


ENVIRONMENTAL MANAGEMENT PRACTICES (EMP) IMPLEMENTATION IN SMALL AND MEDIUM-SIZE BUSINESSES

Norina Ahmad Jamil^A, Irwan Ibrahim^B, Abdul Rahman S. Senathirajah^C, Azhan Rashid Semawi^D



ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received 07 April 2023</p> <p>Accepted 04 July 2023</p>	<p>Purpose: Small and medium-sized businesses must understand the environmental consequences of their operations and seek advice on green issues. The goal of the study is to look into the factors that influence their establishment's implementation of environmental management practices.</p>
<p>Keywords:</p> <p>Environment Management Practices; Small and Medium-Size Businesses; Logistics.</p>	<p>Theoretical framework: A modified version of the Technology-Organizational-Environmental Framework (TOE) (Tornatzky & Fleischer, 1990) and the Model of External Influences on Environmental Awareness and Practices (MEAP) (Gadenne et al., 2009) have been developed for researching the adoption of environment management practices.</p>
	<p>Design/methodology/approach: The study is to determine the factors adopting environmental management practices in small and medium-sized businesses. Variables introduced are from systematic literature reviews of related articles and journals. The papers were analysed from descriptive, bibliographic, methodologic, results, and citation characteristics.</p>
	<p>Findings: According to the findings, small and medium-sized businesses could perhaps participate in environmental programs such as corporate governance, environmental legislation, different industries, business size, organization traits, talent management, internationalization, organizational structure, corporate execution activity, environmental and sustainable aspects, and role in the logistics system, corporate strategy demeanour, and geographical region.</p>
	<p>Research, Practical & Social implications: For small and medium-sized enterprises, implementing environmental management practices can be seen as a key strategy for addressing their environmental issues. It's crucial to understand the motivations behind these policies, though.</p>
	<p>Originality/value: This article is an academic contribution that allows an understanding of research developed on small and medium size businesses on adopting environmental management practices, considering data from two reference research databases.</p>
	<p>Doi: https://doi.org/10.26668/businessreview/2023.v8i6.929</p>

^A Lecturer. Department of Operations Management, Faculty of Business and Management, Universiti Teknologi Mara Puncak Alam Campus. Malaysia. E-mail: norina0048@uitm.edu.my

Orcid: <https://orcid.org/0000-0002-3005-9025>

^B Lecturer. Department of Corporate Communications, Malaysia Institute of Transport (MITRANS), Universiti Teknologi Mara Puncak Alam Campus. Malaysia. E-mail: irwan623@uitm.edu.my

Orcid: <https://orcid.org/0000-0002-0887-2394>

^C Lecturer. Department of Business and Communication, Faculty of Business and Communications, INTI International University. Malaysia. E-mail: arahman.senathirajah@newinti.edu.my

Orcid: <https://orcid.org/0000-0001-6044-9051>

^D Lecturer. Department of Business Economics, Faculty of Business and Management, Universiti Teknologi Mara Puncak Alam Campus. E-mail: azhanrashid@uitm.edu.my Orcid: <https://orcid.org/0000-0002-9702-8952>

IMPLEMENTAÇÃO DE PRÁTICAS DE GESTÃO AMBIENTAL (EMP) EM PEQUENAS E MÉDIAS EMPRESAS

RESUMO

Objetivo: As pequenas e médias empresas precisam entender as consequências ambientais de suas operações e buscar orientação sobre questões ecológicas. O objetivo do estudo é analisar os fatores que influenciam a implementação de práticas de gestão ambiental em seus estabelecimentos.

Estrutura teórica: Uma versão modificada da Estrutura Tecnologia-Organização-Ambiente (TOE) (Tornatzky & Fleischer, 1990) e o Modelo de Influências Externas sobre Conscientização e Práticas Ambientais (MEAP) (Gadenne et al., 2009) foram desenvolvidos para pesquisar a adoção de práticas de gestão ambiental.

Projeto/metodologia/abordagem: O estudo tem como objetivo determinar os fatores de adoção de práticas de gestão ambiental em pequenas e médias empresas. As variáveis introduzidas são provenientes de revisões sistemáticas da literatura de artigos e periódicos relacionados. Os artigos foram analisados a partir de características descritivas, bibliográficas, metodológicas, de resultados e de citações.

Conclusões: De acordo com os resultados, as pequenas e médias empresas talvez pudessem participar de programas ambientais, como governança corporativa, legislação ambiental, diferentes setores, tamanho da empresa, características da organização, gestão de talentos, internacionalização, estrutura organizacional, atividade de execução corporativa, aspectos ambientais e sustentáveis e função no sistema de logística, comportamento da estratégia corporativa e região geográfica.

Implicações sociais, práticas e de pesquisa: Para as pequenas e médias empresas, a implementação de práticas de gestão ambiental pode ser vista como uma estratégia fundamental para lidar com suas questões ambientais. No entanto, é fundamental entender as motivações por trás dessas políticas.

Originalidade/valor: Este artigo é uma contribuição acadêmica que permite a compreensão da pesquisa desenvolvida sobre pequenas e médias empresas na adoção de práticas de gestão ambiental, considerando dados de dois bancos de dados de pesquisa de referência.

Palavra-chave: Práticas de Gestão Ambiental, Pequenas e Médias Empresas, Logística.

