What Can the Brunei Government Do to Encourage Halal Logistics Adoption: Lessons from the Literature

Mohamed Syazwan Ab Talib
UBD School of Business and Economics, Universiti Brunei Darussalam
Bandar Seri Begawan, Brunei Darussalam
Email: syazwan.talib@ubd.edu.bn (Corresponding Author)

Li Li Pang
UBD School of Business and Economics, Universiti Brunei Darussalam
Bandar Seri Begawan, Brunei Darussalam
Email: lili.pang@ubd.edu.bn

Nur Atiqah Md Said
UBD School of Business and Economics, Universiti Brunei Darussalam
Bandar Seri Begawan, Brunei Darussalam
Email: 20h1025@ubd.edu.bn

ABSTRACT

The role of government in developing a country’s logistics industry is undeniable. Initiatives undertaken by governments have been significant in encouraging the implementation of various logistics service adoption and innovation. Few studies have investigated the role of government in any systematic way – particularly in the adoption of halal logistics. Hence, the purpose of this paper is to determine the measures that the Brunei government could undertake in encouraging halal logistics (HLog) adoption in the country. Using content and narrative analyses of extant logistics management literature that discussed governmental initiatives revealed six measures in the form of regulation, fiscal support, infrastructure and assets, education and research, liberalisation, and exhortation. These measures could be undertaken by the Brunei government to encourage HLog adoption. This paper is among the first to consolidate the measures that could encourage HLog adoption and the very few that reflect on Brunei context.

Keywords: logistics management, halal logistics, halal supply chain management, halal industry, government, institutional factor

1. INTRODUCTION

In the current economy, religion has become an important issue. Although often overlooked, the interrelation between religion and contemporary management and economic research is undeniable (Tracey, 2012; Mayoral and Esteban, 2019). There is a growing body of literature that acknowledges the presence of religion in the modern business disciplines such as in banking (Sun et al., 2012), tourism (Fourie et al., 2015), human resource (Alewell and Rastetter, 2020), marketing (Casidy, 2014), and even logistics management (Tieman, 2013). Thus, for organisations to compete and sustain in the global markets, the influence of religion should not be underestimated (Butt et al., 2017).

Focusing on logistics management, the fusion with religion, specifically Islam, is commonly known as halal logistics (HLog). As the name suggests, HLog is a combination of the halal principles and logistics knowledge. The term ‘halal’ means ‘permissible’ in English. Though normally associated with the consumption of food permitted in the Islamic law, halal is truly universal, applies on all facets of society, and a wholesome lifestyle choice (Bergeaud-Blackler, 2016; Alzeer et al., 2018; Haleem et al., 2020). In recent years, the halal knowledge has been closely studied with food safety domains (Kohilavani et al., 2013; Alzeer et al., 2018) – not to specifically conform to a specific belief but solely on the pursuit of basic human need for clean and healthy food. Logistics, on the other hand, is the extensive network of activities, responsibilities, and coordination of product or service movement along the supply chain (Ballou, 2007). Taken together, HLog is the careful planning and distribution of halal-certified goods and services flow from origin to the end that generally abides by the Islamic principles. This definition is close to that of Tieman (2013, p. 5) who define HLog as “the process of managing the procurement, movement, storage and handling of materials, parts, livestock, semi-finished or finished inventory both food and non-food, and related information and documentation flow through the organisation and the supply chain in compliance with the general principles [Islamic law]”.

To further showcase the permeations of halal tenet in modern logistics, scholars (Haleem et al., 2020; Mostafa, 2020) demonstrate that HLog is among the prevalent and growing research domains, paralleled with the thriving
global halal industry. The joint growth between the global halal industry and HLog is obvious considering the rising consumer awareness on the logistical aspects of halal products and services (Tiemann et al., 2013; Fathi et al., 2016) and the commitment of logistics companies to offer halal-certified services (Karia and Asaari, 2016; Zailani et al., 2017).

Furthermore, governments across the world capitalise on the massive and lucrative potentials of the halal industry (Othman et al., 2016; Haleem and Khan, 2017; Yousaaf and Xiucheng, 2018). The ongoing efforts to develop and promote HLog not only from private firms’ initiatives (Tiemann and van Nistelrooy, 2014; Zailani et al., 2017; Karia, 2019) but also from the push from governments (Talib and Hamid, 2014; Haleem and Khan, 2017; Zulfakar et al., 2018) are encouraging. For instance, the Malaysian government is fully committed to becoming a leading HLog hub and has invested substantially in funding, infrastructure, and legislations (Muhammad et al., 2009; Talib and Hamid, 2014). Similarly, through the Australian Government Authorised Halal Program (AGAHP), the federal government ensures an uncompromised halal meat logistics chains despite it not having control over religious rulings (Zulfakar et al., 2018). Here, halal is more closely associated with food safety than a religious obligation. Moreover, according to Lestari et al. (2018), the central government’s policies and regulations on halal matters strengthen the commitment to implement HLog in Indonesia.

Despite numerous governments’ initiatives to develop the HLog sector and encourage logistics firms to implement HLog services, efforts remain unknown in Brunei Darussalam (henceforth, Brunei). It seems possible to imply that the lack of research that scrutinises Brunei’s logistics sector is a likely reason. Gupta et al. (2011) explain that logistics research on smaller Southeast Asian countries, for instance, Brunei, is limited as the sector is not fully developed. Additionally, Tongzon (2011) argues that data on Brunei’s logistics sector is unavailable because there is hardly any research done. Another reason could be drawn from Yeon’s (2018) observation that Brunei’s logistics sector is uncompetitive, disintegrated, and with weak private sector involvement.

Even with these shortcomings, there are signs of progress for the HLog sector in Brunei. According to Tiemann (2011), Brunei has one of the most developed halal supply chains in the world after Malaysia. The recognition reflects that the country has a robust, sensitive, and protective HLog chain. However, even though the work by Talib (2020) suggests that HLog in Brunei is developing at a moderate pace, the role of government in promoting the sector’s growth is rather terse and abstract. Talib (2020) further argues that despite the government’s efforts to grow the country’s halal industry, the focus is heavily emphasised on the halal food and tourism sectors and overlooked the fundamental and vital role of HLog. Given the disparity of views, it appears that there is uncertainty on the actual landscape of the logistics sector in Brunei. Collectively, it is with a sound presumption that:

a) There is a paucity of logistics research in Brunei context,
b) There is an ambiguity on the state of HLog in Brunei, and
c) The government’s efforts to promote HLog remain unexplored.

Drawing upon these issues, it exposes a gap in the HLog literature and offers a potential area for research. Hence, the objective of this paper is to determine the measures that the Brunei government can undertake to encourage HLog adoption in the country. In line with the objective, the paper will gather evidence from other countries that have been successful in implementing HLog and of those that have well-established logistics industries. This ‘lessons learn’ approach is appropriate considering the limited extant literature on Brunei’s HLog, or its logistics sector in general. Besides, benchmarking and mimicking the best practices from other countries or organisation is common in the halal industry (Talib et al., 2016a).

