單期效率、跨期效率及技術缺口率，並將所有 GTO 分為專業型與混合型船公司兼營型兩組進行比較。結果顯示 2020 至 2021 年，有 7 家 GTO 的三項效率值皆為 1，在 2020 年為 China Merchant Ports、HHLA、SAAM Puertos、China Cosco Shipping Terminal Investment Limited (TIL)、Evergreen 及 HMM，而在 2021 年則由 Yang Ming 取代 HMM。在群組效率表現方面，2020 年與 2021 年混合型與船公司兼營的 GTO 之各項表現皆優於專業型 GTO。而就 2020 年至 2021 年之跨期效率而言，全體 GTO 以 Yang Ming 表現最佳，在分組跨期效率比較方面，則以專業型 GTO 表現較佳。

關鍵詞：定期航運、貨櫃碼頭營運商、資料包絡分析法、效率評估

Abstract

Among the container terminal operators, the highest market share is occupied by Global Terminal Operators (GTOs), who operate terminals in major ports worldwide with advanced technologies. In this study, the top 20 GTOs in the world were selected as the Decision Making Unit to analyze their contemporaneous efficiency, intertemporal efficiency, and technology gap ratio using the Data Envelopment Analysis. In addition, all GTOs were divided into two groups for evaluation. The result of our empirical study found that seven GTOs (i.e., China Merchant Ports, HHLA, SAAM Puertos, China Cosco Shipping, Terminal Investment Limited (TIL), Evergreen and HMM) obtained perfect scores in terms of BCC, CCR and scale efficiency in 2020. In 2021, the results are similar to that in 2020, but Yang Ming replaced HMM. Finally, in terms of intertemporal efficiency between 2020 and 2021, Yang Ming performed the best among all GTOs, mainly because of its significant increase in technical efficiency. While in terms of the intertemporal group efficiency, the group composed of pure stevedore GTOs performed better than the other group composed of linershipping companies and the hybrid GTOs.

Keywords: Liner shipping, Global terminal operator, Data envelopment analysis (DEA), Efficiency evaluation

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疫情過後航空廉價 航空運輸在台發展性-以亞洲航空為例

Development of LCC Air Transport in Taiwan after the Epidemic - Taking Air Asia as an Example

陳重光 Chung-Kuang Chen、郭彥谷 Yen-Ku Kuo、魏筱昀 Siao-Yun Wei

摘要

“開放天空”下的 低成本 航空公司（ LCC）使亞洲航空市場走向自由化。隨著低成本航空公司在亞洲的快速發展 大多數國家都在積極開發 低成本 航空公司市場。旅客選擇航空運輸服務有不同的選擇。 因此 探討影響旅客選擇低成本航空公司意向的關鍵因素 以及如何留住現有旅客和吸引新旅客是重要的課題。由於歷年台灣因疫情關閉閘門的影響今年（ 2022 年） 10 月 13 日閘門重新開放後 亞洲各國的 低成本 航空公司即將恢復航班。本文選擇亞航航空公司 探討 低成本 航空公司如何進入市場 以及哪些因素會影響乘客選擇 低成本 航空公司的意願 以吸引潛在乘客並鞏固現有乘客。本文研究了 本研究如何將台灣民航局和台灣旅遊局的規模經濟和數據分析結合起來。以 20 年台灣機場國際及兩岸定期航班客座率歷史數據 及入境旅客及出境旅客旅客資料了解客戶需求提早修正決策方向 避免失去客戶的信任挖掘潛在客戶。本研究設計 google 表收集資料, 及 SWOT 分析方式，還有李克特 (心理測量表的模板使用知覺風險、知覺價值問卷進行調查 檢驗建構效度與實證分析各項研究假設。

關鍵字：低成本航空公司 (LCC)，，SWOT 分析、、李克特(Likers Cal)心理測量表、知覺風險、知覺價值、知覺風險、知覺價值

Abstract

Low-cost carriers (LCCs) under the “Open Sky” make the Asia aviation market toward liberalization. With the rapid growth of LCCs in Asia, most countries have engaged in developing LCC markets. There is a different choice for passengers choosing air transportation services. Therefore, discussing the critical factors of passenger intentions of choosing LCCs and how to retain current passengers and attract new passengers are important issues. Due to the impact of the closure of Taiwan's gates due to the epidemic over the years, after the gates reopened on October 13 this year (2022), Low-Cost airlines in Asian countries are about to resume their flights. I selected Air Asia airline company to discuss how LCCs enter the market and what factors will affect passengers' willingness to choose low-cost airlines to attract potential passengers and consolidate existing passengers. This paper examines how I interface economies of scale and data analysis from the Civil Aviation Administration of Taiwan and the Taiwan Tourism Bureau. With 20 years of historical data about the passenger load factor of international and cross-strait scheduled flights at airports in Taiwan, and the passenger information by Inbound visitors and

Outbound travelers to understand the needs of customers to correct the decision-making direction early, avoid losing the trust of customers and explore the potential customers. This study designed google tables to collect data, SWOT analysis methods, and Likers Cal psychological measurement table templates, and used perceived risk and perceived value questionnaires to conduct investigations to test construct validity and empirical analysis of various research hypotheses.

Keywords: Low-cost carrier (LCC), SWOT analysis, Likers Cal psychometric scale, Perceived risk, Perceived value

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後疫情郵輪產業韌性發展之策略分析

Analysis on the Resilience Development Strategy of the Cruise Industry after the Epidemic

黃聖得 Sheng-Te Huang、蔡豐明 Feng-Ming Tasi

摘要

在受到 COVID-19 衝擊之後，郵輪產業受到嚴重打擊，直到 2022 年，交通部航港局舉辦「郵輪產業振興復甦國際論壇」，以期台灣郵輪產業可回復至疫情發生前之水準，再者，郵輪產業需要發展韌性以確保業務安全並實施永續發展，因此本研究欲針對後疫情郵輪產業之復甦與韌性進行策略分析。

本研究以 APEC 經濟體做為主要之研究對象，通過分析亞洲郵輪市場之現況與問題，對郵輪產業之適應力、緩解能力和恢復屬性來確定郵輪產業之韌性，使郵輪產業獲得更高的韌性和永續發展之政策建議。本研究透過社會福利、政策緩解策略管理、空間韌性管理、企業管理與經濟活動、環境與能源管理和安全技術開發等六個層面，進行專家問卷調查，先利用 FDM 建立構面與準則層級架構，再利用 FAHP 給予各準則對整體評估層級架構之絕對權重及重要性做排序，而後對結果進行策略分析。

關鍵詞：郵輪韌性、郵輪產業、模糊德爾菲法、模糊層級分析法

Abstract

The COVID-19 pandemic has severely impacted the cruise industry, and in 2022, the Taiwan Maritime and Port Bureau, MOTC organized the "Post-pandemic Cruise Industry Recovery and Development Forum" to revive the industry to its pre-pandemic level. Additionally, the cruise industry needs to develop resilience to ensure business safety and implement sustainable development. Therefore, this study aims to conduct a strategic analysis of the post-pandemic cruise industry's recovery and resilience.

The study focuses on the APEC economies, and through analyzing the current situation and problems of the Asian cruise market, determines the adaptability, mitigation, and recovery attributes of the cruise industry to establish its resilience. The study provides policy recommendations for the cruise industry to achieve higher resilience and sustainable development. The study conducts an expert questionnaire survey through six dimensions: social welfare, Institutional mitigation strategy management, spatial resilience management, business management, economic activities, environmental and energy management and safety and security technology development. The study first uses FDM to establish the level framework of dimensions and criteria, and then uses FAHP to rank the absolute weight and

importance of each criterion for the overall evaluation level framework. Finally, the study conducts a strategic analysis of the results.