IMPLANTACIÓN DE PRÁCTICAS DE GESTIÓN MEDIOAMBIENTAL (GM) EN PEQUEÑAS Y MEDIANAS EMPRESAS

RESUMEN

Objetivo: Las pequeñas y medianas empresas necesitan comprender las consecuencias medioambientales de sus operaciones y buscar orientación sobre cuestiones ecológicas. El objetivo del estudio es analizar los factores que influyen en la implantación de prácticas de gestión ambiental en sus establecimientos.

Marco teórico: Para investigar la adopción de prácticas de gestión ambiental se desarrollaron una versión modificada del Marco Tecnología-Organización-Ambiente (TOE) (Tornatzky & Fleischer, 1990) y el Modelo de Influencias Externas sobre la Conciencia y las Prácticas Ambientales (MEAP) (Gadenne et al., 2009).

Diseño/metodología/enfoque: El estudio pretende determinar los factores de adopción de prácticas de gestión medioambiental en pequeñas y medianas empresas. Las variables introducidas proceden de revisiones bibliográficas sistemáticas de artículos y revistas relacionados. Los artículos fueron analizados a partir de características descriptivas, bibliográficas, metodológicas, de resultados y de citación.

Conclusiones: De acuerdo con los resultados, las pequeñas y medianas empresas podrían tal vez participar en programas ambientales, como la gobernanza empresarial, la legislación ambiental, los diferentes sectores, el tamaño de la empresa, las características de la organización, la gestión del talento, la internacionalización, la estructura organizativa, la actividad de ejecución corporativa, los aspectos ambientales y sostenibles y la función en el sistema logístico, el comportamiento de la estrategia corporativa y la región geográfica.

Implicaciones sociales, prácticas y de investigación: Para las pequeñas y medianas empresas, la aplicación de prácticas de gestión medioambiental puede considerarse una estrategia clave para hacer frente a sus problemas medioambientales. Sin embargo, es crucial comprender las motivaciones que subyacen a estas políticas.

Originalidad/valor: Este artículo es una contribución académica que permite comprender la investigación desarrollada sobre la adopción de prácticas de gestión ambiental por parte de las pequeñas y medianas empresas, considerando datos de dos bases de datos de investigación de referencia.

Palabras clave: Prácticas de Gestión Ambiental, Pequeñas y Medianas Empresas, Logística.

INTRODUCTION

Normally the smaller the business the less time and resource will be available to address environmental issues (Ibrahim & Jaafar, 2016a; Ibrahim, 2015). Many small and medium-sized enterprises in the UK have a poor grasp of the effects of their actions on the environment, according to the report on his 2003 study of more than 8,000 of them (Hwang, Ku, Yen, & Cheng, 2004). They also demand more information and help on environmental matters. According to study by Paulraj and Chen (2007), just a fifth of the smallest enterprises can claim to have an environmental policy in place, compared to more than half of medium-sized businesses (50–250 people). When it comes to implementing realistic environmental measures, the situation is similar, with 44% of medium-sized enterprises having done so compared to only 20% of micro businesses. Focusing on Environment Management Practices (EMP) implementation, Chen, Hsu, & Chen (2007) discovers only were 76 EU Eco-Management and Audit Scheme (EMAS) registered companies in the UK, and almost 3,000 ISO 14001 certified organizations in the UK by 2003. The EU Eco-Management and Audit Scheme (EMAS) is a premium management instrument developed by the European Commission for companies and other organizations to evaluate, report, and improve their environmental performance. EMAS is open to every type of organisation eager to improve its environmental performance. It spans all economic and service sectors and is applicable worldwide. Chen et al., (2007) result numbers show how few businesses are involved in formal Environmental Management System (EMS) implementation. An Environmental Management System (EMS) is a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency. According to the survey, only 3% of businesses of all sizes and sectors have accredited environmental management practises in place, with only 1% planning to implement one. The result shows a similar scenario in Malaysia which only 1934 companies are registered with ISO 14001 certification as their EMP (Low, Tan, Choi, & Husna, 2015), comparing with 1,203,319 registered companies under Suruhanjaya Syarikat Malaysia (SSM) (SSM, 2017). An EMP is recommended to be outlined in order to manage all the potential impacts identified in the report. EMP is a practical tool for the implementation of mitigation and protective measure identified in the Environment Impact Indicator, EIA. The plan relates anticipated project activities to sensitive environmental factors, outlining policies and procedures for the protection of the environment (Ibrahim & Jaafar, 2016a, 2016b; Ibrahim, 2015; Ibrahim, Jamil, & Halin, 2018). The outcome will minimize the risk of costly, time-consuming environmental issues, while maximizing productivity, bottom-line performance and

goodwill It shows only 0.1% Malaysia companies have an accredited environmental management practices. This poor applicability may in part be due to a lack of knowledge of what an EMP is and the potential advantages and disadvantages associated with it.