The present research explores, for the first time, the probable roles the Brunei government could attempt to encourage HLog adoption in the country. It provides an important opportunity to inform the government of the various strategies to develop the HLog sector and simultaneously leverage the growing halal economy. Moreover, this study provides a renewed insight for the government to develop relevant policy measures that could encourage HLog adoption as the currently available policies are more suited for the country’s halal food and tourism sectors. Additionally, this work is among the very few that consolidate the proper institutional measures that could encourage HLog adoption, particularly one that reflects on Brunei context. Therefore, the paper could set a platform for future works that concerns not only HLog in Brunei but also the roles of governments in developing the halal industry further.

2. HALAL INDUSTRY IN BRUNEI

Brunei is an Islamic monarchy and has a total population of 459,500 in 2019 (Department of Economic Planning and Statistics, DEPS, 2020). The country’s halal industry only started in the last 15 years after the government’s Ninth National Development Plan (NDP) (2007-2012) recognised the need to establish a premium Brunei Halal brand and provided funds for its development. The brand is one of the government’s strategies in diversifying the country’s economy from its heavy reliance on petroleum resources and introduces Brunei products to the international market (DEPD, 2008). To date, the progress of its halal industry is encouraging. The Brunei halal sector contributed about BS103 million to the country’s revenues in 2017 (Kon, 2018). According to Dinar Standard’s 2019/2020 State of the Global Islamic Economy Report, Brunei is now ranked tenth of the top fifteen Islamic economies out of 57 economies of Muslim majority countries.

Being a small but resource-rich country, Brunei has been importing most of its food products from neighbouring countries. Food outputs account less than 1% of the country’s GDP, and the food product is the third-largest import constituting about 10% of total import, valued at BS143.6 million (DEPD, 2019). It is still comparatively cheaper for the government to import food from neighbouring countries, due to its strong currency. Nevertheless, the government has been promoting the agricultural sector to ensure self-sufficiency in food production. Depleting petroleum resources as well as vulnerabilities of the petroleum prices as
seen at the height of the Asian Financial Crisis of 2007-2008 and the shocking drop in petroleum prices due to the recent coronavirus pandemic globally, disrupts the international supply chains. These circumstances highlight the importance of having a vibrant locally grown food production for food security, and these excesses can provide spinoff to other activities in halal industries in Brunei.

Brunei introduced the Halal Certificate and Halal Label Order (HCHLO) in 2005, although Halal Meat Act, Chapter 183 was passed since 1999. By 2007, Standard for Halal Food PBD 24:2007 was introduced, and ten years later, an amendment to the HCHLO in 2017 made it compulsory for all food and beverages producers/suppliers (non-halal restaurants are exempted) to obtain the halal certification. In order to promote local halal industries in the country, the government has led several multi-million-dollar initiatives in the halal sector. The Brunei Halal brand, owned by the government’s Warifah Holdings gave Ghanim International Corporation the right to grant its logo to businesses which seek its certification (Muhamad et al., 2019). Brunei’s first pharmaceutical manufacturing company, a joint venture with Canadian Viva Pharmaceutical, set up a US$26 million manufacturing plant in Brunei since 2013. In 2017, a partnership with Turkish Marsa’s company, a US$36 million margarine plant was set up to cater for local consumption and international export. Additionally, in the same year, a UAE-based Saahitian Group launched a subsidiary in Brunei to manufacture Halal ready-to-eat meals where 85% of the products are for export. Moreover, efforts are also underway to build fish farms to grow Atlantic salmon and barramundi in Brunei with Singapore companies while Golden Corporation, a joint venture with a Taiwanese firm, has been producing seafood since 2012.

All the efforts by the Brunei government are gaining momentum toward achieving vibrant and competitive halal industries that could help diversify the country’s economy. The outlook is possible as productivity has improved across various sectors in Brunei in recent time. With improved productivity, Brunei can see more exports of its products, as envisioned in the ninth NDP. Nevertheless, with increasing productivity and better visibility in Brunei Halal branding, (Muhamad et al., 2019) the logistics side of the supply chain must not be ignored as it can provide more markets for Brunei made products. The logistical aspect is critical for the protection of halal supply chain integrity and strengthens the halal value chain (Tieman, 2013; Karia and Asaari, 2016). However, several issues surround the halal logistics sector in Brunei, but there is room for improvements (Talib, 2020). Thus, in the effort to reap the benefit of the lucrative global halal industry, and simultaneously boosts Brunei’s halal sector, support from the government is imperative. Several precedents from other countries highlighted in the next section emphasise that the backing from the government in logistics is imperative.

3. GOVERNMENTS IN LOGISTICS RESEARCH

Governments around the world invest a considerable amount of resources in strengthening the logistics industries irrespective of location, size, or population of a country. The dedication is mainly to encourage economic growth as the logistics industry create job opportunities (Rivera et al., 2014). Admittedly, firms depend on the government for both the physical and nonphysical support. Physical support from the government includes the provision of logistics infrastructure and capital assistance (Banomyong et al., 2015; Hafezalkotob et al., 2015; Jhawar et al., 2017; Li et al., 2020) whereas legislative and policy enforcements are examples of nonphysical support (Rivera et al., 2014; Ekici et al., 2016; Li et al., 2020; Ahlqvist et al., 2020). The synergy between government and logistics firms is manifest and extant literature ratifies the governmental forces in logistics research.

The role of government is evident in numerous logistics research. In humanitarian logistics, Kunz and Reiner (2012) argue that government factor is frequently observed, and the meta-analysis confirms the pivotal role of governments in relief logistics. Additionally, in a recent study on reverse logistics, Govindan and Bouzon (2018) explain that the commitment to carry out reverse logistics operation is prompted by governmental reasons such as to legitimise business or compelled by regulatory obligation. Likewise, scholars (Witkowski and Kiba-Janiak, 2014; Kiba-Janiak, 2016; Neghabadi et al., 2019) in the field of urban logistics substantiate the role of government in devising legislation and policy measures to govern the mobility, liveability, and sustainability of urban areas. Equally, Ren et al. (2020) and Jalil (2018) maintain that the presence of government efforts through regulation, policymaking and economic support is vital, particularly given the growing focus on green and sustainable logistics adoption.

On a macro perspective, the governmental factor in logistics research can also be traced in numerous countries. In the UK, Ramanathan et al. (2014) demonstrate that support from the government encourages logistics firms to apply new technologies. Ramanathan et al. further argue that the greater the level of governmental support, the higher the rate of technology adoption. Similarly, in the US, Rivera et al. (2014) explain that government plays a crucial role in the growth of the country’s logistics clusters especially in driving economic development and as a means of employment. Evidence can also be drawn from China where the central government’s regulations and policies on environmental preservation shape how logistics companies execute sustainable operations (Ye et al., 2013; Li et al., 2020). Likewise, the various investments set by the Indian government contribute to the overall improvement of India’s logistics system (Jhawar et al., 2017). Moreover, in HLog, the substantial support from the federal government in terms of financial incentives, tax reduction, and training are among the reasons behind Malaysia’s impressive standing in the HLog sector (Talib and Hamid, 2014; Rashid and Bojei, 2020).

