

Brunei as a Global Halal Food Hub: Production Network and Strategic Relations in Halal Food Production

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ABSTRACT

As an Islamic nation producing Halal food products, Halal food producers in Brunei are expected to have essential economic strategies to exploit the benefits of the Halal market, and eventually drive the country in becoming a global Halal hub. However, due to the scarcity of information and limited availability of knowledge on Brunei as a global Halal hub, it is difficult to determine the position of Brunei as a hub. Thus, the main aim of this research is to investigate whether Brunei has grown into a global-regional halal hub, specifically on in food production. The research findings do suggest that Brunei is well connected in terms of exportation and outsourcing activity on raw materials, technology, and services, on a regional scale. Network embeddedness through strategic coupling and decoupling of inter and intra-firms' relations within and beyond the borders based on cost-capability ratio, the infrastructure for business transactions, and the network complementarities in terms of raw materials, technologies, research and development (R&D), and services have an impact on Brunei's hub in the making' status. However, some aspects need to be addressed that can affect long-term sustainability and competitiveness. This includes



producers' production capabilities marked by lack of R&D, low intensity of exportation activity, and the lack of two-ways traffic communication between the government and the private sectors. This, if not addressed, will hinder the expansion of Brunei into the global market and stifles the country's current progress to upgrade itself into a global halal hub.

Keywords: *Halal hub, Inter-firm, Production Network, Strategic Coupling*

INTRODUCTION

The Halal market is deemed very lucrative and has the potential to succeed as a new source of economic growth (Wilson & Liu, 2010). The industry is growing at an estimated annual rate of 20 per cent and is worth USD560 billion a year, making the industry one of the fastest-growing consumer segments in the world (Africa Islamic Economic Foundation, 2019). In 2017, Muslim consumers have spent an estimated US2.1 trillion on the Islamic economy (Thomson Reuters, 2019). The State of The Global Islamic Economy Report (2019) mentioned revenues generated from food and beverage products were valued to be around US1.3 trillion in 2017. This shows the strength in both businesses and trade, where halal is no longer about religious diet or awareness of it (Elasrag, 2016) but it is also a global symbol for high-quality products following stringent quality assurances and a lifestyle choice (Lada et al., 2010; Risyawati, 2015; Elasrag, 2016; Thomson Reuters, 2019). The Halal food industries are expected to continue their steady growth in tandem as the Muslim population is expected to increase by 2.2 billion in 2030 and 2.6 billion in 2050 (Africa Islamic Economic Foundation, 2019). Hence, being halal is more than just a focus on products. As an industry, it has developed its own forward and backward industrial linkages, industrial support services and regulatory frameworks, incorporating further the notion of sustainability and environmental responsibility as it grows. Many countries have recognized the emerging global trend of the Halal food industry and are now competing to capture their share in this market. However, some countries are developing very quickly to dubbed themselves a Halal hub to satisfy the demands of the market (Temporal, 2012).

To diversify Brunei Darussalam's economy from over-reliance on the oil and gas industry, the government has started to tap on and improve the Halal industry (Abdul Ghafar & Noraziah, 2009). The efforts are in lieu of the royal decree of His Majesty Sultan Haji Hassanal Bolkiah Mu'izzadin Waddaulah ibni Al-Marhum Sultan Haji Omar Ali Saifuddien Sa'adul Khairi Waddien, Sultan, and Yang Di-Pertuan of Brunei Darussalam during the 6th UNISSA Hafl Al-Takharruj in 2016. He supported fully the establishment of a new halal research and development institution, a catalyst that fulfil the country's vision as a global Halal hub, aiding in the country's economic growth (BruDirect, 2016).

Local halal food producers as major industrial players are expected to economically strategize and position themselves to benefit from the market, and eventually drives the country in becoming a global halal hub (Abdul Ghafar & Noraziah, 2009). Brunei ranked 12th amongst 73 countries in the halal industry sector in 2017, an improvement from the 17th position in 2016 with the Halal food industry as the contributing factor (Thomson Reuters, 2019). However, some questions are being raised, "Is Brunei meeting the criteria to be deemed as a global Halal hub? How prepared is Brunei to attain such a vision? What is the standard to be a global Halal hub? How can Brunei remain competitive and resilient in the global Halal market?". Although various efforts were made by the government and the major players through various strategic plans, studies on Brunei's Halal hub status are almost absence. The paucity of information and limited knowledge on the matter led to the formulation of this research.