BACKGROUND

Drivers and Barriers of Environmental Management Practices (EMP) Implementation in Companies

When businesses try to solve their environmental problems and adopt and apply EMPs, they encounter both internal and external barriers. However, the internal barriers initially play the more major role in preventing development (Amer, Ismail, Jani, Othman, & Ibrahim, 2022; Feisal, Amer, Jani, Othman, & Ibrahim, 2022). Environmental performance improvements and EMS adoption fall short at the start because of a poor corporate culture and a disconnect between having favourable environmental views and acting on them (Amer, Mat, Majid, Jani, & Ibrahim, 2019; Kasdi et al., 2020). In addition to this general lack of environmental activity, SMEs are generally quite sceptical of the advantages that could result from environmental changes (Ibrahim, Feisal, Feisal, Amer, & Jani, 2019; Ibrahim et al., 2020). Many times, especially for smaller firms, there are no attempts made to address environmental issues due to a lack of awareness, a lack of consumer demand (the most significant motivator for environmental changes and EMS adoption), and an absence of other drivers (Amer, 2020; Hillary, 1999; Ibrahim et al., n.d.). SMEs also struggle to find good quality guidance and information and to find the time to do so.

Once a SME starts implementing an EMS, the process is regularly disrupted, and resources are frequently redirected to essential business operations (Ibrahim & Jaafar, 2021). The most challenging aspect of EMS deployment for SMEs to obtain and manage is a shortage of human resources, not financial ones. The likelihood that the implementation process will be stopped increases as staff members' multifunctionality increases, which is typical in micro and small businesses. Some research suggest that SMEs encounter inconsistency and high costs in the certification system after they are on the path to certified EMSs. In addition to driving SMEs' environmental improvements, customers and the supply chain play a significant role (Ibrahim, Amer, Omar, & Alam, 2011). However, the government and local councils have more of an impact than clients on the overall environmental performance of SMEs, especially medium-sized businesses.

LITERATURE REVIEW

Environment-Related Issues in the Logistics Sector

Research on environmental issues in logistics was essentially non-existent until 1990, however, since 1995, when the International Journal of Physical Distribution & Logistics Management devoted a special issue to "environmental aspects of logistics," the topic has been sufficiently important and relevant, and research on environmental issues has routinely appeared in the logistics literature. However, reverse logistics in the supply chain systems of the manufacturing sectors was the main focus of the studies on environmental concerns in logistics. In the logistics sector, there were few articles about environmental issues (Ibrahim et al., 2019).

The Institute of Logistics and Distribution Management members in the UK were polled in 2009 by Ghobadian (2009) to learn more about their attitudes about environmental pressure and their organisational and operational solutions. The survey reveals that law, followed by customer pressure, lobby group influences, and staff concern, is what most strongly affects their stance on environmental issues. The two main environmental challenges facing logistics companies are noise and emission levels, together with the disposal of trash and packaging materials. Transport management, fuel efficiency, emission management, warehousing, office and administrative management, and packaging are some of the strategies used by logistics organisations to lessen the environmental effects of their operations. Due to a lack of research on the correlation between the adoption of environmental management and managers' awareness of environmental sustainability, this article, however, could not provide a thorough understanding of the origins and effects of environmental innovation.

Murphy & Daley (2001); Murphy & Poist (2003a, 2003b) conducted a survey of the American Council of Logistics Management members to learn more about their perspectives on environmental concerns that pertain to logistics operations and the tactics they have adopted to address them. According to the findings, disposing of hazardous waste and solid waste are the two most crucial environmental concerns pertaining to logistical operations, followed by lowering pollution of the air, water, and land, and conserving energy. Environmental concerns have an impact on the logistical processes of packaging, transportation, and return goods processing, followed by the disposal of salvage and scrap. Reusing resources, cutting back on consumption, and recycling materials are the three most popular approaches used in logistics to address environmental challenges. Ibrahim et al., (2019); Ibrahim & Jaafar, (2021); Murphy & Poist, (2003a) discuss how logistics is crucial in putting environmental policy into practise,

despite the fact that environmental issues are thought to be vital for businesses. The business should manage environmental challenges proactively.

The study also reveals that the most frequently cited factor in setting environmental policy is compliance with laws and regulations, which is followed by societal expectations, avoiding risk of legal action, keeping up with rivals, and creating chances for profit. Other barriers to implementing environmental regulations include a lack of resources, a lack of benefits recognised, high compliance costs, managerial indifference, and a lack of senior management support. Progressive, moderate, and conservative businesses all have diverse environmental perspectives, and their attitudes toward environmental issues will vary to varying degrees. These results can help us identify some of the elements of environmental innovation as well as the factors that influence environmental innovation, but they do not indicate how much of an impact these influences and the implications of environmental policies will have.

An overview of logistics practises that adhere to environmental standards throughout the whole supply chain is provided in (Wu & Dunn, 2011). They discuss how logistics activities like warehousing, handling of materials, logistics system planning and management, order fulfilment, and vehicle scheduling and routing can significantly reduce the negative effects of pollutants and fuel usage with good management and understanding of the environmental consequences. This is based on practises implemented by various innovative companies, including Federal Express and UPS, that are environmentally benign. However, their essay just defines what logistics operations should be in terms of environmental responsibility. The essay is unable to address the transport and logistics community's knowledge of environmental challenges. There is an absence of that article on the subject of environmental innovation's causes and effects.