Keywords: Cruise resilience, Cruise industry, Fuzzy delphi method (FDM), Fuzzy analytic hierarchy process (FAHP)

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飛航事故線上評論與調查報告落差分析之研究~以復興 GE235 為例

Gap Analysis between Online Comments and Investigation Reports of Aviation Occurrence: The Case of GE235

陳菀秀 Wan-Hsiu Chen[1]、盧華安 Hua-An Lu[2]、陳秀育 Shiou-Yu Chen[3]

摘要

飛航安全是航空領域中相當重要的一環，一旦有事故發生，便會引起媒體的大肆報導與民眾的討論。在初期，線上平台提供了對事件非正式化的描述，訊息通常來自目擊者或是事件關係人，待調查報告發布後，則是針對證據進行了詳細的分析，兩者間所存在的差異可能來自資訊的準確度、對事件的不同解釋或可能存在之偏見。本研究旨在探討線上平台與新聞媒體聚焦的方向，藉由文字探勘技術協助研判線上討論的主軸以及飛安調查報告的重點，研究案例以復興 GE235 為主，所得落差比較可以幫助我們了解到大眾平台在航空事故發生後輿論上所扮演的角色，研究結果發現動力系統為線上評論與調查報告共同擁有之交集，訓練資源、監測系統及異常檢測在線上評論中並未被提及，凸顯了調查報告的可靠性和準確性，而線上評論多強調於個人情感的描述，兩者欲傳達之面向極為不同，間接地顯示了飛航安全認知在社會不普及的程度，所得之結果期能對後續研究者有所幫助，亦提供飛安相關單位之參考。

關鍵詞： 航空事故、線上評論、調查報告、文字探勘

Abstract

Flight safety is an important part of the aviation field. Once an accident occurs, it will cause lots of media reports and discussions among the public. In the beginning period, the online comments provided an informal description of the incident, and the information usually came from witnesses or people who were involved in the incident. After the investigation report was released, the evidence was analyzed more in detail. The differences between these two might from the accuracy of information, different interpretations of events or possible bias. This study aims to explore the focus of online platforms and news media. Using text mining technology to determine the main axis of online comments and the key points of investigation reports. The research case is based on GE235. The comparison of the gap can

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help us know what the role of the public played by the platform in public opinion after an aviation occurrence is. The results find that the power system is the intersection of online comments and investigation reports, while training resources, monitoring systems and anomaly detection are not mentioned in the online comments. It reflects the degree to which aviation safety awareness is not popular in the society. The results of comparison and analysis are expected to be helpful to follow-up researchers, and also provide reference for relevant aviation safety units.

Keywords: Aviation occurrence, Online comments, Investigation report, Text mining

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員工升遷意願消極之需求面分類 --以航港從業人員為例

Demand-side Classification of Employees with Passive Promotion Intention: A Study of Employee in Taiwan Shipping Industry

張聖彥 Sheng-Yen Chang[1]、胡永枋 Yung-Fang Hu[2]、余坤東 Kung-Don Ye[3]

摘要

本研究以 Q 方法作為研究方法，主要探討員工升遷意願消極之需求面，研究對象以航港產業某公司 31 位員工進行 Q 排列作研究探討，嘗試運用 Q 方法歸納員工升遷意願的影響因素，利用統計軟體SPSS作資料分析說明。本研究結果歸納五種員工升遷意願認知類型，分別為注重個人生活及家庭型、拒絕改變型、缺乏自信心型、注重人際關係型及自我工作表現型等類型。此外，亦發現加薪因素為重要的工作動機，以及多數員工面對公司職等的升遷機會會積極爭取，但當有主管級的升遷機會則會視情況而定再決定要不要爭取升遷機會。

關鍵字:升遷意願消極、航港從業人員、Q 方法

Abstract

The research aims to discuss the remand side of employees' promotion willingness, which using Q method as the research method. The object of the research is to conduct a Q-arrangement study on 31 employees of a company in the port industry, try to use the Q method to summarize the factors that affect employees' promotion intentions, and using SPSS to analyze and explain the data. The results of this study found that there are five cognitive types of employees' promotion intentions, which are focusing on personal life and family, refusing to change, lacking self-confidence, focusing on interpersonal relationships, and self-employment performance. In addition, it has also been found that the salary increase factor is one important work motivation, and most employees will actively fight for promotion opportunities at the company's ranks, but when there are promotion opportunities at the supervisory level, they will decide to take it according to the situation.

Keywords: Passive promotion intention, Port employee, Q method

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後疫情時代郵輪旅客搭乘意願

A Study of the Willingness of Cruise Passengers in the Post-pandemic Era

蔡博淮 Tsai Po-Huai

摘要

由於全球疫情對旅遊業的影響，後疫情時代的郵輪旅客搭乘意願可能受到影響。然而，隨著郵輪公司採取的多項安全和衛生措施，郵輪旅行可能成為人們緩解疫情壓力的一種選擇。因此，了解人們在保護動機驅使下對於搭乘郵輪的意願有助於推動旅遊業的復甦。本研究利用保護動機理論提供了解釋人們保護自己和他人行為的框架，本研究旨在結合保護動機理論，探討人們在自我保護、關係保護和價值觀保護的動機下對於搭乘郵輪的態度和意願。此外，本研究也關注人們對於郵輪公司所採取的安全措施的認知和信任。本研究採用問卷調查法，計畫以台灣地區潛在旅客為研究對象，以發送電子問卷的方式進行，問卷中包含搭乘郵輪的意願、對於郵輪公司安全措施的認知和信任等問題，並以保護動機理論為分析框架進行數據分析。

關鍵字：郵輪、後疫情時代、保護動機理論

Abstract

The global pandemic has greatly impacted the tourism industry, and the willingness of post-pandemic travelers to take cruises may be affected. However, with the implementation of various safety and health measures by cruise companies, cruising could become a viable option for people seeking relief from pandemic stress. Therefore, understanding people's willingness to take cruises under the motivation of protection is crucial to promoting the recovery of the tourism industry. This study applies protection motivation theory to explore people's attitudes and willingness to take cruises under the motivation of self-protection, relational protection, and value protection. Additionally, this study focuses on people's perception and trust in the safety measures taken by cruise companies. A questionnaire survey will be conducted among potential travelers in Taiwan, and data analysis will be performed using protection motivation theory as the analytical framework. The findings of this study could help cruise companies better understand consumers' willingness and motivation to take cruises, leading to the development of better marketing strategies. Additionally, this study could contribute to the recovery of the tourism industry in the post-pandemic era and provide a new theoretical perspective for related research, as it applies the protection motivation theory as the analytical framework.

Keywords: Cruise, Post-pandemic era, Protection motivation theory.

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探討運輸相關科系學生對於在臺灣從事海員職業的就業意願

Exploring the Employment Willingness of Transportation-related Major Students towards Seafaring Career in Taiwan

程湘喻 Hsiang-Yu Cheng

摘要

本研究旨在探討運輸相關科系學生對於從事海員職業的就業意願及相關因素。因臺灣海洋運輸業需要大量優秀海員，但人才供應不足，了解學生對海員職業的認 知和評價對解決人才短缺問題有重要意義。本研究運用社會認知理論，介紹海員相關職業並透過問卷調查法調查運輸相關科系學生的看法和意願，探討其對職業形 象、薪資福利、工作環境和個人能力等方面的看法和期望，並提出改善建議，以填 補海員人力斷層的空缺。本研究預期結果能提供有價值的建議，幫助企業招聘和培 訓優秀海員，促進國家海洋運輸業的發展，讓更多人認識並重視海員這項職業，進 而找出運輸相關科系學生中，是否有人想從事該行業，以及大多影響學生選擇行為 之因素為何。

關鍵字：海員、社會認知理論、就業意願

Abstract

The purpose of this study is to explore the employment willingness of transportation- related major students towards seafaring career in Taiwan and related factors. Due to the shortage of talent in Taiwan's marine transportation industry, it is important to understand the perception and evaluation of seafaring career by students in transportation-related majors. This study applies social cognitive theory and introduces seafaring career through videos and presentations. A questionnaire survey is conducted to investigate students' views and willingness towards seafaring career, and their expectations and requirements in terms of occupational image, salary and benefits, working environment, and personal abilities. Suggestions for improvement are proposed to address the shortage of seafaring personnel. The expected results of this study can provide valuable suggestions to help recruit and train outstanding seafarers and promote the development of Taiwan's marine transportation industry. The study aims to increase awareness and appreciation of the seafaring profession among students, and to identify the factors that affect their career choices.