Based on the various examples, governmental roles and status in extant logistics research are apparent. However, despite the palpable precedents, there is little evidence of government initiative being applied in Brunei settings. Accordingly, the deficiency calls for an investigation on the potentials initiatives that the Brunei government can attempt to encourage logistics companies to implement HLog operation. Thereby, a review of the literature is an
appropriate approach to scrutinise relevant extant logistics literature as it is a suitable way to understand what is known and reveal what is unknown (Zimmermann et al., 2016) about the governmental initiatives in HLog. Hence, the next section explains the paper materials and methods for reviewing extant logistics literature.

4. REVIEW MATERIALS AND METHODS

Establishing the likely measures that the Brunei Government may take to support the adoption of HLog services in the country requires a proper review of the literature. According to Seuring and Gold (2012), reviewing the extant literature is a fundamental and critical part of any research. Besides, a literature review allows for the formulation and reafﬁrmation of the subject under study and identiﬁes gaps in the disciplines, which provides the basis for further research (Seuring and Gold, 2012; Zimmermann et al., 2016). Although literature-based research is a qualitative approach where reliability and validity may be contentious (Seuring and Gold, 2012), it is widely applied in logistics research (Sachan and Datta, 2005). Recent application of the literature review approach in logistics and supply chain research can be found in reverse logistics (Banihashemi et al., 2019), green supply chain (Tseng et al., 2019), humanitarian logistics (Banomyong et al., 2019) and also halal supply chain (Haleem et al., 2020). These instances reﬂect the fact that the literature review approach is contemporary and widely applied in the ﬁeld of logistics research and therefore justiﬁes the current paper’s methodology.

This review paper applies a three-step process to review the relevant existing logistic literature that may have a bearing on the adoption of HLog services in Brunei. First, the search for review materials was carried out by collecting journal articles published in scholarly journals. Speciﬁcally, articles were sourced from the International Journal of Logistics Management (IJLM), International Journal of Physical Distribution & Logistics Management (IJPDLM), Journal of Business Logistics (JBL), Journal of Operations Management (JOM), Journal of Supply Chain Management (JSCM), and Transportation Research Part E (TRE). The journals were chosen because they are the leading journals in the ﬁeld of logistics research (Carter et al., 2009). Additionally, articles were also sourced from the Journal of Islamic Marketing (JIMA). This was done to enrich the review further and remain consistent with the speciﬁed theme, the HLog. Besides, JIMA is a leading journal that specialises in halal business-related research (Haleem et al., 2020), including HLog. The Web of Science database (www.webofknowledge.com) was used to search and retrieve the relevant journal articles. This database was selected for its better content coverage and quality than other prominent databases (Adriaanse and Rensleigh, 2013). Further, the search terms were limited to “Logistics Management”, “Supply Chain Management”, and “Government”. The term “Supply Chain Management” was considered because it often used interchangeably with “Logistics Management” (Overstreet et al., 2011). In further narrowing the search scope, only English-language journal articles published between 2010 and 2019 were included. This excludes other forms of publications (i.e. conference proceedings, book chapters, book series, editorial), limits contents in other languages, and remains recent within the last decade. The first step gathered a total of 102 journal articles.

Second, the gathered articles were then analysed. A content analysis approach was conducted to extract the quantitative aspects of the selected journal articles (Seuring and Gold, 2012). Here, the quantitative contents from the articles were categorised according to the (a) year of publication, (b) number of papers from selected journals, (c) country of study, and (d) ﬁeld of study. The rationales behind the need to highlight the quantitative categories were to portray that:

- a) the governmental factor has been a recurring trend in recent and relevant logistic research,
- b) governmental factor studies have been well-considered in reputable logistic journals,
- c) the presence of the governmental factor has been evident in logistic sectors involving many countries, and
- d) governmental elements have been examined in various fields in logistic.

The second step omitted 13 articles on the basis that the papers did not fit the scope of the review. As a result, 89 relevant articles have been identiﬁed. These papers discussed governmental factors in logistic research, either explicitly or implicitly. The authors then read and examine the selected 89 papers.

The qualitative aspects of the selected articles were observed in the third and last steps. Speciﬁcally, this step was assigned to highlight the government measures that could be apparent or latent. The qualitative approach was consistent with that of Seuring and Gold (2012, p. 546) who explained that a qualitative means of a literature review is to examine the “latent content excavated [that require] interpretation of the underlying meaning of terms and arguments”. A narrative analysis technique was used to extract the essence of government measures. Again, as a qualitative approach, a narrative review may be contestable (Tranﬁeld, 2003), but such a measure could still provide valuable insights and richer arguments (Trautrims et al., 2012). Moreover, logistics research needs narrative approach research despite the dominance of quantitative approaches (Trautrims et al., 2012; Jafari, 2015).

Figure 1 shows the steps in the literature review process. Having explained the methodology for the review, the next section reports on the ﬁndings of the quantitative review. Subsequently, the ﬁndings of the qualitative review, which relate to the government measures, are presented in the later section.
5. QUANTITATIVE REVIEW FINDINGS

Based on the analysis of the content, this section reveals the findings of the review. Four key findings of the quantitative review, namely the year of publications, the number of articles from selected journals, the location of the studies, and the fields of study, will be presented and explained accordingly. The complete findings from the review are shown in Appendix 1.

5.1 Year of Publications

Logistics research, which studied the government factor, has shown a consistent occurrence over the last decade. As shown in Figure 2, the largest number of publications was recorded in 2018 with 18 papers, followed by the years 2019 (14 papers), 2017 (12 papers) and 2013 (11 papers). Fewer publications, however, were written in 2011 (3 papers), 2012 (3 papers) and 2014 (4 papers). A closer look at Figure 2 shows that more than half of the articles have been published in the last five years. The steady presence of the government subject in logistic research in the last decade underpins the ever-influential role of the government in the field. This is probably because the government is generally seen as a dominant force and has a coercive influence on the logistics industry (Cai et al., 2010; Bhakoo and Choi, 2013; Zulfakar et al., 2018). This might suggest that the Brunei government's involvement in encouraging HLog in the country is not unusual and is expected as other governments have been doing for more than a decade.

5.2 Articles from Selected Journals

The review of major journals confirms that government factor studies have been well-considered in the field of logistics. The number of articles in selected journals is shown in Figure 3. The TRE has the largest number of papers with 27 articles, while JBL and JSCM have recorded the least number of publications with seven articles each. Additionally, the JIMA also reported a reasonable number of HLog articles. This corroborates the state-of-the-art assessment by Haleem et al. (2020) that JIMA is a leading source for halal academic research. Collectively, the findings of this review appear to be consistent with other literature review papers (Sachan and Datta, 2005; Carter et al., 2009; Seuring and Gold, 2012; Zimmermann et al., 2016) which found that high-quality logistics research is often derived from the specified journals. It is also worth noting that,
despite the prevalence of governmental factor reported in major logistics journals, there is no special issue that focuses on the institutional factor in logistics and that there is yet an exclusive edition of HLog. Perhaps journal editors could be persuaded to call for a special issue on HLog, and institutional focus could be one of the areas of interest.