In order to investigate the methods employed to manage and address environmental challenges in logistics, Murphy and Poist (2000; 2003) launched a global survey of the Council of Logistics Management members from the United States, Canada, and the European Union. They also investigate possible links between corporate characteristics and approaches to dealing with and responding to environmental problems. They proposed the following twelve environmental strategies: (1) leveraging outside or third parties to manage environmental problems, (2) reducing consumption, (3) reusing materials, (4) conducting environmental audits, (5) publicizing environmental initiatives, (6) improving employee education and training, (7) redesigning logistical system components, (8) encouraging industry corporate

efforts, and (9) recycling materials, (10) rejecting suppliers who do not care about the environment, (11) hiring/promoting environmentally conscious employees, and (12) advocating for increased government involvement/regulation. Based on these ideas, the respondents' three most popular green practises were recycling materials, cutting back on consumption, and reusing items. Companies with various traits will emphasise environmental strategies in unrelated ways. These papers can serve as inspiration for additional research on logistics' greening and as a guide for characterising the landscape of its environmental logistics practises. More research is needed on the factors that determine the use of these environmental methods, as well as the effects of their implementation.

Tay, Rahman, Aziz, & Sidek (2015) found that internal obstacles include a reliance on traditional accounting practices that do not permit reporting on the triple bottom line, a shortage of supportive corporate structures and processes, and insufficient management engagement. Additional, lack of top management commitment is a major reason behind failure of quality improvement efforts in the execution of new system towards environment sustainability, and unless management is fully committed to service excellence the efforts will fail. Although articles reveals that the management awareness towards the sustainable environment and the attitudes of the manager in operating the business is important in considering the environment management, it lacks on the explanation on aspect of the determinant factors for implementing any environment management practices.

Ibrahim & Jaafar (2021; Ibrahim et al., (2018); Lau, (2011) did a study on EMP implementation by comparing companies between two countries that is China and Japan. In his findings he finds that the main drivers for EMP implementation in the industry of China are still regulatory compliance and cost saving at this stage. While the Japanese manufacturers are implementing EMP more for reasons of stronger awareness, availability of alternative green materials and technologies, and development of unique capability for long-term competition. However the articles are lacking on discussing the determining factors on implementing EMP.

Zhu, Sarkis, & Lai (2019) in his investigation on green supply chain management (GSCM) in China companies reveals that Chinese enterprises have increased their environmental awareness due to regulatory, competitive, and marketing pressures and drivers. However, this awareness has not been translated into strong GSCM practice adoption, let alone into improvements in some areas of performance, where it was expected. The articles lacking on discussing the drivers on the adoptions of the practices.

Beamon (1999) investigates the environmental factors leading to the development of an

extended environmental supply chain. He shows that in order to achieve the green supply chain, manufacturing organizations must follow the basic principles established by ISO 14000. He added that organizations must develop procedures that focus on operations analysis, continuous improvement, measurement, and objectives. In his articles, little mention on the importance of managers awareness on environment sustainability before embarking into implementation of any EMP.

Cassells & Lewis (2011) explore the link between attitude and action in their paper through the examination of the inter-relationship between awareness of environmental impact, attitude towards environmental issues, and environmental practice adoption. They discuss on the factor of environmental such as process, waste, noise and disturbance and organizational factors such as EMP implementation, responsibility and environments audits. It shows that there is a relationship of environment and organization with awareness and attitudes towards implementing EMP. However this articles lacking the importance of EMP as new technology or innovation as a factor that drives managers to implement EMP.

The following justifications are provided by Velmurugan & Suryakumar (2022); D. Rondinelli & Vastag, (2000); Dennis Rondinelli & Berry (2000): economic globalization, speed-to-market product delivery, agile manufacturing, business practices, and integration of supply chain management have all increased demand for multimodal transportation infrastructure and intermodal logistics services. According to their findings, multimodal logistics services have a significant detrimental influence on the environment due to the contamination of the air, soil, ground water, and surface water. The primary pillars include the disposal of petroleum products, emissions of organic hazardous air pollutants, and contamination of water and soil by waste solvents, cleaning and de-icing agents, fuel spills, degreasers, coolant leaks, and solid and liquid wastes from terminal activities. Rondinelli & Berry (2000) proposed an environmental management and information system for transportation to reduce the detrimental environmental effects of multimodal logistics activities. The study has emphasised the value of environmental innovation and offered a potential remedy for logistics service providers to enhance their environmental performance. However, that article does not address the subject of environmental innovation's causes and effects on logistics service providers. Additionally, it lacks the awareness and attitude components that are important for the application of EMP.

Zamai, Bavoso, Rodrigues, & Barbosa (2016) outlines a justification for why the six "green paradoxes" of logistics in transportation systems (costs, time/speed, network, reliability,

warehousing, and e-commerce) do not contradict with the logistics industry's potential to be profitable. They advise more government involvement in favour of stricter environmental regulations as being crucial for the advancement of green logistics. Environmental management programmes like ISO 14000 may present chances for the logistics sector to go green. This article simply briefly summarises the value and applicability of green logistics; it offers no empirical support for the effects of implementing green practises in the logistics sector.

In a study conducted in Hong Kong by Quazi, Khoo, Tan, & Wong (2001), the authors investigated the effects of stakeholder pressures on the adoption of environmental management practises for vehicle fleet management firms (such as taxicab and bus services, storage and moving firms, containerized freight services, air cargo services, freight forwarding firms, furniture firms, and fuel supply firms). They discovered that the stakeholder pressures originate from a variety of sources, including network, media, community, and others related sources to competition and the environment. They discovered that environmental management practises also include management review, the establishment of an environmental policy, the development of an appropriate organisational structure for handling environmental issues, and the allocation of sufficient resources to meet environmental goals and targets. Their findings show that stakeholder demands may have a major impact on how environmental management methods are implemented. However, the study only looked at how stakeholder demands might influence logistics service providers' deployment of environmental standards. Environmental innovation is influenced by a variety of factors. In addition to stakeholder demands, additional research on the influences of other possible factors on the adoption of various types of environmental logistics practices is still needed.