Keywords: Seafarers, Social cognitive theory, Employment willingness.

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以碳排放效率評估台歐航線執飛機型選擇

Evaluating Routes between Taiwan and the Europe Aircraft Model Type Selection by Carbon Emissions Efficiency

劉宏祐 Hung-Yu Liu[1]、張玉君 Yu-Chun Chang[2]

摘要

全球航空市場日漸成長，但伴隨著運量也帶來對環境之衝擊，因飛行產生之溫室氣體以高速度在增量，因此許多國際公約及政府機構開始制定計畫減排，從抵銷、淨零，再到負排放。本研究使用 Methodology ICAO Carbon Calculator(2018)第 11 版作為基礎，計算選定航線之旅客碳排放量，進一步給予執飛之航機碳排放效率值，評估不同公司不同機型的碳排放效率。

本研究對象為 2019 年兩家國籍航空：華航及長榮之歐洲長程航線市場作探討，期望新增以環境考量作為指標，定義航機的碳排放效率並納入航空公司在做選定航線航機指派之依據指標。透過選擇碳排放效率更高的航機，達成在單位成本內更高之效益，以具體行為實現航空公司永續經營的願景，也可符合國際趨勢對於環境永續之期許。

關鍵字: 航空碳排放、碳排放效率、永續發展

Abstract

The global aviation market is growing rapidly, but along with the increase volume of traffic comes the impact on the global environment, as greenhouse gas(GHG) emissions from flights are increasing at a high rate. This study uses Methodology of ICAO Carbon Calculator version 11 (ICEC, 2018) as a basis to calculate the carbon emissions of passengers on selected routes and further assign carbon efficiency values to aircraft in flight to evaluate the carbon efficiency of different companies and aircraft model types.

In this study, two of the Taiwan national airlines, China Airlines(CI) and EVA AIR(BR), will be applied in the Taiwan-European long-haul flight market in 2019, with the aim of adding environmental considerations as an indicator to define the Carbon Emissions Efficiency of each aircraft and to include it as a basis for airline aircraft model type assignment selection on selected routes. By selecting aircraft type with higher Carbon

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Emissions Efficiency, the airlines can achieve higher operation efficiency per unit cost, which is a concrete way to realize the airlines' vision of sustainable operation and to meet the international eco-friendly trend of environmental sustainability.

Keywords: Aviation carbon emissions, Carbon emissions efficiency, Sustainable development

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中國軍演海上封鎖對台灣海峽航道安全影響之評估

Assessment of the Impact on Navigation Safety in the Taiwan Strait during China's Naval Blockade Exercise

杜孟儒 Mengru Tu、陳世宗 Shih-Tzung Chen[1]、黃國政 Kuo-Cheng Huang[2]、徐煌凱 Huang-Kai Hsu[3]

摘要

2022 年 8 月初在美國眾議院議長裴洛西訪台後，中國隨即在台灣周邊海域進行大規模的軍事演習並封鎖相關海域。此次軍事演習雖然是突發事件但中方有事先公告多個封鎖區域。面對台灣海峽之封鎖區域為國際船舶通航之重要航道。此次封鎖導致短期間內船隻必須改道繞過該禁航區域，進而影響台灣海峽航道安全。因此本論文將針對台灣東北海域，蒐集該區域軍演前後之船舶自動識別系統(AIS)資訊，結合資料庫與地理資訊系統(GIS)等相關技術繪製電子海圖，以評估海上封鎖對經過該區域航道安全之影響。本研究也近一步針對變更後之新航道進行船舶碰撞風險之模擬分析。本研究結果發現軍演之海上封鎖大幅增加台灣海峽航道之航行風險。

關鍵詞：船舶自動識別系統(AIS)、地理資訊系統(GIS)、電子海圖、航行風險

Abstract

After Speaker of the United States House of Representatives, Nancy Pelosi's visit to Taiwan in early August 2022, China immediately conducted large-scale military exercises and implemented a maritime blockade in the surrounding waters of Taiwan. Although the military exercise was unexpected, the Chinese side had issued prior notifications of multiple restricted areas. The blockade areas in the Taiwan Strait are important international shipping routes. This blockade forced vessels to reroute and avoid the prohibited area, affecting the safety of navigation in the Taiwan Strait. Therefore, this study focuses on the northeast sea area of Taiwan, collecting Automatic Identification System (AIS) information on ships before and after the military exercise and using relevant technologies such as databases and Geographic Information Systems (GIS) to draw Electronic Navigational Charts (ENC) to

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evaluate the impact of the maritime blockade on the safety of navigation through the area. This study also conducted a simulated analysis of ship collision risk for the new route after the changes. The study found that the military exercise's maritime blockade significantly increased the navigational risk of the Taiwan Strait.

Keywords: Automatic identification system (AIS), Geographic information systems (GIS), Electronic navigational charts (ENC), Risks of navigation

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海運承攬業員工知覺角色壓力源與心理健康對離職傾向之影響－探討工作滿意之干擾作用

A Study on Role Stressors, Mental Health and Turnover Intention in Taiwan Freight Forwarding Industry Employees: Exploring the Moderating Job Satisfaction

王瑋玨 Wei-Chueh Wang[1]、林上閔 Moses Shang-Ming Lin[2]

摘要

海運承攬業因工作性質關係，造成其從業人員流動性高，為探討其離職率高之原因，本研究以角色壓力源，包含角色超載、角色衝突與角色模糊對海運承攬業從業人員心理健康及離職傾向之影響，並檢驗工作滿意度是否會對心理健康與離職傾向具有調節效果。本研究採用混合研究法，第一階段先以針對 7 名臺灣海運承攬業從業人員進行訪談，第二階段再進行問卷調查，共回收有效問卷 215 份，並使用迴歸分析進行檢驗。

依據訪談結果，不同職務的員工對於角色壓力影響的認知程度有所不同，而員工的人格特質也會決定角色壓力的影響程度。另問卷的研究結果顯示，角色超載與角色衝突確實會對海運承攬業員工心理健康產生負向影響，並且更容易產生離職傾向。然而，工作滿意度並不會對心理健康及離職傾向產生調節效果。因此，海運承攬業應注意降低角色超載與角色衝突的情形，以減少心理健康問題及離職傾向。本研究結果可提供海運承攬業業者運用於組織管理上之參考，以降低員工離職率。

關鍵字：角色壓力、心理健康、工作滿意度、離職傾向

Abstract

The purpose of this study is to investigate the effects of role stressors, including role overload, role conflict, and role ambiguity, on the mental health and turnover intention of employees in the shipping and logistics industry. The study also examines whether job satisfaction moderates the relationship between role stressors and mental health and turnover intention. Mixed research method was used, with interviews conducted with employees in

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the shipping and logistics industry in Taiwan, followed by a survey. A total of 215 valid questionnaires were collected, and regression analysis was used to test the hypotheses.

The results of the study showed that role overload and role conflict have a negative impact on the mental health of employees in the shipping and logistics industry, and increase their turnover intention. However, job satisfaction was found to have no moderating effect on the relationship between role stressors, mental health and turnover intention. Therefore, the shipping and logistics industry should pay attention to reducing role overload and role conflict to minimize the mental health problems and turnover intention of employees. The study provides reference for current organizational management practices in the shipping and logistics industry to reduce employee turnover.