Figure 3 Number and Percentage of Articles Published in Main Journals

5.3 Country of Studies

Figure 4 highlights the number of publications from 22 different countries around the world. This proves that the involvement of governments in the logistics industry affects many countries. There are, however, 19 articles that did not specify any country; probably because they dealt with mathematical modelling or simulations. From the review, the two largest number of studies are conducted in China and the US, each with 14 papers. The review is consistent with the Zimmermann et al. (2016) study that the dominance of the US and China in logistics research is evident. Additionally, seven articles carried out studies on three or more countries, while the remaining countries reported between one and four studies. Together, this review on the country of study reaffirms that governmental element in logistics research is of global interest. Focusing on HLog research, even though much of the studies were conducted in Malaysia (Haleem et al., 2020), it is reassuring that HLog studies have been undertaken by scholars from non-Muslim countries such as Australia (Zulfakar et al., 2018) and South Korea (Bashir et al., 2019). Perhaps that governments and businesses in other countries have begun to realise the enormous potentials and opportunities of the global halal industry. This could, therefore, be a good indicator for the Brunei government to encourage the adoption of HLog in the country and that it may be beneficial to learn from other countries, for instance, Malaysia.

Figure 4 Country of Studies
5.4 Fields of Study

From the 89 selected articles, logistics research that studies the elements of government can be found in a variety of fields. The fields studied are listed in Appendix 1 and presented in the form of a word cloud in Figure 5. Variation in font sizes indicates the frequency of the fields studied in the selected articles. Larger font means that a field is often studied, and vice versa. By observing the word cloud, readers could see the prevalent fields of logistics research that considered the elements of government. Besides, it would allow scholars and practitioners to get the essence of the content, specifically by tracing prominent and less prominent fields of study. As shown in Figure 5, the "supply chain" and "logistics" are among the prevailing contents. Understandably, and as mentioned earlier, these terms are identical to one another (Overstreet et al., 2011). It is therefore evident that relief supply chain (Sheu, 2011, 2016; Paul and Wang, 2015; Dube et al., 2016; Dubey et al., 2018; Acar and Kaya, 2019), environmental/sustainable supply chain (McKinnon, 2010a; Hall and Matos, 2010; Ehrgott et al., 2013; Sirilertsuwan et al., 2018), cross-border logistics (Hausman et al., 2010; Davis and Frike, 2013; Grainger and Morini, 2019), and halal logistics (Talib and Hamid, 2014; Ngah et al., 2015; Zailani et al., 2017) are the regularly studied fields.

Moreover, words such as public-private, partnership, and governance reflect the fact that institutional elements are constantly being studied in the field of logistics. These justify the fact that public-private partnership (PPP) is widely practised by governments around the world, most notably on investment in logistics infrastructures (Kang et al., 2012, 2013; Li and Cai, 2017; Lu and Meng, 2017). Likewise, the involvement of government in the logistics sector is increasingly important in improving coordination, cooperation and security in the logistics chains (Bai et al., 2016; Jacobs and Singhal, 2017; Tokar and Swink, 2019). Taken together, the results of the review in this section signify that the governmental elements have been well examined in various fields of logistic research. The review, therefore, provides the Brunei Government with a lesson that its support for the halal industry should include other subsectors, not just halal food and tourism. This also means that the governance of the halal supply chain must always be observed and that investments in the form of PPP could encourage the development of the HLog infrastructure in the country as HLog’s dedicated assets are largely limited (Talib, 2020).

6. DISCUSSION: WHAT CAN THE GOVERNMENT DO?

The literature review found that there are six potential measures that the Brunei government could attempt to encourage the adoption of HLog. The measures are generally categorised into regulation, fiscal support, infrastructure and assets, education and research, liberalisation, and exhortation. These measures shall be discussed accordingly.

6.1 Regulation

Governments typically govern by implementing laws and regulations that extend to supply chain parties and society at large. Government regulatory efforts on HLog are crucial, while aggressive promotion and proactive actions are encouraged (Ngah et al., 2015). According to Ngah et al. (2015), the external pressure from the government in encouraging more logistics companies to provide HLog services is imperative because the push is more compelling compared to internal organizational push. Despite the apparent role of the government, regulatory efforts are more geared towards halal products, largely food products, and Talib et al. (2015) suggest that similar attention should also be paid to the regulation and promotion of the HLog service as well. As a result, the regulations could force logistics companies to engage in halal operations and turn HLog into
industry-standard operating procedures, particularly when halal business is a national agenda (Talib et al., 2015).

The regulatory measures from governments in the logistics industry are evident (Wu et al., 2014; Bajec et al., 2015; Wang and Chang, 2016; Harland et al., 2019), particularly through the establishment of a range of halal industry standards (Talib and Hamid, 2014; Zailani et al., 2017). For example, the Malaysian government is applauded for developing a series of halal standards, beginning with the highly referred Malaysian Standard for Halal Food Processing, Preparation, Handling and Storage, (MS1500) and the world’s first dedicated standard for HLog operation, the Halal Supply Chain Management System Standard (MS2400). Other governments, such as by the Indonesian government, introduces the Halal Assurance System (HAS 23000) while the UAE with its Emirates Standards and Metrology Authority (ESMA).

Taking Brunei into perspective, similar suggestions could be made. Brunei has yet to have its own halal-dedicated logistic standards, but attempts are underway (Talib, 2020). Perhaps the measure should be accelerated, given the importance of HLog to the country’s high dependency on halal food imports. However, in order to prevent regulatory requirements problems, the implementation should be carried out with caution. This is because the existing HLog regulatory requirements are voluntary and logistics firms are known to be reluctant to adopt HLog; and voiced costs and collaboration as the common barriers (Talib and Hamid, 2014; Zailani et al., 2017). To overcome this, perhaps the Brunei government could make HLog a decree, given that halal practices are well embodied in the national philosophy of Melanu Islam Beraja (Malay Islamic Monarchy in English) and that doing so could lead to greater market opportunities (Zailani et al., 2017).

6.2 Fiscal Report

Governmental measures to encourage HLog adoption can be in the form of fiscal support. This task is a means of institutional support through fiscal stimulus or monetary benefits provided to businesses engaged in HLog operations. A synthesis of the review reveals that governmental financial support might be through monetary funding or investments (Min and Ahn, 2017; Spring et al., 2017), grant allocation (Bhakoo and Choi, 2013; Spring et al., 2017), subsidy schemes (Li and Cai, 2017; Tong et al., 2018; Kundu and Sheu, 2019), or tax incentives (Hall and Matos, 200; Guerrero et al., 2013; Choi and Luo, 2019). According to Min and Ahn (2017), capital funding from the state government is an integral source of funding for the mass transit system in the US. Similarly, in Australia, Bhakoo and Choi (2013) identified that hospitals received a grant from the state government to upgrade supply chain information systems. Likewise, Li and Chai (2017) conclude that government incentive of allocating subsidies could potentially encourage PPP investments. Meanwhile, the recent work of Choi and Luo (2019) tax exception arrangement could be a productive measure to encourage sustainable operation and presents a mutually beneficial outcome for supply chain members.