C. Lin & Ho (2011) explored how organizational, technological, and environmental aspects impacted the execution of green practices in the Chinese logistics sector. The findings demonstrate that these elements have favourable effects on individuals' desire to adopt green behaviours. Additionally, organizational encouragement, the caliber of human resources, governmental assistance, and the explicitness and accumulation of environmental practices all have a substantial impact on the readiness of logistics service providers to adopt green initiatives. Based on the study's findings, they concluded that more explicit green practices can facilitate the dissemination of technological know-how inside a business and, as a result, can increase employees' readiness to adopt green practices. They continued by saying that logistics organizations may increase the execution of green practices by motivating their staff to engage in green initiatives and by educating as well as training them to work in an environmentally

friendly manner. They also conclude that in order to encourage the adoption of green practices in the logistics sector, the government must offer financial incentives, pilot programs, and tax exemptions. Lin and Ho (2011) based their research on the TOE framework, which is deficient in both manager attitudes toward environmental sustainability and an aspect of environmental awareness.

JUSTIFICATION

Adopting Environmental Management Practices

It is crucial to understand the drivers behind environmental management since implementing environmental management techniques can be seen as a key strategy for addressing businesses' environmental issues. Ibrahim, n.d., (2015; Ibrahim & Jaafar (2021) found a variety of motivations for and barriers to developing environmental regulations for the logistics industry, but there was less emphasis on the effects of implementing green initiatives for that specific industry. The effects of innovation, institutional, and environmental factors on the implementation of environmental execution in the Chinese logistics industry were investigated (Ho & Lin, 2012; C. Y. Lin & Ho, 2011; Pavlou & Chai, 2002). A variety of factors explain why manufacturing firms should engage in environmental activities, including pressure from stakeholders, environmental legislation, industry, size of the company, leadership pipeline, human capital, globalisation, institutional arrangements, business activity, green innovation aspects and role in the value chain, corporate strategy attitude, and location. There is a definite need for research to uncover more potential elements that will affect the adoption of environmental management techniques for the logistics industry because not all industrial sectors are exposed to the same pressures or to the same degree.

According to Lin & Ho (2011), there hasn't been a lot of research on environmental concerns in the logistics sector over the past 20 years. Most studies, they discovered, simply argued the impact of environmental issues for the logistics sectors (Rodrigue et al., 2001; Rondinelli & Berry, 2000); several studies have explored the implementation of green activities adopted by the logistics industry (Murphy & Poist, 2000, 2003; Wu & Dunn, 1995); and some studies presented a few potential factors that may affect the adoption of green initiatives for logistics companies (Murphy & Poist, 2000, 2003; Wu & Dunn (Lin & Ho, 2011; Murphy et al., 1994; 1995; 1996; Szymankiewicz, 1993; Wong & Fryxell, 2004). The majority of scholars are currently concentrating on a narrow range of concerns while disregarding some crucial areas (Lin & Ho, 2011). As a result, the study must make an effort to improve the standard of study

on environmental challenges in the logistics sector (Lin, 2014). While there is empirical research in the area, according to Lin (2014), too much of this study is descriptive, and he suggested that future logistics exploration would benefit from other methodologies like using actual behavior rather than behaviour and conducting field experiments to demonstrate causality. According to Lin (2014), there is a gap between what logistics companies claim to do and what a sample of respondents fill out on a survey. Furthermore, Lin (2014) examined the published literature and discovered that this field of study requires more creativity in both the issues addressed and the research methodologies used. According to Lin (2014), who also measured the scholarly articles published on the topic, would make the findings more meaningful to industry players. However, the study is currently too narrowly focused, and (Lin, 2014) believes that future researchers should focus on a wide scope of study.

Environmental management, according to Khdaif & D. Jabbar (2022) and Etzion (2007), offers a critical framework for understanding environmental impacts and is a crucial method of resolving issues with a nation's ecology. Given that environmental challenges can be both technical and social in nature, supplying a concise and unambiguous definition of environmental management may be difficult. According to Husted (2005), environmental management should be from a technical, management, and sociological standpoint because it is a multidisciplinary issue. It is a complicated, dynamic, and interconnected process with various contradictions. Additionally, environmental management considers regional and global differences and teamwork as well as various viewpoints from governments, businesses, the public, and other more specialised stakeholders (Hellstrom, 2007).

Several scholars have conducted research on the aspect of environmental stewardship. Several environmental tactics for the logistics sector have been suggested by Murphy & Poist (2000; 2003) and Lin (2014). Other than these environmental management strategies, there don't appear to be any more recommendations for the logistics sector in the literature. Future academics looking into the substance of environmental management methods for the logistics industry will have a huge need to fill.