Keywords: Role stressors, Mental health, Job satisfaction, Turnover intention

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夏季馬公航線 ATR 航機酬載及手提行李推估之研究

Research on Estimation of Flight Payload and Carry-on Baggage on Magong ATR Aircraft in Hot Season

李穗玲 Sui-Ling Li[1]、林佳蓉 Jia-Rong Lin[2]、陳奕穎 Yi-Ying Chen[3]、吳欣蓓 Xin-Bei Wu[4]、宋彩彤 Tsai-Tung Sung[5]

摘要

最近三年的疫情中澎湖空運旅客量以 109 年 8 月份到站和離站是最多的，高達 442,963 旅客量，搭乘的旅客及旅客行李愈多，航空公司的貨運承載也就愈少，因而降低航空公司更多的獲利空間。因此，本研究擬收集 109 年 8 月份的航班飛航動態資料，篩選客滿時行李與貨物的最大承載量等參數，考量 IATA 與航空公司酬載的衡量模式並增加手提行李的推估，建構 ATR 航班酬載最佳化模式與迴歸式，分析旅客滿載的時候，旅客的託運行李重量、手提行李重量及託運貨物重量，推估航空公司的最適酬載量及剩餘容量。結果顯示平均每位旅客離去航班較其到達航班多託運 2 公斤的行李，手提行李至少可提供 72 個行李空間，澎湖馬公離去航班比較容易於達到最大酬載量。

關鍵字：託運行李、手提行李、酬載、旅客滿載

Abstract

In the last three years of the epidemic, the number of air passengers in Penghu arrived and departed in August 2019 was the largest, reaching 442,963 passengers. The more passengers and passengers' luggage are on board, the less the airline's cargo load will be, thus reducing the airline's profit margin. Therefore, this study intends to collect flight dynamic data in August 2019, screen out parameters such as the maximum carrying capacity of luggage and cargo when the passengers are full, use cabin luggage lockers to

estimate the number and weight of hand luggage, and construct a mathematically optimized loading model simulates when the passenger is fully loaded, the passenger's checked luggage weight, carry-on luggage weight and cargo weight estimate the airline's optimal

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payload and remaining capacity. The results show that on average each passenger checks 2kg more luggage on the departing flight than on the arriving flight, and hand luggage provides at least 72 baggage of overhead stowage compartments. The Penghu departure flights were easy to achieve the maximum payload.

Keywords: Drop baggage, Carry-on baggage, Payload, Full of passengers

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國籍航空貨運航班輪擋時間之推估

Estimation of Scheduled Block Time of National Airline Cargo

李穗玲 Sui-Ling Li、段幃軒 Wei-Hsuan Tuan、陳泰霖 Tai-Lin Chan、賴宥羽 Yu-Yu Lai、郭恩諭 En-Yu Guo

摘要

本研究擬應用 FLIGHTRDAR 24 大數據收集 2021 年 9 月至 2022 年 9 月一年國籍航空貨運航班往來桃園國際機場的航班資料。本研究認為國籍航空貨運不同機齡飛行時間、機型酬載與城市配對將影響航班輪擋時間的長短，航班輪擋時間的可靠性是關乎航點和航線運行效率的重要關鍵。因此，本文依據美國聯邦總署航空系統績效矩陣定義航班輪擋時間之計算方式，應用 EXCEL 統計分析與 SPSS 軟體建構迴歸式推估國籍航空公司貨運航線航班輪擋時間模式。解釋變數為航班起迄機場、航機飛行時間、飛行距離、機型酬載與機齡。研究發現飛行時間對航班輪擋時間影響較大，機齡對航班輪擋時間影響不大。

關鍵字:航空貨物、航班輪擋時間、飛行時間、起迄點

Abstract

This study intends to use FLIGHTRDAR 24 big data to collect the flight data of national airline cargo flights to and from Taoyuan International Airport from September 2021 to September 2022. This study considered that the flight time of different aircraft ages, aircraft payloads and city pairs will affect the length of scheduled block time. The reliability of schedule block time is very important key for the operation efficiency of waypoints and routes. Therefore, this paper according to the calculation method of flight block time defined by the aviation system performance matrix of the Federal Administration of the United States, uses EXCEL statistical analysis and SPSS software to construct a regression model to estimate the schedule block time of national airline cargo routes. The explanatory variables are the city pair, flight time, the aircraft payload, and aircraft age. The study found that flight time has a greater impact on scheduled block time, while aircraft age has little effect on scheduled block time.

Keywords: Air cargo, Schedule block time, Flight time, OD pair

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報關行應用區塊鏈技術在貿易單據簽審平台之可行性研究

Feasibility Study on the Application of Blockchain Technology in Trade Document Execution Platform for Customs Broker

周正捷 Cheng-Chieh Chou、楊鈺池 Yi-Chih Yang

摘要

海運業導入區塊鏈技術已是大勢所趨，惟缺乏報關人員應用此技術於作業流程之考量，故本研究歸納區塊鏈於海運產業鏈應用之文獻及專家意見，分析報關人員應用區塊鏈整合平台之障礙，並採用灰關聯分析法對其障礙間的關係加以排序比較，以提出政府機構未來在開發簽審整合平台時之參考與建議。經由實證分析後發現報關人員應用區塊鏈整合平台之可行性包括四個構面和十個評量因素。首先構面方面，報關業者對於信任安全此項最為重視：在評量因素方面，對擔心駭客的攻擊最為重要，其次是擔憂共享資訊導致公司機密外露，再來是報關業者投入區塊鏈技術之成本高昂。因此政府機關推動報關人員應用區塊鏈整合平台需考量前述評量因素，以提升整合平台之使用率。

關鍵詞：報關業、區塊鏈技術、簽審流程整合、灰關聯分析

Abstract

The introduction of blockchain technology in the shipping industry is a general trend, but there is a lack of customs declaration personnel considering the application of this technology in the operation process. Therefore, this study summarizes the relevant literature and expert opinions on the application of blockchain in the shipping industry chain, and analyzes the application of blockchain technology by customs declaration personnel. The obstacles of the chain integration platform, and use the gray relational analysis method to rank and compare the relationship between the obstacles, so as to put forward the suggestions for the government agencies in the future development of the documents examination and permission integration platform. After empirical analysis, it is found that the feasibility of customs declaration personnel applying the blockchain integration platform includes four dimensions and ten evaluation factors. First of all, in terms of dimensions, the customs declaration industry pays the most attention to the trust and security: in terms of evaluation factors, fear of cyber hacking attacks is the most important, followed by the Concerned about sharing information leading to disclosure of company secrets, and then the the high cost of investing in blockchain technology for customs brokers. Therefore, government agencies must consider the aforementioned evaluation factors to promote the

application of blockchain integration platforms by customs declaration personnel, so as to increase the utilization rate of integration platforms.

Keywords: Customs broker, Blockchain technology, Signing and review process integration、GRA

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疫情期間航空站貴賓室關鍵服務屬性之研究

A Study of the Service Determinants of the Airport VIP Lounge during Pandemic

鄭淑慧 Shu-Hui Cheng[1]、林泰誠 Taih-Cherng Lirn

摘要

本研究目的透過問卷，實地至桃園機場中華航空貴賓室及泰國曼谷機場貴賓室，深入調查乘客對於貴賓室之重要性和服務滿意度知覺，協助航空公司及第三方貴賓室營運商了解旅客需求，藉此有效改善其服務水準，並提升其使用者的整體滿意度。

利用 Martilla and James(1977) 所提出 IPA（Importance-Performance analysis）模型，對於各項屬性的重要性與績效表現的平均得分繪置於二維矩陣中顯示，且矩陣中的尺度與象限位置可以任意訂定，重要的是各屬性在矩陣中的相關位置，藉此重要性-滿意度分析法（Importance-Performance Analysis, IPA）作為問卷設計與分析結果的工具。研究團隊親自到航空站貴賓室，實地訪談 102 位受訪者，以問卷調查的方式衡量受訪者對於貴賓室 19 項服務屬性的重要性與滿意度之認知。

本研究發現航空公司經營的貴賓室與第三方經營的貴賓室有不一樣的關鍵服務屬性，航空公司經營的貴賓室旅客人為衛浴設施完善清潔，第三方經營的貴賓室則認為餐點美味及收費合理兩個項目是屬於旅客所重視但是貴賓室表現不佳的服務屬性。因為本調查期間是在 2022 年新冠肺炎流行期間，以往並無在重大流行病期間的貴賓室學術研究調查，所以本研究具有其原創及獨特性，如果爾後有類似的疫情再爆發，航空站貴賓室業者可利用本研究發現，來有效改善其整體的服務水準。

Abstract

Research Objective-Face-to-face questionnaire surveys are carried out to investigate the service determinants for airlines operated VIP lounges and third party operated VIP lounge in Taoyuan and Bangkok during the Covid-19 pandemic. This research intends to help airlines and VIP-Room contractors to effectively improve their service quality to increase the passengers' overall degree of service satisfaction.