In HLog, similar fiscal support is also evident. The Malaysian government, for instance, provide direct monetary funds and grant allocations to encourage for halal-certified businesses in the country (Rashid and Bojei, 2020). Moreover, the Malaysian government has eased its tax levies allowing tax exemption for a limited period to enable more companies to engage in halal operations. Besides, tax incentives offered by governments would have a positive impact, such as encouraging more HLog services or potentially improving logistics performance (Talib et al., 2016b). In research on strategising international market penetration for Korean companies, Bashir et al. (2019) recommend that related financial support through subsidies and tax reduction are very much needed.

Therefore, the Brunei government should also be emphatic in financially supporting the development of HLog and encourage businesses in the country to practice HLog operations. Currently, fiscal support is heavily channelled on developing entrepreneurial capacity (Talib, 2020), but support should be equally distributed to facilitate HLog adoption. Drawing lessons from the review, given that the majority of halal companies are small and medium-sized enterprises (Zailani et al., 2017) and that logistics infrastructure and facilities require large capital investments (Ngah et al., 2015), government financial assistance is needed to kick-start HLog operations and service offerings. However, firms should not exploit the government financial assistance and must not be perceived as being overly reliant on the public sector. Rather, government financial support should be observed as a policy tool that can encourage HLog adoption, develop the halal industry, and generate the economy.

6.3 Infrastructure and Assets

One of the many functions of the government is to provide adequate, reliable and sustainable logistical infrastructure and assets. Governments are known to be providers of logistics infrastructure and assets because they have the economic capacity, resources, and financial instruments to build and operate capital-intensive structures such as ports, transport hubs and systems. The findings of the review accentuate the role of the government in promoting and facilitating the logistics industry. For instance, in relief and humanitarian logistics, Acimovic and Goentzel (2016) reveal that government-owned support depots are often used to store disaster relief inventories and supplies. Likewise, Heaslip and Kovacs (2019) point out that, in addition to funding support, government involvement could also be traced to the provision of key resources during humanitarian aid, and that government assets are used to transport manpower and distribution of relief to and from disaster sites. Moreover, Bolomole et al. (2015) explain in the development of cluster logistics that the use of government-owned infrastructure could strengthen regional capabilities and the performance of logistics hubs. According to Rivera et al. (2014), apart from tax and regulatory support, US industrial clusters rely on the government to provide effective infrastructures that would allow the industry to grow.

Government support through publicly run infrastructure such as seaports or warehouses may encourage more logistics firms to implement HLog. This is because building and operating infrastructure costs are substantial (Ngah et al., 2015). While providing government
infrastructure is necessary, it is not encouraged and sustainable for logistics companies to be depending solely on the government. Hence, a PPP is desirable to overcome this. Partnerships between the government of Malaysia and MASkargo and Malaysia Airport, for example, are an excellent example of PPP. MASkargo, a cargo division for the government-linked company (GLC), Malaysia Airlines, is certified halal thus allowing it to provide HLog services, thereby opening broader market opportunities (Rahman et al., 2018). This exemplifies that the establishment of HLog infrastructure, along with strong government support, are among the main reasons behind Malaysia’s leading role in the HLog sector (Talib and Hamid, 2014). The analysis presented in this section, therefore, reaffirms the critical support from the government in promoting HLog through the provision of infrastructural and asset provisions.

According to Tieman et al. (2012), HLog infrastructures help facilitate the import and export movements of halal commodities. In addition, halal dedicated infrastructure can extend halal integrity, prevent cross-contamination, and integration of HLog assets can positively influence logistics performance (Ngah et al., 2015; Karia, 2019). In Brunei, the country has adequate and reasonable logistics infrastructures. According to Talib (2020), major terminals such as the Brunei International Airport and the Muara Seaport have undergone considerable upgrades in recent years. Talib argues, however, that infrastructure and assets specific to HLog operations remain scarce. Evidently, government involvement in providing logistics infrastructures is obvious. Currently, its major airport is solely owned and operated by the government, while the main seaport is a PPP between Darussalam Assets (GLC) and the Guangxi Beibu Gulf Port Group from China. In addition, the Brunei-Guangxi Economic Corridor (BGEC), a joint bilateral project, is aimed at developing the logistics sector of the country (Hamdan and Hoon, 2019). These projects and initiatives by the Brunei government are undoubtedly encouraging, but as the country aspires to be a leading country in the halal industry, dedicated HLog infrastructures and assets are of paramount importance.

6.4 Education and Research

Ensuring the continuous development and quality of talent delivery through dedicated educational institutions or recognised training programs is another measure highlighted in the review. Studies (Bhakoo and Choi, 2013; Chang and Wu, 2015; Spring et al., 2017; Gligor and Nguyen, 2018; Gualandris and Klassen, 2018) show that human capital development through sound education, training and research is fundamental to the progress of the logistics industry. It has been argued by scholars such as Gligor and Nguyen (2018) that there is a real need for appropriate and rigorous government-funded training to overcome the lack of trained logistics personnel. In the UK, financial support and incentives in the form of government-subsidized training are offered across supply chain organisations (Spring et al., 2017).

Similarly, in HLog, the review highlights that institutional support through structured education is pertinent. According to Talib and Hamid (2014), the Malaysian government’s support for the provision of sound education through the country’s higher education institutions and research centres is exemplary. This measure not only ensures good quality education but also ensures the availability of future HLog professionals. However, more efforts should be made. Rahman et al. (2018) propose that the government or its appointed agencies be more dynamic in providing HLog-related training, especially to logistics companies. Moreover, encouragement from the government to promote HLog training should not only focus on major logistics clusters but should also encompass an entire nation (Ngah et al., 2015). This would allow training to reach more logistics companies and ultimately encourage more HLog adoption. In South Korea, although research and training are extensive, Bashir et al. (2019) critique that the contents are not halal-specific and that courses are run by non-governmental organisations. More structured and halal-centric training programs offered by the government could entice more companies to participate and could potentially lead to halal service adoption.

Reflecting on the lessons learned from the literature review, the Brunei government could establish several policy measures to overcome the pressing need for HLog trained workforce. In line with the recommendation by Talib (2020), more government initiatives are needed because the currently available experts are more in the halal food and legislative domains, but hardly any in HLog. Hence, initiatives such as provision for education allowances, scholarships, or subsidised HLog programs should, therefore, be considered. Plus, the promotion of HLog-related programs among education providers in the higher learning institutions through the provision of relevant teaching and learning materials is encouraged.

6.5 Liberalisation

Liberalisation, the process of removing, reducing, or relaxing government restriction, has long been practised in the logistics sector (McKinnon, 2010b). The World Trade Organisation (n.d.) states that liberalisation has a positive impact on the economy that has fundamentally benefited industrial demand and societal needs. A recent study by Tokar and Swink (2019) describe how regulatory enforcement by the government is crucial is the logistics chain, and that service liberalisation has severely impacted public policy and how the industry operates. Moreover, the reduction in trade barriers in Europe and the deregulation and privatisation in the UK revitalise the industry and create competitive edges for companies for decades (Spring et al., 2017). Evidently, the liberalisation of the logistics sector allows for fairer competition between organisations and encourages greater operational efficiency (Adiputranto et al., 2018). Similarly, the lesser constraint frees the government from budgetary obligation and, in some cases, enable it to operate efficiently and make the industry more competitive (Harrod, 2013; Niu and Zhang, 2013).