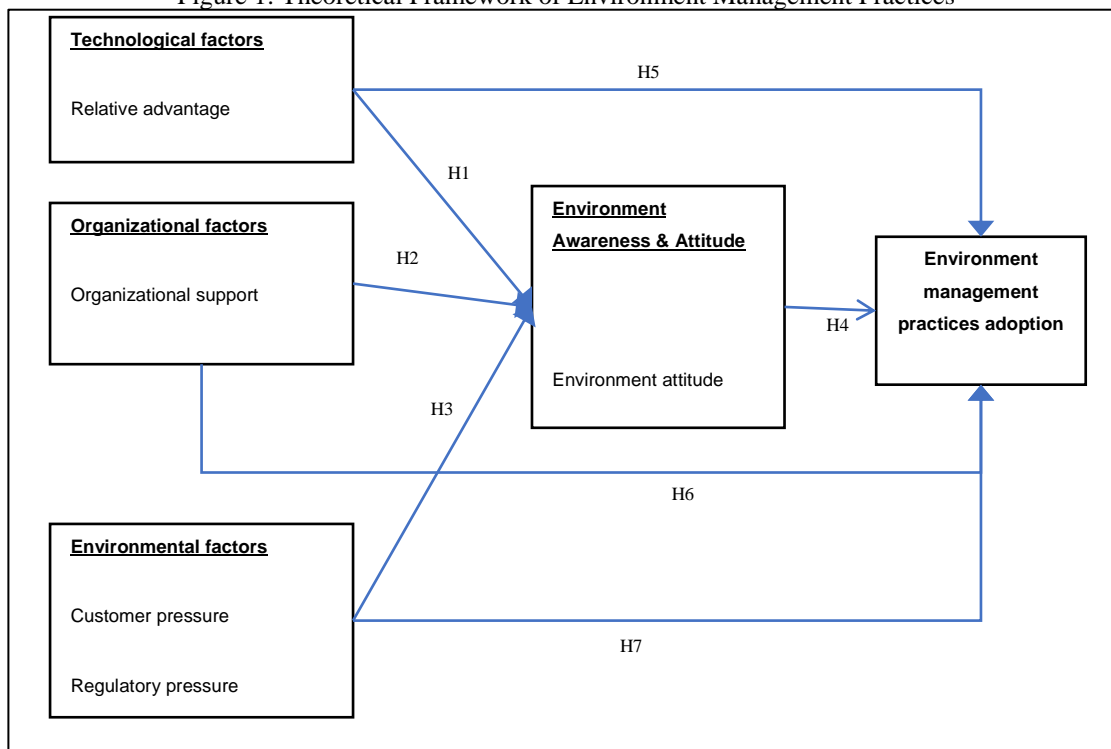
METHODOLOGY

Theoretical Framework

In this research, a modified version of the Technology-Organizational-Environmental Framework (TOE) (Tornatzky & Fleischer, 1990) and the Model of External Influences on Environmental Awareness and Practices (MEAP) (Gadenne et al., 2009) have been developed

for researching the adoption of environment management practices. Based on the TOE framework, it covers the aspects of an enterprise's context that influence the process by which it adopts and implements a technological innovation or new technology system (Tornatzky & Fleischer, 1990). While in MAEP, the intention to use a “system” is explained by attitudes toward the general awareness of an environment management, the awareness of cost benefits implement environment management and the environment attitudes towards environment management (Ajzen, 1985). TOE or MAEP have both been widely used among researchers and found to be very useful in explaining consumers’ attitudes and intentions toward a given behavior (Awa et al., 2012; Min, 2008; Oliveira & Martins, 2010; Pavlou & Chai, 2002; Yoon, 2011). MAEP is a general theory of human awareness and behaviour towards environment while TOE is specific to innovation adoption. Studies on acceptance of new technology indicate that traditional adoption models need to be extended and modified to better explain the adoption of the innovations (Ervasti & Helaakoski, 2008). Figure 1 shows the theoretical framework.

Figure 1: Theoretical Framework of Environment Management Practices



Source: Prepared by authors

CONCLUSION

While implementing environmental management methods can be viewed as a key strategy for addressing environmental issues in businesses, it is critical to understand the motivations behind environmental management. Murphy et al. (1995, 1996) made some

suggestions about the reasons for and barriers to implementing environmental rules in the logistics sector, but they did not address the effects of these factors on the adoption of environmental management methods. Wong and Fryxell discovered the effects of stakeholder demands on the adoption of environmental management techniques for logistics organisations (2004). Lin and Ho (2011) conducted a study into the institutional, technology, and environmental aspects that affected the adoption of green initiatives in the Chinese logistics sector. Manufacturing companies should participate in green initiatives for a variety of reasons, including coercion, environmental laws, the different industries, business size, leadership pipeline, human capital, globalisation, organization structures, company activity, green innovation characteristics, position in the value chain, business strategy attitude, and location (Etzion, 2005; Gonzalez-Benito & Gonzalez-Benito, 2006; Pun, 2006). While keeping in mind that not all industries are subjected to the same degrees of pressure, more factors that may influence the implementation of environmental management methods for the logistics operations must be investigated. Adopting environmental management strategies also aims to improve environmental performance, reduce waste, save money, and, as a result, foster efficiency and cooperation between business partners and their lead organisations (Lin, 2014). An industry-specific environmental performance measurement model based on the features of the industry is also necessary, even though a standard green performance measurement model is valuable for analysing the environmental performance of enterprises throughout different industries (Ramos & De Melo, 2006). A model for measuring environmental performance is required for the logistics sector (Lin, 2014). As a result, more research on the factors influencing the adoption of environmental management practises in the logistics sector is required.