Research Design-The Martilla and James'(1977) IPA model (Importance-Performance analysis) is employed to identify the key service determinants by allocate all the 19 service attributes in a four-quadrant matrix. The researchers have carried out a face-to-face survey in two international airports in Taiwan and Thailand. A total of 102 respondents have provided their perceived degree of importance of the 19 service attributes and degree of performance on their VIP lounge operators.

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Research Findings and Originality of this Research -The service determinants between the airlines operated VIP lounges and third party operated VIP lounges are found to be great different. The customers of the previous operators perceive the degree of clean in the toilet/shower to be the only service determinant. While, the customer of the latter operator perceives the delicious of free meal and the adequate VIP lounge service charge to be the key service determinants. As the survey is carried during the major pandemic in 2022, thus this research has its unique contribution. Since there isn't any similar VIP lounge research during the outbreak of pandemic, the VIP lounge operators should refer to this research finding to effectively improve their service quality if another outbreak of a major pandemic in the future.

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探討郵輪乘客對郵輪智慧設施使用意圖之研究

A Study of Cruise Passengers' Behavioral Intention to Use Smart Cruise Facilities

余沛宜 Pei-I Yu、林泰誠 Taih-Cherng Lirn

摘要

在科技日新月異的時代，郵輪公司將科技應用在郵輪服務上是一種必然的趨勢，採用創新科技為旅客提供個性化且令旅客感到舒適的環境，同時也可以運用技術達到環境保育和智慧管理的作用。本研究將採用延伸整合型科技接受模式，探討曾經搭乘過郵輪之旅客對新型郵輪智慧技術的接受程度，研究結果顯示郵輪乘客對郵輪智慧設施使用意圖受到績效期望、享樂動機和習慣的影響，知覺風險對於乘客使用郵輪智慧設施之使用意圖呈現負向影響，性別與年齡分別具有部分調節作用與不具調節作用。

關鍵字：郵輪智慧設施、使用意圖、延伸型整合科技接受模式

Abstract

In this age of rapid technological advancement, it’s inevitable that cruise companies to employ new technology onboard to attract passengers. Adopting innovative technology to provide personalized services and comfortable environments to passengers, while also utilizing new technology to conserve natural environment and manage ship smartly, is a ongoing trend for cruise companies. This study has employed the extended Unified Theory of Acceptance and Use of Technology (UTAUT2) to investigate the acceptance level of new smart technologies among passengers who have used cruise ship services. The results show that cruise passengers' usage intention of smart facilities is influenced by performance expectations, hedonic motivation, and habit. Perceived risk has a negative effect on the intention of passengers to use smart facilities on cruise ships. Gender and age have partially moderating effects and no moderating effects, respectively.

Keywords: Cruise smart facilities, Behavioral intention, UTAUT2

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A Business Intelligence Case Study on Digital Transformation

李智 Chih Lee, 梁德馨 Te-Hsin Liang

Abstract

The perception of the benefit that digital transformation can offer has been widely accepted by firms. However, for supply chain optimization, where to start and how to proceed are still subjective and unclear. This paper, through a tangible case study, proposes a practical framework aiming to improve the supply chain visibility by means of building a business intelligence (BI) dashboard to overcome the issues of managing market demands.

The demand management—the essential part of supply chain management—consists of two folds, the demands—incoming sales orders and build-to-stock work orders—and the supplies—finish goods on hand and the material required—perspectives respectively. The objective is to minimize the gap between the demand and the supply, but making information visible through the dashboard is the cornerstone to responding to the daily challenges during the demand management. This paper designed several extendable core data models, simulated the probabilistic data accordingly, and implemented a prototype business intelligence engine to demonstrate the first step of the digital transformation journey and its tangible potential benefits to the business stakeholders.

Building such a demand management dashboard requires a firm's IT department to have a certain degree of supporting capability including those from third parties; the daily tasks of IT are usually exhaustive already; any unclear exploratory initiative will draw back their willingness to support. The business stakeholders often misunderstand the roles between BI and ERP. The ERP records the business activities that have already happened, while BI gives a glance at the current business status from various aspects and suggests what might happen soon.

The executives are concerned about the return-of-investment (ROI); to have tangible, quantified performance improvement is not feasible before any digital transformation initiative; however, the qualitative achievements in operation efficiency, decision-making quality, and the ability of collaboration are obvious. This paper demonstrated such qualitative capability improvement through data model simulations. Each data simulation behinds it is a business stress, what-if scenario. Incorporating the real data into the BI will directly benefit to make the order fulfilment planning more robust to the uncertain market change.

This paper is the first of its kind to disclose a feasible, proven framework, including the proposed data models, scenario-driven data simulation, and the supply chain information revealed, to respond to the daily challenges in managing the demands and supplies.

Keywords: Digital transformation, Business intelligence, Demand management, Supply chain management, Continuous improvement

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Evaluating the Impact of Logistics Service Quality on Customer Satisfaction: A Case Study of Vietnamese E-Commerce

Bao-Huy Tran[1], Taih-Cherng Lirn[2]

Abstract

In the booming era of e-commerce, logistics plays an essential role in the growth of profits and competitiveness of logistics providers. Based on the concept of LSQ of MENTZER et al. 1999, logistics service quality can be considered as a set of dimensions, including staff service quality, communication service quality, after-sale service quality, and delivery service quality, which results in the level of customer satisfaction. This research uses descriptive research to empirically analyze logistics service quality's influences on customer satisfaction to clarify the critical logistical factors affecting consumer satisfaction based on the Vietnamese consumer's perspective. To identify the relationships between E-commerce logistics service quality and customer satisfaction, the study conducted descriptive statistics, factor analysis, reliability tests, and multi-linear regression based on the data collected through online questionnaires with total respondents of 220 Vietnamese online shopping users. The results conclude that the quality of logistics services directly and positively impacts customer satisfaction. This study helps e-commerce logistics services understand their customers to improve their service quality to keep existing customers and attract new ones. However, the study still has some limitations; the research only focuses on the point of view of Vietnamese customers. For better evaluation, the perspective of logistics providers is also essential for future studies can compare both sides.

Keywords: Vietnam, Customer Satisfaction, E-commerce Logistics service quality, Factor analysis, Multi Linear Regression.