Halal Food Production Hub

The term "hub" refers to a central location, located in such a way as to facilitate inbound and outbound connections between different interacting places (O'Kelly, 1998). Attaining hub status gives a significant global identity to the country and enhances the credibility and wholesomeness of the Halal branding in the marketplace (Temporal, 2012). Such a distinctive global identity helps boost the country's economic growth and creates opportunities to penetrate the market on a globally (Thomson Reuters, 2019). There were studies on Halal hubs thus far (Rozailin et al., 2013; Nik Maheran et al., 2009; Boorzoei et al., 2013). However, an in-depth study specifically on halal food production hubs is a very limited (Abdul Ghafar & Noraziah, 2009).

Borzooei et al. (2013) stated that there are eight aspects to evaluate the country as a halal hub, namely human capital, media, research and development, events, capability, marketing strategy, infrastructure, and government institutional support. Furthermore, apart from mentioned aspects, establishing networks with different countries is the most vital according to the Halal expert (Boorzoei et al., 2013). In establishing a Halal food production hub, Halal food producers should establish mutual benefits of cooperation in terms of ability and potential, and existing resources and materials, to penetrate the global market, increase the benefits, as well as to create a new entity to gain a competitive edge.

Nik Maheran et al. (2009) and Rozailin et al. (2013) identified intelligent marketing, and a strategic supply chain-orientated system is needed in hub development. Better supplier management may create competition and establish a network with supply chain partners, including suppliers and distributors. A well-executed supply chain strategy helps value creation for the organization and hence positions a country to be a Halal hub. In the context of halal food and services firms, supply chains will enhance the performance of the firm and further strengthen the halal-hub position of the country (Nik Maheran et al., 2009).

Despite the use of such criteria in measuring the hub level of a national economy, the use of the same criteria on smaller or micro-economies such as Brunei may not provide an accurate illustration of its development. This is particularly the case if such economies are still in the process of developing into a hub. The stark contrast of these economies against larger economies in terms of volume, output, industrial productivity, and import and export trade balances to name a few, is not useful to measure their level of connectivity and networking. Hence, it is the focus of this paper to study the development of Brunei as a halal hub, centred on firms' inter-linkages, dependence, and interconnectivity using Coe and Yeung's theory on Global Production Network (henceforth GPN). This differs from the general macroeconomics criteria and trading arrangements usually used. It is done as an emphasis on the importance of economic actors or agents such as businesses, firms, and industrialists rather than a standalone focus on structural or institutional influences per se.

Global Production Network

GPN theory has never been used in halal studies, specifically on halal food production networks. Existing literature on halal food production networks has been limited to global value chain or the supply chain strategy (Rozailin et al., 2013; Abdul Ghafar et al., 2009; Nik Maheran et al., 2009; Supaat et al., 2019). However, these have been criticized due to their linear interpretations of the production systems and on how value is generated and distributed (Yeung, 2018), whilst limiting hubs definitions based on criteria identified previously. GPN is not solely focused on incorporating both horizontal and vertical configurations as the only explanans of the workings of the production networks. Rather, GPN is defined as “the nexus of interconnected functions, operations and transactions through which a specific product or service is produced, distributed and consumed” (Coe et al., 2008, p. 274). It is characterized by the significant role of the lead firm in its coordination and control, and the coordination of intrafirm as well as the proactive role of nonfirm actors (Yeung et al., 2014; Yeung, 2018). In the study of economic globalization, this approach has been very useful in providing a broad relational framework that aims to understand the incorporation of networks and the roles of the firm and non-firm actors (Liu, et al., 2014; Li, et al., 2015; Yang, 2013). Its significance is clear as current firms and industries are increasingly digitalized and networked-linked resulting from the current Industrial Revolution 4.0, which leads to the reconfiguration of spaces of production (Ahmad Tarmizi, Kamarulzaman, Abd Rahman & Atan, 2019).