REFERENCES

- Amer, A. (2020). Revisiting Consumer Brand Preference Sustaining Strategy through Co-Creation Corporate Social Responsibility in the Revisiting Consumer Brand Preference Sustaining Strategy through Co-Creation Corporate Social. *Journal of Academia*, 7(1), 117–125.
- Amer, A., Ismail, A. F. M. F., Jani, S. H. M., Othman, H., & Ibrahim, I. (2022). determinant factor for strategic sustainable location decision model (SSLDM) for commercial development project. *International Journal of Health Sciences*, 4615–4622. <https://doi.org/10.53730/ijhs.v6ns2.6087>
- Amer, A., Mat, M. K., Majid, M. A. A., Jani, S. H. M., & Ibrahim, I. (2019). Brand love co-creation in digitalized supply chain management: A study on framework development and research implications. *International Journal of Supply Chain Management*, 8(2), 983–992.

- Beamon, B. M. (1999). Designing the green supply chain. *Logistic Information Management*, 12(4), 332–342. <https://doi.org/10.1108/09576059910284159>
- Cassells, S., & Lewis, K. (2011). SMEs and Environmental Responsibility: Do Actions Reflect Attitudes? *Corporate Social Responsibility and Environmental Management*, 18, 186–199.
- Chen, L. H., Hsu, L., & Chen, M. (2007). Impacts of ERP systems on the performance of manufacturing and marketing. <https://doi.org/10.1108/02635570410514089>
- Feisal, A., Amer, A., Jani, S. H. M., Othman, H., & Ibrahim, I. (2022). Supply chain quality performance (SCQM) and quality performance. *International Journal of Health Sciences*, 6(April), 2452–2468. <https://doi.org/10.53730/ijhs.v6ns3.6068>
- Ghobadian, D. H. A. (2009). An empirical study of green supply chain management practices amongst UK manufacturers. *Int J Logistics Management*, 20(4), 933–956. <https://doi.org/10.1108/17410380910984212>
- Hillary, R. (1999). *Evaluation of Study Reports on the Barriers, Opportunities and Drivers for Small and Medium Sized Enterprises in the Adoption of Environmental Management Systems*. London.
- Ho, Y., & Lin, C. (2012). An Empirical Study on Taiwanese Logistics Companies' Attitudes toward Environmental Management Practices. *Advances in Management & Applied Economics*, 2(4), 223–241.
- Hwang, H.-G., Ku, C.-Y., Yen, D. C., & Cheng, C.-C. (2004). Critical factors influencing the adoption of data warehouse technology: a study of the banking industry in Taiwan. *Decision Support Systems*, 37(1), 1–21. [https://doi.org/10.1016/S0167-9236\(02\)00191-4](https://doi.org/10.1016/S0167-9236(02)00191-4)
- Ibrahim, I. bin, & Jaafar, H. S. binti. (2016a). Factors of Environment Management Practices Adoptions. *Procedia - Social and Behavioral Sciences*, 224(3), 353–359. <https://doi.org/10.1016/j.sbspro.2016.05.387>
- Ibrahim, I. (2015). Title: Determinants of Environment Management Practices Adoption for Logistics Companies in Malaysia Author(s): Ibrahim, Irwan; Jaafar, Harlina Suzana Status: Accepted, 81.
- Ibrahim, I., Amer, A., Business, F., Abdul, I., Universiti, H., Mokhtar, N. F., ... Universiti, M. (n.d.). *Green Supply Chain Strategies In Natural Resource Scarcity And Environmental Issues : A Conceptual Framework*.
- Ibrahim, I., Amer, A., Omar, F., & Alam, S. (2011). *the Total Quality Management Practices and Quality Performance* ., (1994), 1938–1967.
- Ibrahim, I., Feisal, A., Feisal, M., Amer, A., & Jani, S. H. (2019). The Effectiveness of Mass Marketing Communication as a Digital Logistics Tools in Promoting a New Online Public Service Platform, 8(4), 177–185.
- Ibrahim, I., & Jaafar, H. S. (2016b). Adopting Environment Management Practices for Environment Sustainability: A Proposed Model for Logistics Companies. *Asian Business Research*, 1(1), 70. <https://doi.org/10.20849/abr.v1i1.28>