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Evaluation and Prediction of Punctuality of Vessel Arrival at Port: A Case Study of Hong Kong

Chua Zhong[1], Ran-Yan, Shuaian Wang[2]

Abstract

The punctuality of vessel arrival at port is a crucial issue in contemporary port operations. Although vessels are usually required to report their estimated time of arrival (ETA) on the way to the destination port, vessels' actual time of arrival (ATA) is generally different from the reported ETA as there are several factors (such as unexpected and rough weather and sea conditions, unexpected operational inefficiency, and unexpected port congestion) cause their ATA to differ from the reported ETA. Uncertainties in vessel arrival may lead to port handling inefficiency, resulting in economic losses. Therefore, evaluating, predicting, and then optimizing vessel arrival time at a port can improve terminal operational efficiency and optimize port resource allocation. In this study, we first analyze ship arrival punctuality and predict ship arrival times using vessel visiting data in 2021 at the Hong Kong Port (HKP). We also quantitatively evaluate vessel arrival uncertainty in different time slots prior to arriving at the port. Our results show that the overall vessel arrival uncertainty decreases as vessels approach the HKP. Then, in the prediction section, we develop a machine learning approach to predicting vessel arrival time based on vessels' historical arrival data and vessel specification. Numerical experiments results show that our prediction model can reduce the error in the prediction of ship ATA by approximately 40% (from 25.5h to 15.5h) using the root mean squared error metric and 20% (from 13.8h to 11.0h) using the mean absolute error metric compared with the reported ETA data. The proposed vessel arrival time evaluation and prediction models are applicable to port management and operation, and they can lay the foundation for future research on optimizing ports' daily operations.

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The National Difference of Inbound Tourists in Traveling and Socioeconomic Characteristics in Taiwan

Thi-Kieu Phan, Sheng-Hung Chen, Jie-Min Lee, Ca-Van Pham

Abstract

Purpose–This paper compares the traveling and socioeconomic characteristics of inbound tourists to Taiwan from different nations.

Design/methodology/approach – We use a dataset of 5882 respondents who visited Taiwan in 2019 from the survey by Taiwan Tourism Bureau. Inbound tourist's expenditure and budget share for five essential trip products are as follows: accommodation, food, transportation, shopping, and miscellaneous. We investigate the differences in foreign tourists' behavior with the spending on travel products based on the traveling and socioeconomic characteristics.

Findings – Short-haul tourists make up the most number, followed by medium-haul tourists, and lastly long-haul tourists in 2019. For the average daily consumption amount of five items per person, short-haul tourists spend the least (with the highest average expenditure of Japanese visitors, Thailand, Chinese, Korean, Philippine, and the smallest, Vietnamese visitors); medium-haul tourists (with the highest average expenditure of Malaysia, Singapore, and the lowest, Indonesia tourists); long-haul tourists (with the highest average spending of American and Canadian, followed by visitors from Europe).

Originality/value – The ANOVA test shows that different national tourists do perceive different levels of importance for travel expenses. We use UNIANOVA and Post Hoc tests to examine the combined effects of traveling and socioeconomic characteristics on expenditure patterns. Our findings indicate that travel-related characteristics (i.e., travel purpose, visit times, travel types of arrangements, stay days, visitor number, and travel-attractive reasons) make significant differences in the allocation expenditure of international tourists in Taiwan. Similarly, socioeconomic characteristics (i.e., gender, generation, education, and income) contribute to the various tourist expenses.

Keywords: Tourist/Visitor, Expenditure, Traveling, Socioeconomic, ANOVA-test, UNIANOVA-test, Post hoc test, Taiwan

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Enhancing Employee Well-being in Vietnam's Logistics Industry through ESG-Oriented HRM: The SDT Approach

Kung-Don Ye[1], Nong-Vuong Phi[2]

Abstract

This research paper examines the potential benefits of incorporating Environmental, Social, and Governance (ESG) practices into Human Resource Management (HRM) in the logistics industry of Vietnam. Specifically, it explores whether ESG-oriented HRM practices can enhance employee well-being in the industry, which faces challenges such as high turnover rates and the need for practical training and development programs, impacting employee commitment, involvement, and well-being. Drawing on the widely applied Self-Determination Theory (SDT), the research aims to examine how ESG-oriented HRM practices can improve employee well- being by satisfying their basic psychological needs. However, there are research gaps that need to be addressed, and more targeted research is required to understand how ESG-oriented HRM practices can be customized to address the unique challenges and opportunities faced by employees in the logistics industry of Vietnam.The research uses a case study approach to gather insights from employees and other stakeholders on the potential benefits and challenges of ESG-oriented HRM practices, using in-depth interviews and focus groups to collect and analyze data. The findings contribute to a better understanding of the potential benefits of integrating ESG practices into HRM in the logistics industry of Vietnam, emphasizing the practical implications of ESG-oriented HRM practices for employees in the industry. It is important to consider the perspectives of employees and other stakeholders when adopting and implementing these practices effectively.

Keywords: ESG-oriented HRM, Self-determination theory, Employee well-being, Logistics industry, Vietnam

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A Study of Factors Affecting Intention to Use Food Delivery Service In Thailand

Yi-Ping Lin[1], Chayakorn Chuchuaisuwan[2]

Abstract

In Thailand right now, One of the most popular businesses in Thailand is food delivery after the COVID-19 situation caused consumer behavior to turn to using more delivery food. The purpose of this research is to study consumer behavior, what is the main motivation for deciding to use food delivery services, and adapted independent variables in the conceptual framework from the TAM Model, including (1) Service Quality, (2) Marketing Mix, (3)Brand Image. This research is quantitative research, used a questionnaire to collect data, and number of respondents of 300 people from people who have experience using food delivery services in Thailand. Use SPSS to analyze statistical data through t-tests, one-way ANOVA, and regression. Research shows that the factors that affect consumers' decisions to use delivery platforms most have a positive effect. The study is recommended for the benefit of consumers. Restaurant operators and Providing services for using delivery food platforms in Thailand to apply the analysis results as a guideline for providing a full range of services, including increasing the capability of entrepreneurs' improvement and development to compete.

Keywords: Food delivery, Service quality, Marketing mix, Brand image, TAM model

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The Rise of "Ghost Gear Cleanup A-Team": A Talent Cultivation Model for a Sustainable Ocean

Chih-Cheng Lin[1], Kuo-Huan Ting[2], Hao-Tang Jhan[3], Chung-Lun Liu[4], Li-Shu Chen[5], Wen-Hong Liu[6]

Abstract

The issue of marine debris has become a growing concern, with the accumulation of plastic waste, in particular, posing a severe threat to ocean ecosystems and biodiversity. As higher Education Institutions (HEIs) are frequently highlighted to achieve SDGs. National Kaohsiung University of Science and Technology (NKUST) has developed a talent cultivation model to train a "Ghost Gear Cleanup A-Team" to remove ghost gear from Penghu seas. This cultivation model includes 3 phases. The model includes three phases: theoretical training, practical training, and guidebook editing. The first phase involves lectures and case studies on the impact of ghost gear and other marine debris on ocean ecosystems. Participants also undergo training on safe and effective removal methods, work logs, emergency reporting procedures, CoralWatch, and underwater photography techniques. This phase builds awareness and comprehension of the issue while equipping participants with essential knowledge and skills. This phase of theoretical training assists in building awareness and comprehension of the issue amongst the participants while equipping them with the essential knowledge and skills required. The second phase involves hands-on activities to locate and remove ghost gear from Penghu seas. During this phase, participants implement the knowledge and skills gained from the theoretical training to effectively remove ghost gear. This phase also allows participants to observe the effects of ghost gear and other marine debris on ocean ecosystems firsthand. The third phase involves editing and revising a guidebook for ghost gear cleanup based on the experiences and knowledge gained during the first two phases. This guidebook is also used as instructional material for future training rounds. This talent cultivation model for a sustainable ocean developed by NKUST has effectively removed ghost gear and raised awareness about the broader issue of marine debris amongst the community. This model serves as an effective means for HEIs to achieve

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Sustainable Development Goal 14 (Life below Water) by training volunteers, which can be utilized as a blueprint for similar initiatives in other regions worldwide.