Furthermore, in the halal sector, where private firms heavily dominant (Bergeaud-Blackler, 2016), there are traces of measures in which the government has begun to reduce its presence. While such removal is partial and mainly on the marketing and promotion purposes, this does not mean the same for certification and standardisation matters as these crucial aspects are still well under the control and purview of
some governments (i.e. Malaysia and Brunei). For example, the Malaysian government established the HDC in 2006 to promote and facilitate the country’s halal ecosystem (Talib and Hamid, 2014). Meanwhile, in Brunei, Ghanim International Corporation was formed in 2009 to promote the brand of bruneihalalfoods and to assist companies and investors in the supply chain process (Miskam et al., 2018). However, the approach to the liberalisation of services in the logistics sector in Brunei has yet to be implemented. This is supported by Yean (2018) that liberalisation of services in Brunei is still lacking in the transportation and logistics sector compared with other ASEAN countries, but efforts are underway (Tongzon, 2011). Lessons for the Brunei government could be drawn from the study by Yean (2018) that the liberalisation of logistics services could be achieved by providing investment incentives for innovative services, which, in this case, HLog, would ultimately contribute to the economic development of the country.

6.6 Exhortation

Government is known to dictate an advocacy role. The review suggests that the advocating function could be classified into encouragement or demanding role. Under this premise, the term “exhortation” is appropriate as it envelopes both the encouragement and demanding roles. This paper argues that the government should be a focal point for industry reference, foster transnational or cross-organizational collaborations, encourage best practices, or become a force of encouragement for the industry. Exhortative measures by the government can be traced prevalently in the literature. For example, Sheu (2011) demonstrates that the Taiwanese government’s urge has led to the implementation of green supply chain practices. More recently, Dobrzykowski (2019) concludes that the government's strong coercive regulatory push could be a motivator or inhibitor of US health supply chain coordination. The hindering factor is expected if the government exhortative approach overlooks the vital synergy between service implementation and regulatory support (Bhakoo and Choi, 2013).

Based on the review, establishing a centralised agency overseeing the HLog sector, encouraging business matching and partnerships with local or overseas firms, or implementing intergovernmental schemes and strategies, are among the governmental actions to guide and encourage the HLog adoption (Talib and Hamid, 2014; Talib et al., 2015; Zailani et al., 2017; Zulfakar et al., 2018; Rahman et al., 2018). As demonstrated by the proactive measures taken by the Malaysian government to establish the Halal Development Corporation (HDC), a GLC that promotes and encourages the development of the halal ecosystem in the country (Talib and Hamid, 2014; Rahman et al., 2018). Another example could be drawn from the Australian government (Zulfakar et al., 2018). According to Zulfakar et al., the coercive force from the federal government through the establishment of the AGAHP has, in a way, encouraged the HLog chain in the country. This is a good example of an exhortative attempt by a government, even though it has no absolute control regarding matters of religions. Through government-backed initiatives, firms will be more motivated to deliver HLog operations. A reasonable explanation is that government involvement could demonstrate that the HLog venture is significant and sustainable, thereby instilling a sense of trust among firms. That is why the government’s exhortative measures might prompt HLog’s adoption.

From the review, a similar measure could be undertaken by the Brunei government. As the country is known for its close adherence to the Islamic teachings, perhaps the government could be the advocate for a complete and rigorous HLog free riba and observe the Islamic finance arrangements. Such an approach is a noble cause and has yet to be implemented by any country or logistics company. To do so, the Brunei government could encourage the total HLog services and exhorts logistics companies to comply. However, the exhortative measure should be implemented with caution and consider the response from the industry’s stakeholders.

All the studies reviewed here support the notion that the government is an integral part of the logistics industry. In view of all that has been discussed herein, several ruminations on the potential measures that the Brunei government can take to encourage the adoption of HLog are presented. An illustration shown in Figure 6 depicts that amid the massively lucrative and growing global halal industry, the Brunei government aims to diversify its economy and that the halal sector has been identified as a viable ground to venture. To materialise the objective, the significance of HLog should not be ignored. Therefore, the six pillars represent the suggested feasible measures that should be taken to support the adoption of HLog in the country.

![Figure 6 Government Measures to Support Halal Logistics Adoption](image_url)
7. CONCLUSION

The involvement and influence of governments in the logistics sector are evident. More importantly, the presence of government is particularly needed in order to develop HLog, as this is evident in many countries, such as Malaysia, Australia and South Korea. However, there has been limited studies of HLog in Brunei and scholars have yet to investigate the measures that the government can take to encourage the adoption of HLog in the country. Recognizing the deficiency, this paper sought to identify the measures that the government could take to encourage the adoption of HLog in Brunei. Through a review of the existing logistic literature, which discussed the government element, this paper identified six measures that could be taken by the Brunei government to encourage HLog adoption. The measures identified are regulation, fiscal support, infrastructure and assets, education and research, liberalisation and exhortation.

Support in the form of regulation is through the legislation of appropriate decree and the enforcement of relevant industry standards for HLog. A regulatory approach not only instils a sense of control but also harmonises HLog operations. Next, fiscal support is a means of incentive through fiscal stimulus or monetary support provided to logistics companies that engaged in HLog operations. Capital investments, monetary grants, subsidy provisions, or direct financial injection are examples of financial support measures. Meanwhile, the review suggests that the support from the government could come by way of infrastructural provision. The construction of dedicated HLog facilities, terminals, equipment, and information technology through PPP are the potential institutional support that can be provided by the Brunei government. Another support could be initiated with structured education and government-backed training that could result in qualified and highly trained HLog professionals. In addition, the lessons learned from the past logistics literature indicate that the Brunei government could engage in a liberalisation measure by removing, reducing, or relaxing restrictions within the logistics sector. Such a measure could allow healthy industry competitions, achieve efficient operation, and might promote HLog adoption in Brunei. Lastly, the exhortative measure is an advocate role of the government that directly urges, demands, or coerces logistics companies to implement HLog operation.

7.1 Research Implications

The paper appears to be among the first to address the lack of logistics research in Brunei’s context and the very few that proposes viable measures that the government can attempt to encourage HLog adoption. This study, therefore, could be beneficial to policymakers to device feasible policies, decree, and strategies to encourage more businesses to implement HLog operation. Additionally, logistics managers could use the information contained in this paper to leverage on the various incentives that the government could offer. Besides, the paper reveals the need to train or retrain logistics professionals because doing so could shape a human capital competitive advantage. This review also lays the groundwork for future research in HLog, primarily on the development of the service in Brunei. Scholars could use this study as a platform for future research as the review consolidates and synthesise government-related research in logistics.

7.2 Limitation and Recommendations for Future Research

While the review conducted a thorough literature search using the Web of Science database, it should be noted that the reviewed articles used in this paper were limited to predetermined peer-reviewed journals. Although the review thoroughly reviewed each publication and findings are relevant, some useful articles that were contained in other databases, journals, or forms (i.e. conference proceedings, chapters, etc.) might be overlooked. Nevertheless, this offers a room for improvement, and therefore, future research should engage on a more systematic and comprehensive review that might ascertain the measures highlighted in this paper of include additional measures that are not reported here. Besides, being limited to Brunei’s perspective, application and generalisation should proceed with caution. As countries differ in size, population, location, culture, and the availability of resources, the measures presented in this paper may or may not be applicable. Therefore, a more universal measure or a multi-country context should be the agenda for future research. Despite being a qualitative piece, findings found in this paper could be useful to set the stage for future empirical or quantitative studies.