- Ibrahim, I., & Jaafar, H. S. (2021). Determining the Adopting Environment Management Practices for Environment Sustainability: A Proposed Model for Logistics Companies. *New Innovations in Economics, Business and Management* Vol. 2, 169–174. <https://doi.org/10.9734/bpi/niebm/v2/13297d>
- Ibrahim, I., Jamil, N. A., & Halin, I. A. (2018). Green Enterprise Resource Planning and Green Logistics Performance. *The SIJ*, 6(1), 1–6.
- Ibrahim, I., Rahmat, A. K., Fadhiha Mokhtar, N., Amer, A., Halin, I. A., & Ratna Masrom, N. (2020). A Conceptual Framework of Halal Green Supply Chain Management (HGSCM). 2020 11th IEEE Control and System Graduate Research Colloquium, ICSGRC 2020 - Proceedings, 361–365. <https://doi.org/10.1109/ICSGRC49013.2020.9232483>
- Khdair, W. A. ., & D. Jabbar, A. A. . (2022). Studying the Effect of Employees' Environment Awareness as an Intermediate Variable for the Relationship between Institutional Pressures and Intentions of Human Resources for Adoption of Green Information Techniques: An Exploratory Study of Micro-Companie. *International Journal of Professional Business Review*, 7(2), e447. <https://doi.org/10.26668/businessreview/2022.v7i2.447>
- Kasdi, S. A., Abdullah, M. H., Akmar, F., Salim, A., Amer, A., & Rahmat, A. K. (2020). the Determinant Factors of Green Maintenance Management Capabilities. *Global Research on Sustainable Transport & Logistics*, 884–891.
- Lau, K. H. (2011). Benchmarking green logistics performance with a composite index. *Benchmarking*, 18(6), 873–896. <https://doi.org/10.1108/14635771111180743>
- Lin, C., & Ho, Y.-H. (2011). Determinants of Green Practice Adoption for Logistics Companies in China. *Journal of Business Ethics*, 98(1), 67–83. <https://doi.org/10.1007/s10551-010-0535-9>
- Lin, C. Y., & Ho, Y. H. (2011). Determinants of Green Practice Adoption for Logistics Companies in China. *Journal of Business Ethics*, 98(1), 67–83. <https://doi.org/10.1007/s10551-010-0535-9>
- Low, H. H., Tan, O. K., Choi, S. L., & Husna, a. R. R. (2015). The Adoption of Environmental Management System in Malaysia's Manufacturing Organizations. *Journal of Economics, Business and Management*, 3(1), 93–97. <https://doi.org/10.7763/JOEBM.2015.V3.161>
- Murphy, P. R., & Daley, J. M. (2001). Profiling international freight forwarders : an update. *International Journal of Physical Distribution & Logistics Management*, 31(3), 152–168.
- Murphy, P. R., & Poist, R. F. (2003a). Green perspectives and practices: a “comparative logistics” study. *Supply Chain Management: An International Journal*, 8(2), 122–131. <https://doi.org/10.1108/13598540310468724>
- Murphy, P. R., & Poist, R. F. (2003b). Green perspectives and practices: a “comparative logistics” study. *Supply Chain Management: An International Journal*, 8(25), 122–131. <https://doi.org/10.1108/13598540310468724>
- Paulraj, A., & Chen, I. J. (2007). Strategic buyer-supplier relationships, information technology and external logistics integration. *Journal of Supply Chain Management*, 43(2), 2–14.

<https://doi.org/10.1111/j.1745-493X.2007.00027.x>

Pavlou, P., & Chai, L. (2002). What Drives Electronic Commerce across Cultures? A Cross-Cultural Empirical Investigation of the Theory of Planned Behavior. *Journal of Electronic Commerce Research*, 3(4), 240–253. <https://doi.org/10.1.1.144.1549>

Q.a, Z., J.b, S., & Y.a, G. (2005). Green supply chain management in China: Pressures, practices and performance. *International Journal of Operations and Production Management*, 25(5), 449–468. <https://doi.org/10.1108/01443570510593148>

Quazi, H. A., Khoo, Y. K., Tan, C. M., & Wong, P. S. (2001). Motivation for ISO 14000 certification: Development of a predictive model. *Omega*, 29(6), 525–542. [https://doi.org/10.1016/S0305-0483\(01\)00042-1](https://doi.org/10.1016/S0305-0483(01)00042-1)

Rondinelli, D., & Vastag, G. (2000). Panacea, common sense, or just a label?: The value of ISO 14001 environmental management systems. *European Management Journal*, 18(5), 499–510. [https://doi.org/10.1016/s0263-2373\(00\)00039-6](https://doi.org/10.1016/s0263-2373(00)00039-6)

Rondinelli, Dennis, & Berry, M. (2000). Multimodal transportation, logistics, and the environment: managing interactions in a global economy. *European Management Journal*, 18(4), 398–410. [https://doi.org/10.1016/S0263-2373\(00\)00029-3](https://doi.org/10.1016/S0263-2373(00)00029-3)

S.V, R. ., Velmurugan, J. S. ., & Suryakumar, M. . (2022). Green Entrepreneurs Challenges and Innovation: The Struggles They Face. *International Journal of Professional Business Review*, 7(2), e0482. <https://doi.org/10.26668/businessreview/2022.v7i2.482>

Tay, M. Y., Rahman, A. A., Aziz, Y. A., & Sidek, S. (2015). A Review on Drivers and Barriers towards Sustainable Supply Chain Practices. *International Journal of Social Science and Humanity*, 5(10), 892–897. <https://doi.org/10.7763/IJSSH.2015.V5.575>

Wu, H., & Dunn, S. C. (2011). *International Journal of Physical Distribution & Logistics Management*, (1995).

Zamai, C. A., Bavoso, D., Rodrigues, A. A., & Barbosa, J. A. S. (2016). No 主観的健康感を中心とした在宅高齢者における健康関連指標に関する共分散構造分析Title. *Resma*, 3(2), 13–22.

Zhu, Q., Sarkis, J., & Lai, K. (2019). Choosing the right approach to green your supply chains. *Modern Supply Chain Research and Applications*, MSCRA-02-2019-0006. <https://doi.org/10.1108/MS CRA-02-2019-0006>