Keywords: Ghost gear, SDGs, Ocean sustainability, Sustainability education, Marine education

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An Evaluation of TPACK in Maritime Education

Yi-Pei Liu[1], Chin-Shan Lu[2]

Abstract

In today's digital era, technology become more prevalent and have brought massive changes in the way we live. Digital learning is the next trend in education, and it has been conducted in numerous of primary and secondary educational institutions for many years. In higher educational institutions, all universities gradually began to develop digital teaching under the impact of Covid- 19 pandemic. The technological pedagogical and content knowledge (TPACK) developed by Misha and Koehler (2006), is a framework for examining how technology knowledge, pedagogical knowledge, and content knowledge interact to enhance teachers' pedagogical experiences using technology in teaching. A number of previous research on TPACK involve examining the pedagogical ability of primary and secondary school teachers in various academia and pointed out the importance of the integration of technology into teaching. However, few relevant research has been examined the impact of TPACK on maritime education. Thus, the purpose of this study is to identify crucial dimensions of TPACK based on prior studies and try to develop TPACK framework in maritime education. The relevant causal model and analysis will be explored in the future research.

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An Evaluation of Sustainable Development Goals (SDGs) at Ports

Emmanuella Laime, Chin-Shan Lu[1]

Abstract

Ports are key players in the global economy, serving as gateways for international trade, transportation, and logistics. However, they also have significant environmental, social, and economic impacts. This research first addresses the importance of Sustainable Development Goals (SDGs) and emphasizes the need to integrate them into port operations. It proceeds to illustrate how many ports in the world focus on certain SDG practices to promote the UN's sustainability goals. Data were collected through the websites of the top ten ports in the world from 2020 to 2021 and through a precise literature review. The results show that implementing SDGs can drive innovation in port operations, encouraging the adoption of new technologies and practices that promote sustainability. This can create new opportunities for businesses, promote sustainable economic growth, and help address global environmental challenges. Sustainable port operations can also drive economic growth by improving efficiency, reducing costs, and promoting trade. By adopting sustainable practices, ports can attract more businesses and investors, which can create more job opportunities and stimulate economic growth.

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Exploring the Port Digital Transformation Strategies in the Post COVID-19 Pandemic Era Using Multilayer QFD Framework

En-Teh Min[1], Teng-Huang Sheng[2]

Abstract

Purpose - The aim of this research is to explore the Taiwan's port transformation strategies by combining the perspective of port service provider and port user in post COVID-19 era.

Design/methodology/approach – A multilayer quality function deployment (QFD) framework is applied to put together the perspective of both port service providers and port users, and their "voices" may be change into port transformation strategies.

Findings - The result of this project shows several options of strategies that can be revealed for maritime policy makers and port operators in Taiwan as decision support reference for facilitating port transformation in post pandemic era.

Originality/value – Differing from the other studies that only consider the perspective of certain party, this research uses multilayer quality function deployment (QFD) to combine the perspective of multiple parties and obtain the best strategies that can satisfy both parties.

Keyword: Port service, Port transformation, Multilayer QFD, COVID-19

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Multilayer Quality Function Deployment Approach for Improving the Resilience of Port Logistics in the Post-COVID-19 Era

Shu-Qi Chien[1], Sheng-Teng Huang[2]

Abstract

Purpose – In recent years, port logistics industry is facing more uncertain factors than before, such as COVID-19, Suez Canal blockage, and so on. These uncertainties have greatly affected the global shipping supply chain such as high freight rates, port congestion and other related issues. This research aims to improve the resilience of port logistics in the post-COVID-19 era.

Design/methodology/approach –Multilayer quality function deployment (QFD) was used in this paper to investigate post COVID-19 resilience strategies by combining the views from multiple parties.

Findings –The results offer three important resilience strategies (technical solutions): "Encourage port automation and digitalization", "Implementation of 24 hours operation" and "Increase the construction of dry ports".

Originality/value –Building a decision support tool for solving the port and logistics resilient issues. Practitioners could refer this research to consider the resilient port logistics issue from multilayer QFD framework. The service provider's voice is considered, and this is the key difference from previous studies.

Keywords: Port logistics, Resilience, Multilayer QFD, Post COVID-19

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Analyzing The Impacts of Maritime Traffic Accidents on The Industry: A Case Study of Maritime Autonomous Surface

Chaur-Luh Tsai, Nimra Tabish

Abstract

The shipping industry plays a vital role in the transportation sector, and the Maritime Autonomous Surface Ships (MASS) are increasingly becoming popular worldwide. By utilizing MASS, shipping standards have improved, and the dependence on seafarers onboard has been reduced. However, it is crucial to examine the operations of MASS, particularly the potential risks they pose to the maritime sector. This study aims to provide insights into the risks associated with MASS and their impact on the maritime industry. Specifically, the study analyzes traffic accidents in the maritime industry and explores the effects of these accidents on future maritime transportation. To achieve these objectives, the study employs the Formal Safety Analysis methodology. The study findings reveal various levels of hazards associated with MASS and their impacts on the maritime industry. Based on these results, a more detailed quantitative analysis is recommended as a follow-up for future research. Conducting such analysis will enable stakeholders in the maritime industry to develop effective strategies for minimizing risks and enhancing the safety of MASS operations.

Keywords: MASS, Maritime traffic accidents, Shipping industry, Seafarer's shortage.

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Evaluating the Operating Efficiency of Container Terminals: A Comparison Between SBM and CCR/BBC

Wen-Kai Hsu[1], Nguyen Tan Huynh[2]*, Jiraporn Bokhamkerd[3]

Abstract

This study aims at examining the operating efficiency of container terminals (CTs) in a port by deploying a Data Envelopment Analysis (DEA) model, such as the CCR/BCC model and SBM. For validating the proposed model, the CTs operators in the Laem Chabang port in Thailand (LP-CTs case) were empirically investigated. The findings may provide practical information for CTs operators to improve their operating efficiency and achieve high-quality development. Besides, the research model might contribute an analytical reference for the practical applications of the DEA model in related port management. Especially, this research provides a methodological framework for terminal operators to assess CTs' operating efficiency inside a port.

Keywords: Container terminals, port, Operating efficiency, DEA, SBM, BCC/CCR

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Assessing Hierarchical Corporate Sustainability Transition Practices Under Ambiguity: An Approach in the Port and Shipping Industry in Southeast Asia Region

Mei-Train Yeh[1], Taufik Kurrahman[2]*, Feng-Ming Tsai[3]

Abstract

This study attempts to provide both theoretical and practical contributions to the corporate sustainability transition (CST) literature and to port and shipping industry decision makers. The port and shipping industries are widely recognized to contributes significantly to the global economy. The industry are the essential components of international logistical networks, which contribute to the economic development of nations; however, it also resulted in a major increase in environmental impacts, such as biodiversity loss, air and water pollution, and noise and light pollution, all of which significantly effect public health and safety. Therefore, a CST is essential to achieving to sustainable shipping operations that balance between the environmental, social, and economic dimensions; as well as the use of technology to aid firms in transitioning process. This study aims to provide a theoretical and hierarchical framework under ambiguity while identifying the important CST attributes based on qualitative data. The combination of fuzzy Delphi method and fuzzy decision-making trial and evaluation laboratory method was employed to eliminate to evaluate and validate the CST attributes then construct a hierarchical framework with the causal relationship based between attributes. The results reveal stakeholders' management, and communication and cooperation are the highest influencing aspects; and the R&D promotion, environmental training, international treaties, shareholder's value, and owner support are the top causative criteria that the practitioners must improve to develop CST performance.

Keywords: Corporate sustainability transition, Fuzzy delphi method, Fuzzy decision-making trial and evaluation laboratory method, Stakeholders' management, Communication and cooperation

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Blockchain in Transportation Management: Challenges and Opportunities

Dan Julius Mariposque Ramirez, Moses Shang-Min Lin, Feng-Ming Tsai

Abstract

Purpose- The goal of this research study is to examine the opportunities and challenges of implementing blockchain technology in transportation management. This article intends to inform stakeholders in the transportation industry about the potential benefits and obstacles of adopting blockchain technology by reviewing existing literature and statistics. In doing so, the article provides clear definitions of key terms and offers insights into the challenges and opportunities that must be considered when applying blockchain to transportation management. The study's findings can be utilized to enlighten businesses, lawmakers, and government agencies about the advantages and difficulties of blockchain technology in the transportation industry.