REFERENCES


Ab Talib, *et al.*: What can the Brunei Government do to encourage Halal Logistics Adoption: Lessons from the Literature

Operations and Supply Chain Management 14(3) pp. 301 – 319 © 2021


Mohamed Syazwan Ab Talib is an Assistant Professor of Logistics Management at the UBD School of Business and Economics, Universiti Brunei Darussalam. He holds a PhD in Management from Universiti Teknologi Malaysia, an MBA from Universiti Selangor and a BBA from Universiti Teknologi MARA. He was a Senior Lecturer in Marketing at Azman Hashim International Business School, Universiti Teknologi Malaysia and formerly a Lecturer in Logistics Management at the Faculty of Business and Information Science, UCSI University. His research and teaching focus primarily on logistics and supply chain management with specialisation on halal principles, distribution, and standards.

Li Li Pang is a Lecturer at the Universiti Brunei Darussalam’s School of Business and Economics (UBDSBE). She was formerly at UBD’s Institute of Policy Studies (IPS) and was one of the Coordinators of the Executive Development Programme for Senior Government Officers and Middle Management Officers (EDPSGO and EDPMMO) at the Institute of Leadership, Innovation and Advancement (ILIA), Universiti Brunei Darussalam. Dr Pang teaches public policy and governance issues, and her current research interests focus on local governance and public sector improvements. She holds an MSc in Public Policy from the University of Bristol, UK and PhD (Management) from Monash University, Australia.

Nur Atiqah Md Said is Finance Officer at the Treasury Department, Ministry of Finance and Economy, Brunei Darussalam, and a PhD (Management) candidate at UBD School of Business and Economics under the supervision of Dr Mohamed Syazwan Ab Talib. She was formerly an Inspection Officer (Logistics) at the Halal Food Control Division, Ministry of Religious Affairs, Brunei Darussalam. She holds a Master of Logistics and a Bachelor of Business from Universiti Brunei Darussalam. Nur Atiqah actively involves in research and training related to logistics, halal standards, information systems, and capacity building.
### APPENDIX 1: REVIEW RESULTS