In GPN, strategic coupling is commonly utilized to explain the globallocal articulation of production networks. Strategic coupling is an intentional process of convergence and articulation of actors in different networks, whereby they are working together for mutual gains and benefits (Yeung, 2009). There are four main conduits through which local firms and institutional actors become articulated in the production networks, namely internalization, export, inward investment, and import, with actor practice of intrafirm coordination, interfirm control, interfirm partnership, and extra-firm bargaining (Yeung, 2018). In inter-firm coupling relations, a lead firm can engage horizontally with a variety of other firms, such as strategic partners, specialized suppliers, and generic suppliers, in its value transformation (Coe et al., 2015). These coupling relations can be

subcontracting, technological licensing, joint venturing, and strategic alliances (Gereffi et al., 2005).

Furthermore, according to Nielson et al. (2018), firms tend to develop inter-firm partnerships with distributors and retailers in established markets, where the capacity of these partners is high, and the distribution infrastructure is developed. Moreover, according to Wignaraja (2012), a joint venture with a foreign partner may facilitate the firm's participation in production networks, as the strategic relations enable the firms to reap the ownership advantages of parent companies. Through such partnership, vast opportunities in the Halal food market can be successfully explored, and at the same, this will serve as a platform for local small and medium enterprises to penetrate the Halal global market (Abdul Ghafar et al., 2009).

Downstream firms require a range of tasks as input into the production process; for example, materials processing, accounting, packaging, and distribution services to name a few (Moxnes et al., 2018). These firms either operate the tasks themselves or outsource them to independent suppliers. In the case of outsourcing, finding the suppliers can be a high cost, and hence, it may not be profitable for firms to outsource, even if the market price of a certain task is lower than the firm's marginal cost of supplying the same task (Moxnes et al., 2018). On the other hand, Fold (2002) stated that firm can have largely outsourced their activities, to focus on core competencies. Yeung (2014) argued that these would force firms on building and sustain their operational higher order.

Supplier linkages between firms represent an important mechanism through which local firms become articulated into GPNs (Liu et al., 2014; Yoruk, 2001). By identifying the functional upgrading trajectories or capabilities, the reasoning of the strategic coupling can be understood. The local firms might as well have strategic relations with package contractor and original equipment manufacturer or merchandise (OEM) sourcing, where OEM provides a range of tangible manufacturing-related capabilities such as sourcing the inputs and inbound logistics in addition to manufacturing the products (Yeung, 2018). Firms can have a strategic coupling with OEM due to their capacity to produce large volumes of output, the in-house manufacturing of raw materials saved the production time, and the low cost-capability (Sinkovics et al., 2018; Liu et al., 2014). Local firms might

have a strategic relationship with full package providers or original design manufacturers (ODM), where ODM is responsible for designing, R&D, logistics, and distribution in addition to manufacturing the products (Yeung, 2018). A study by Sinkovics et al. (2018) stated that firms could have a strategic relationship with ODM due to limited design knowledge and a shortage of designers in the local market. Thus, local firms can overcome this issue by engaging in a strategic relationship with ODM or recruiting designers from foreign countries (Sinkovics et al., 2018).

Research and Development (R&D) is vital in Halal food sectors as it can expand the range of Halal products, as well as giving a significant impact on the Halal market trend (Boorzoei et al., 2013). Halal producers can participate in R&D collaboration to improve the firm's ability, in terms of the Halal products and the food processes themselves. According to Cohen et al. (1989), knowledge spillover may occur in R&D collaboration where the local firms exploit the knowledge that has been generated and developed by the partner firm. Furthermore, through alliances of R&D, it provides the firm with access to complementary intermediate goods from external sources (Stam et al., 2009).

Human capital plays a significant role in driving the value transformation and is crucial for increasing business growth opportunities, particularly in food production. In terms of cost capability and the limitation of local skilled labour, local firms may recruit human capital from foreign countries (Sinkovics et al., 2018). Moreover, the development of human capital is vital for a country to establish as a halal hub (Boorzoei et al., 2013). Firms become involved in production networks by collaborating with other firms in providing training courses and workshops (Wignaraja, 2012). In Halal food production, it is necessary to adequately train the personnel with the required skills and knowledge regarding halal. In addition, the training and workshops are to ensure that Halal standard in food production is achieved and maintained.