Research Methodology- This study uses secondary data analysis and the review of the scholarly literature as its research techniques. The keywords "Blockchain in Transportation," "Challenges and Opportunities of Blockchain in Transportation," and "Blockchain Technology in Transportation Management" were combined by the researchers to search for pertinent literature in the two well-known research databases Google Scholar and Web of Science. The researchers first identified 289 papers, carefully examined each one's abstract using Rayyan QCRI software, and removed any that were not specifically pertinent, leaving a final sample size of 45 studies.

Findings Whilst the adoption of blockchain technology in transportation management offers opportunities for enhanced supply chain visibility, greater transparency and trust, streamlined processes, improved efficiency and productivity, and new business models and opportunities, this research has found that it also faces obstacles such as a lack of governmental support, high costs associated with blockchain implementation, and cybersecurity issues. Consequently, further research is recommended in order to gain a more comprehensive understanding of the benefits and drawbacks of blockchain technology in the transportation sector. The findings of this study can serve as a resource for informing transportation industry stakeholders about the advantages and disadvantages of integrating blockchain technology in transportation management.

Keywords: Blockchain, Transportation management, Intelligent transport system (ITS), Challenges, Opportunities.

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A Cross-Country Comparison of ESG and CSR Scores: A Study of UK and Taiwan Companies

Ana Guerra Robles[1], Taih-Cherng Lirn[2]

Abstract

As interest in environmental, social, and governance (ESG) issues continues to grow, companies are increasingly adopting corporate social responsibility (CSR) practices to demonstrate their commitment to sustainability and social responsibility. This study investigates the relationship between ESG and CSR scores of companies in the United Kingdom (UK) and Taiwan, two countries with distinct cultural, institutional, and regulatory contexts. The research uses secondary data from ESG and CSR ratings of companies listed on Morgan Stanley Indexes. The study employs a statistical method T- test in order to know whether the performance of the companies is significantly different in profitability and performance. The findings reveal differences in ESG and CSR scores between UK and Taiwan companies, with Taiwan companies outperforming UK companies on most ESG and profitability dimensions. The research contributes to the growing literature on ESG and CSR by providing insights into the similarities and differences in the sustainability practices of companies in different countries. The results of this study can be useful for investors, policymakers, and other stakeholders in assessing the ESG and CSR performance of companies and promoting sustainable development.

Keywords: ESG, CSR, Sustainability, Social responsibility, Cross-country comparison, Statistical method, T-test, Profitability, Performance, Sustainability, Stakeholders

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Job Demands–Resources Model, Job Engagement, and Job Performance of Logistics Employees: Exploring the Moderating Effects of Innovative Technology Adoption

Le Thi Hong Minh[1], Shiou-Yu Chen [2], Taih-Cherng Lirn [3]

Abstract

Innovative technology is inevitable on the way to changing the logistics industry in both human and non-human factors toward the most flexible, speedy and creative industry to support the global economy. Most extant research, however, have mainly emphasized the non-human aspect of techinnovative benefits, adaptive processes or systems, ignoring how innovative technology alters the working environment and the interaction effects with job demands and job resources that lead to changes in job engagement thus job performance as well. This research aims to shed new light on logistics working conditions by adopting the well-established job demands–resources theory (JDR) to investigated the interactive effects of JD-R and innovative technology adoption on job engagement and job performance.

Based on the model of Job Demands and Resources (JD-R) and Innovation Adoption Theory, this study investigates the dual process of job demands and resources association to job engagement and how innovative technology adoption moderates the relationships between job demands resources and job engagement and performance. Using a questionnaire survey, primary data is collected from a variety of logistics firms in Taiwan. Then employ the structural equation model (SEM) to analyze the relationships with JD-R, innovative technology adoption, job engagement and job performance.

The study examined JD-R model and the interaction effect of innovative technology adoption, we hope to contribute to the job engagement and job performance of logistics industry in two ways. Firstly, to fill the gap of neglecting power of occupational health psychology (job demands resources (JD-R)) perspectives in innovative technology utilization and adoption. Secondly, we expect the evidence provided in this paper could also contributes by investigating the job engagement and job performance in the logistics industry which are undergoing highly intellectualized processed. After whole analysis process we hope to successfully consolidates the literature on job demands, job resources, innovative technology adoption, job engagement, and job performance to determine the complex mechanism of psychological aspects and job performance logistics employees.

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This study is unique in that it adopts the job demands-resources (JD-R) model which is one of the most popular in occupational health psychology, therefore sets it apart from previous research. In addition, through integrating the interaction effects of innovative technology adoption to examine the links among job demands-resources to job engagement and job performance.

Keywords: Logistics, Technology adoption, Job demands, Job resources, Job engagement, Job performance

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Cruise Industry Reverse Logistics - Ship Breaking in Turkey

Ilyas Erbey, Chuck Tsai

Abstract

The recycling of cruise ships is a crucial issue in terms of environmental and economic sustainability, and Turkey is a significant player in this field. This thesis focuses on the challenges and opportunities for sustainable cruise ship recycling in Turkey.

The aim of this study is to provide a comprehensive analysis of the challenges and opportunities for sustainable cruise ship recycling in Turkey. To achieve this goal, a mixed-methods approach is employed that combines a systematic literature review, legal and regulatory analysis, and case study evaluation of shipbreaking facilities in Turkey. The data are analyzed through qualitative content analysis and comparative analysis techniques.

The expected findings of this study shed light on the challenges facing the cruise ship recycling industry in Turkey, such as limited technological capacity, negative environmental and social impacts, and issues with economic sustainability. Additionally, the study identifies opportunities for sustainable practices in the industry, such as the development of improved legal and regulatory frameworks, technological innovation, and stakeholder engagement.

Overall, this thesis contributes to the growing body of literature on sustainable ship recycling and provides valuable insights into the challenges and opportunities for sustainable cruise ship recycling in Turkey. The study concludes with recommendations for policymakers and industry stakeholders on how to enhance the environmental sustainability of the cruise ship recycling sector in Turkey.

In conclusion, this thesis seeks to inform researchers, policymakers, and industry stakeholders about the challenges and opportunities for sustainable cruise ship recycling in Turkey and proposes measures to improve the industry's environmental and economic sustainability.

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New Technology on LNG Transportation & Vessel Operations: Floating Storage Regasification Unit (FSRU) Phasing in Asia & Worldwide

Judy Tong

Abstract

A new type of ship, FSRU revamp the classical understanding of on-shore LNG infrastructural development, storage, and transportation. As a new form of temporary LNG floating storage facility that allow on-board regasification process, both the ship size, storage capacity and regasification technology are being evolved and developed for the best operation efficiency and effectiveness for her serving parties. The floating facility allows to re-export LNG and supply the neighbouring regions with LNG, and it could also sail from like any other ocean-going vessel. This presentation aims to explore the research opportunities related to FSRU, and study two important and interesting problems: (A) Framework for demand forecast of FRSU in a regional and global perspectives and (B) Impact to classical chartering practice by FRSU chartering new practices. The result indicates the no. of FRSU shall increase with increasing constraints of LNG supplying, and the classical chartering practice shall be revamped dramatically by the elastic nature of infinite port-stay period in contrast to the off-hire and departure behaviour of most of the commercial ships by the end of the chartering cycle. The latest visiting & staying FSRU, MOL Challenger, the world's largest floating storage and regasification unit FSRU (Key Specifications: LNG storage capacity: 263000 m3, regasification capacity: 800 million standard cubic feet per day.) for Hong Kong's electricity generation required gaseous supply shall be used to conclude the presentation.

Keywords: FSRU, LNG, Demand forecast, Chartering