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Country</th>
<th>Field of Study</th>
<th>Source</th>
<th>Strategic Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acar and Kaya (2019)</td>
<td>Turkey</td>
<td>Relief logistics</td>
<td>JOM</td>
<td>✓</td>
</tr>
<tr>
<td>Acimovic and Goentzel (2016)</td>
<td>Unspecified</td>
<td>Relief logistics</td>
<td>JOM</td>
<td>✓</td>
</tr>
<tr>
<td>Albalte and Bel (2010)</td>
<td>Various</td>
<td>Public transportation</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Bai et al. (2016)</td>
<td>China</td>
<td>Supply chain governance</td>
<td>JOM</td>
<td>✓</td>
</tr>
<tr>
<td>Bajec et al. (2015)</td>
<td>Slovenia</td>
<td>Green logistics</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Bashir et al. (2019)</td>
<td>South Korea</td>
<td>Halal supply chain</td>
<td>JIMA</td>
<td>✓</td>
</tr>
<tr>
<td>Bhakoo and Choi (2013)</td>
<td>Australia</td>
<td>Healthcare supply chain</td>
<td>JOM</td>
<td>✓</td>
</tr>
<tr>
<td>Bolumole et al. (2015)</td>
<td>Various</td>
<td>Logistics hub/cluster</td>
<td>JBL</td>
<td>✓</td>
</tr>
<tr>
<td>Cantor and Terle (2010)</td>
<td>USA</td>
<td>Transportation Safety</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Cantor et al. (2011)</td>
<td>USA</td>
<td>Commercial transportation</td>
<td>JBL</td>
<td>✓</td>
</tr>
<tr>
<td>Chang and Wu (2015)</td>
<td>Taiwan</td>
<td>Supply chain security</td>
<td>JJP DLM</td>
<td>✓</td>
</tr>
<tr>
<td>Chen and Wang (2016)</td>
<td>Unspecified</td>
<td>Transport mode selection</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Choi and Luo (2019)</td>
<td>Unspecified</td>
<td>Fashion supply chain</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Davis and Friske (2013)</td>
<td>USA and Canada</td>
<td>Cross-border logistics</td>
<td>JBL</td>
<td>✓</td>
</tr>
<tr>
<td>Dobrzykowski (2019)</td>
<td>USA</td>
<td>Healthcare supply chain</td>
<td>JSCM</td>
<td>✓</td>
</tr>
<tr>
<td>Dube et al. (2016)</td>
<td>Various</td>
<td>Relief logistics</td>
<td>JOM</td>
<td>✓</td>
</tr>
<tr>
<td>Dubey et al. (2018)</td>
<td>Various</td>
<td>Relief logistics</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Dwivedi et al. (2017)</td>
<td>India</td>
<td>Automotive technology</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Eckerd and Girth (2017)</td>
<td>USA</td>
<td>Risk management</td>
<td>JSCM</td>
<td>✓</td>
</tr>
<tr>
<td>Ehrgott et al. (2013)</td>
<td>USA and Germany</td>
<td>Sustainable supply chain</td>
<td>JBL</td>
<td>✓</td>
</tr>
<tr>
<td>Feng et al. (2012)</td>
<td>UK and China</td>
<td>Port performance</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Gattiker and Carter (2010)</td>
<td>Unspecified</td>
<td>Environmental supply chain</td>
<td>JOM</td>
<td>✓</td>
</tr>
<tr>
<td>Gilgor et al. (2018)</td>
<td>Vietnam</td>
<td>Cold supply chain</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Goh (2019)</td>
<td>Various</td>
<td>Warehousing</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Grainger and Morini (2019)</td>
<td>UK and Brazil</td>
<td>Cross-border logistics</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Guerrero et al. (2013)</td>
<td>Unspecified</td>
<td>Environmental logistics</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Hafezalkotob (2017)</td>
<td>Iran</td>
<td>Green supply chain</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Hall and Matos (2010)</td>
<td>Brazil</td>
<td>Sustainable supply chain</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Harland et al. (2019)</td>
<td>Various</td>
<td>Procurement</td>
<td>JSCM</td>
<td>✓</td>
</tr>
<tr>
<td>Harrod (2013)</td>
<td>Unspecified</td>
<td>Rail transportation</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Hausman et al. (2010)</td>
<td>China and USA</td>
<td>Cross-border logistics</td>
<td>JSCM</td>
<td>✓</td>
</tr>
<tr>
<td>Heaslip and Kovács (2019)</td>
<td>Ireland</td>
<td>Relief logistics</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Huang et al. (2015)</td>
<td>Taiwan</td>
<td>Reverse logistics</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Jacobs and Singhal (2017)</td>
<td>Bangladesh</td>
<td>Supply chain governance</td>
<td>JOM</td>
<td>✓</td>
</tr>
<tr>
<td>Author (year)</td>
<td>Country</td>
<td>Field of Study</td>
<td>Source</td>
<td>Strategic Measures</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------</td>
<td>-----------------------------------------</td>
<td>----------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Kang et al. (2012)</td>
<td>Taipei</td>
<td>Public–private partnership</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Kang et al. (2013)</td>
<td>Unspecified</td>
<td>Public–private partnership</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Kundu and Sheu (2019)</td>
<td>China and Germany</td>
<td>Transport mode selection</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Lai et al. (2018)</td>
<td>China</td>
<td>Big data analytics</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Li et al. (2018)</td>
<td>China</td>
<td>Transport network</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Li et al. (2019)</td>
<td>Unspecified</td>
<td>Infrastructure provision</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Li and Cai (2017)</td>
<td>Unspecified</td>
<td>Public–private partnership</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Lu and Meng (2017)</td>
<td>Unspecified</td>
<td>Public–private partnership</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>McKinnon (2010)</td>
<td>Unspecified</td>
<td>Environmental supply chain</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Min and Ahn (2017)</td>
<td>USA</td>
<td>Mass transit system</td>
<td>JBL</td>
<td>✓</td>
</tr>
<tr>
<td>Min et al. (2017)</td>
<td>USA</td>
<td>Mass transit system</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Mittal et al. (2018)</td>
<td>India</td>
<td>Petroleum supply chain</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Mogale et al. (2018)</td>
<td>India</td>
<td>Supply network</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Ngah et al. (2015)</td>
<td>Malaysia</td>
<td>Halal warehousing</td>
<td>JIMA</td>
<td>✓</td>
</tr>
<tr>
<td>Niu et al. (2017)</td>
<td>China</td>
<td>Fashion supply chain</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Niu and Zhang (2013)</td>
<td>Unspecified</td>
<td>Public–private partnership</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Oum et al. (2013)</td>
<td>Japan</td>
<td>Multimodal transport</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Pálsson et al. (2017)</td>
<td>Sweden</td>
<td>High-capacity vehicles</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Park et al. (2018)</td>
<td>Unspecified</td>
<td>Port management</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Paul and Wang (2015)</td>
<td>USA</td>
<td>Relief logistics</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Randall et al. (2011)</td>
<td>USA</td>
<td>Performance-based logistics</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Rivera et al. (2014)</td>
<td>USA</td>
<td>Logistics cluster</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Rahman et al. (2018)</td>
<td>Malaysia</td>
<td>Halal warehousing</td>
<td>JIMA</td>
<td>✓</td>
</tr>
<tr>
<td>Rotchanakitumruai (2013)</td>
<td>Thailand</td>
<td>Procurement</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Scholten et al. (2010)</td>
<td>Various</td>
<td>Relief logistics</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Sheu (2011)</td>
<td>Taiwan</td>
<td>Green supply chain</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Sheu (2016)</td>
<td>Taiwan</td>
<td>Relief supply chain</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Sirilertsuwan et al. (2018)</td>
<td>Unspecified</td>
<td>Sustainable supply chain</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Song et al. (2018)</td>
<td>China</td>
<td>Supply chain integration</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Spring et al. (2017)</td>
<td>UK</td>
<td>Operation management</td>
<td>JOM</td>
<td>✓</td>
</tr>
<tr>
<td>Srivastava et al. (2015)</td>
<td>India</td>
<td>Food supply chain</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Storer et al. (2014)</td>
<td>Australia</td>
<td>Food supply chain</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Swanson and Smith (2013)</td>
<td>USA</td>
<td>Relief logistics</td>
<td>JBL</td>
<td>✓</td>
</tr>
<tr>
<td>Talib and Hamid (2014)</td>
<td>Malaysia</td>
<td>Halal logistics</td>
<td>JIMA</td>
<td>✓</td>
</tr>
<tr>
<td>Talib et al. (2015)</td>
<td>Unspecified</td>
<td>Halal supply chain</td>
<td>JIMA</td>
<td>✓</td>
</tr>
<tr>
<td>Talib et al. (2016b)</td>
<td>Unspecified</td>
<td>Logistics performance</td>
<td>JIMA</td>
<td>✓</td>
</tr>
<tr>
<td>Tan (2012)</td>
<td>China</td>
<td>Road Infrastructure</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Tokar and Swink (2019)</td>
<td>Unspecified</td>
<td>Supply chain governance</td>
<td>JSCM</td>
<td>✓</td>
</tr>
<tr>
<td>Author (year)</td>
<td>Country</td>
<td>Field of Study</td>
<td>Source</td>
<td>Strategic Measures</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------</td>
<td>----------------------------------------</td>
<td>----------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Tong et al. (2018)</td>
<td>China</td>
<td>Corporate social responsibility</td>
<td>JOM</td>
<td>✓</td>
</tr>
<tr>
<td>Tu et al. (2018)</td>
<td>Indonesia</td>
<td>Shipping network</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Voss and Williams (2013)</td>
<td>USA</td>
<td>Public–private partnership</td>
<td>JBL</td>
<td>✓</td>
</tr>
<tr>
<td>Wang et al. (2016)</td>
<td>China</td>
<td>Supplier-buyer relationship</td>
<td>JOM</td>
<td>✓</td>
</tr>
<tr>
<td>Wang et al. (2018)</td>
<td>Japan</td>
<td>Relief supply chain</td>
<td>IJLM</td>
<td>✓</td>
</tr>
<tr>
<td>Wang et al. (2019)</td>
<td>China</td>
<td>Closed-loop supply chain</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Wu and Jia (2018)</td>
<td>China</td>
<td>Supply chain localization</td>
<td>JOM</td>
<td>✓</td>
</tr>
<tr>
<td>Wu et al. (2014)</td>
<td>China</td>
<td>Supplier-buyer relationship</td>
<td>JSCM</td>
<td>✓</td>
</tr>
<tr>
<td>Zailani et al. (2017)</td>
<td>Malaysia</td>
<td>Halal logistics</td>
<td>JIMA</td>
<td>✓</td>
</tr>
<tr>
<td>Zhang et al. (2018)</td>
<td>Unspecified</td>
<td>Public–private partnership</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Zhao et al. (2018)</td>
<td>China</td>
<td>Terminal location</td>
<td>TRE</td>
<td>✓</td>
</tr>
<tr>
<td>Zomorrodi et al. (2019)</td>
<td>Australia</td>
<td>Supply chain adaptations</td>
<td>IJPDLM</td>
<td>✓</td>
</tr>
<tr>
<td>Zulfakar et al. (2018)</td>
<td>Australia</td>
<td>Halal meat supply chain</td>
<td>JIMA</td>
<td>✓</td>
</tr>
</tbody>
</table>

Note: The International Journal of Logistics Management (IJLM), International Journal of Physical Distribution & Logistics Management (IJPDLM), Journal of Islamic Marketing (JIMA), Journal of Business Logistics (JBL), Journal of Operations Management (JOM), Journal of Supply Chain Management (JSCM), Transportation Research Part E (TRE), Regulation (RG), Fiscal Support (FS), Infrastructure and Assets (IN), Education and Research (ED), Liberalisation (LB), and Exhortation (EX).