The study will answer the main research question of how connected Halal food producers based in Brunei to regional-global production networks. The main aim of the study is to investigate whether Brunei has grown into a globalregional Halal food production hub. In achieving the main aim, a few objectives are set as follows:

1. To examine the interconnectedness of local Halal food producers to foreign strategic partners,
2. To explore the reasons behind strategic coupling between firms, and
3. To examine whether Brunei fulfils the criteria for becoming a global halal food production hub.

Three hypotheses are set as follows:

- H₁.** The extensiveness of exportation networks of Halal food products is due to proximity, Halal food demand, and the establishment of bilateral agreements.
- H₂.** Halal food producers based in Brunei are well connected due to the establishment of complementary in terms of assets (supplying intermediate goods), technologies and services (manufacturing, packaging, designing, etc.), knowledge (research and development activity), and market expertise. Large and matured firms are showing higher production linkages both domestically, regionally, and internationally. Meanwhile, small, and medium enterprises (SMEs) show higher production linkages locally and their relationship with large and matured firms are to facilitate their entry into export and international market.
- H₃.** Types of strategic relations that local food producers can establish are interfirm partnerships with suppliers, retailers, and distributors. The reasons behind such relations can be mainly due to cost-capability ratios. The unavailability of materials or services in the local market may also contribute to the reasoning behind such relations. Strategic relations can also be formed due to joint ventures or technological licensing, where the local firms are access to better marketing, technology, and management, which eventually facilitates entering the global market.

METHODOLOGY

This research is deductive in its design whereby hypotheses are deduced from established theory and seeks to see if the theory applies to specific instances (Hyde, 2000). This strategy aimed to determine the intensity of local firm food production networks by testing the hypotheses developed in the earlier section. Through testing the hypotheses, a conclusion can be drawn whether to accept or reject the hypotheses (Kaikubad, n.d.). If the hypothesis matches with supported data collection, then the hypothesis is confirmed. In the case of the hypothesis failing to show the pattern as predicted, the initial proposition needs to be revised and modified (Bryman, 2012).

Primary data are collected through qualitative face-to-face interviews; however, some interviews are conducted online due to COVID-19 precautionary measures set by the respondents. The utilization of qualitative interviews is to generate greater and in-depth insights into the research questions (Opdenakker, 2006). This method is especially useful for finding in-depth reasoning for local firms to have a strategic relation, and useful for the interviewer to bring up a topic that was not included in the interview questions, which led to improvise and hence get a richer source of data. In addition, secondary data are also gathered through desk study research to add and support existing data that have been obtained through the interview sessions. Interviews are mostly semi-structured as the study requires the need to capture specific data themes that relate closely to the theory in use. After all the data are collected, recurring themes were interpreted based on the intensity of the connections between Brunei Halal food producers and the firms situated outside of the country, looking at conduits of export of products, import of technology, supplies and services, strategic partnership, and international market expertise. Such criteria are of fundamental importance as they provide the detailed unit of analysis that links the theory and the grounded reality that firms and businesses experienced throughout their production activities. Google Maps are utilized to visually represent the intensity of the production networks based on national-regional-global interlinkages.

The data collection period was from August until October 2020. Eight Halal food producers based in Brunei formed the samples of the study,

whereby they are selected purposefully to meet the research requirement. One firm is a Government-Linked Company (GLC), another is a foreign direct investment (FDI) firm, and five firms each specialising in a specific sector i.e., chilli sauces, processed seafood, chicken-based products, seafood crackers manufacturer, and meat products manufacturer - are comprised of mature and established firms in Brunei, whilst the remainder is a local SME. The diversity of firms is designed specifically to capture the diversity of materials and firm-to-firm networks and map the extent of the firms' network relationships.

RESULTS & DISCUSSION

Exportation of Halal Food Products

From the results, Brunei Halal food producers can penetrate to Asia market, the Middle East market, and the Europe market. Figures 1-3 will present the exportation countries.



Figure 1: Successful exportation to Malaysia, Vietnam, Singapore, Indonesia, Thailand, India, Japan, China, Hong Kong, South Korea UAE, Czech Republic, and France (red line is indicating active exportation, whereas the yellow line is indicating non-active exportation)



Figure 2: ASEAN market – Malaysia, Vietnam, Singapore, Indonesia



Figure 3: Asia market – Malaysia, Vietnam, Singapore, Indonesia, Thailand, India, Japan, China, Hong Kong, South Korea

Exports were possible to the countries above due to the trust in Brunei Halal products and Halal certification. The Brunei Halal certification plays a critical role in positioning the products, by showcasing the story behind the logo – Brunei as a peaceful, Islamic, and Syariah compliance country, thus creating a branding strategy that the foreign market can trust. In this aspect, the food producers are not just selling the products, however, supplying and serving the core benefits to the foreign market and making them trusted and satisfied (Cheng, 2008). In addition, few firms have mentioned that several Brunei Halal food products have received the seal of approval from the Ministry of Health as a healthier choice. Food safety recognition of Hazard Analysis Critical Control Point (HACCP) in addition to Brunei Halal certification, would be able to put the products on standard and push for exportation. Thus, it strengthens the foreign markets' preferences for Bruneian products.

New technological development and platforms in Information Communication and Technology (ICT) also contributed to the success. One firm managed to enter the Czech Republic market due to the easy communication infrastructure between the producer and the distributor. For many firms, the telephone is vital in product selling, and the internet is an important channel in the marketing (Dizaji, Bahmani, & Sharshar, 2011). The effective telecommunication infrastructure in the Czech Republic of providing virtual phone numbers had overcome the telecommunication difficulties for the firm in its attempt to expand beyond the local market. Digital platforms such as Singapore's Carousel, and China's Alibaba as well as social media such as Facebook and Instagram to name a few helped these firms to make contact and build networks though not a guaranteed and sustainable export.

The demand for Brunei Halal food products from foreign markets is high but this is curtailed due to trade barriers that limit firms' export. Despite Brunei's bilateral trade agreements such as the Brunei-China agreement of the ASEAN-China Free Trade Act, firms are still experiencing trade barriers whereby their meat products are unable to penetrate the Chinese market. The implementation of China's Hazard-Free Food Action Plan could be the reason for the difficulty of meat entering the country, to ensure the food safety for the people of the Republic of China (Ministry of Foreign Affairs, n.d.). Furthermore, some countries such as Japan, have very strict

food safety. Some local firms that are HACCP certified still faced difficulty in entering the Japanese market where repetitive samples need to be sent for exportation approval. This issue is beyond the firms' control, and a government-to-government (G2G) arrangement is needed to facilitate market penetration. This barrier limits the firm to fulfil the demand for Halal food products and prevents them from expanding their exportation network.

Moreover, as stated by Boorzoei and Asgari (2013), a well-developed infrastructure could influence the penetration of halal products into the global market. Considering the container line of Muara Port, Brunei has 13 shipping lines and is connected to 15 ports regionally with the frequency of 32-24 sailings a month (BEBD, 2017). However, although Muara port is well connected, one firm stated that the cost of logistics for Halal export products is costly. The small exportation activity in Brunei can be one of the reasons for the costly freight cost. Due to the higher cost of freight transportation, some firms decided to decouple from the local exportation networks.

Outsourcing of Raw Materials, Technology and Services

The result shows the GPN in Brunei Halal food industry comprises a wide range of firm types; There is the lead firm, the strategic partners, specialized suppliers, and generic suppliers. In the GPN, the Brunei GLC is the lead firm in the local Halal food industry, whereas the local firms and FDI are the strategic partners of the lead firm. There are also specialized suppliers where they are supplying raw materials of specialized products (meats and seafood) to lead firms and other local firms and partners. There are generic suppliers such as local and foreign distributors and wholesalers, that provide low-value services and products. From the results, the outsourcing activity for food production is presented in figure 4.

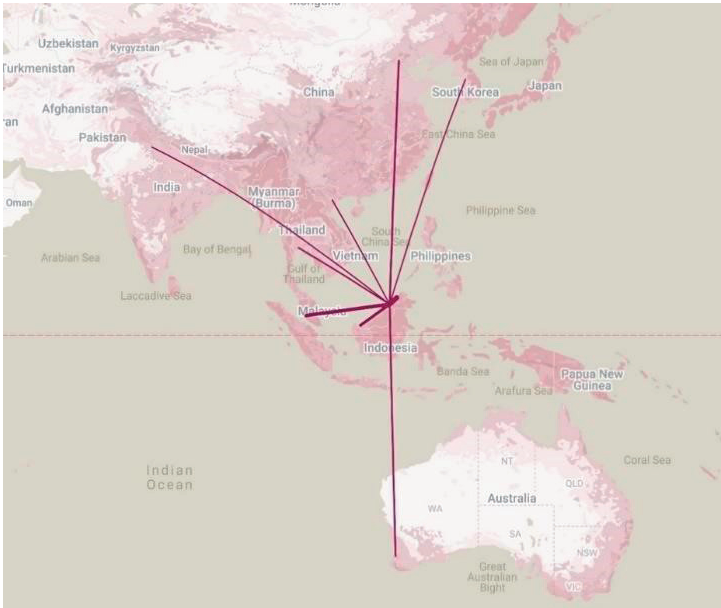


Figure 4: Outsourcing countries – Malaysia, Indonesia, Vietnam, Thailand, Philippines, China, South Korea, India, and Australia (Malaysia shows a high intensity of outsourcing activity)

Firms producing meat-based products outsourced their meat from foreign specialized suppliers. Such strategic coupling is crucial to ensure continuous production of their manufactured food products. Duck meat, for instance, is mostly outsourced from Malaysia. Beef, lamb, and mutton are outsourced from Australia whilst buffalo meat is outsourced from India. Such outsourcing is possible due to the limited availability of raw meat meant for industrial activities domestically. This is evident when Brunei only recorded 1.7 per cent in self-sufficiency in the beef (Department of Agriculture, 2017). This contrasts with 93.52 per cent self-sufficiency in the broilers (Department of Agriculture, 2017). However, some firms continue to outsource frozen and chilled chicken from Malaysia to improve and reduce the cost-capability ratio in their Halal food production. This is also to fulfil the volume expectations for the firm’s value-added products to be sold domestically. Food producers of seafood-based products similarly outsourced materials from specialized suppliers both locally and overseas. These specialized suppliers bred their fishery stocks and supplies the raw

seafood for the lead firm which later manufactured it for export. With the capability of the specialized suppliers in providing daily stocks of unprocessed seafood products, the strategic coupling between the two firms is possible. Foreign outsourcing is only an option when local supplies experienced seasonal shortages.

Agricultural raw materials are mostly outsourced locally and from foreign generic suppliers. Chilli as a commodity and production input are usually sourced from local farmers and firms. However, certain chillis of certain varieties are only available from overseas suppliers. Hence, these firms usually strategically couple with local chilli wholesalers and local vegetable distributors, with the chillies being outsourced mainly from Malaysia, the Philippines, and Thailand. As for temperate vegetables and vegetables that have limited production on local farms, similarly, the firms usually outsource from local wholesalers as well. For example, tomatoes, as raw ingredients to be used in sauce production, are largely outsourced from Malaysia and China, whereas commodities like potatoes are outsourced from China. As for tea and coffee powder, it is outsourced from India and Malaysia. The ‘generic’ label here stems from the fact that the coupling strategies are usually not permanent and partnership only form at times of low production cost.

In terms of supplies of Halal substitutes for non-Halal ingredients, all six firms excluding the GLC have directly outsourced from generic suppliers mainly overseas. Where materials are available locally, it is mostly outsourced from local distributors. Ingredients such as Halal gelatines, flavouring, emulsifiers, and preservatives such as Arabic gums or citric acids are outsourced largely from Malaysia, Indonesia, and China. This kind of strategic coupling occurs due to the unavailability of these halal substitutes in the local market. In addition, our capacity for scientific research and development (R&D) in areas of genetic improvement and biotechnology is still not established (Hisyamuddin & Oh, 2018; Kementerian Hal Ehwal Ugama, n.d.). Thus, Brunei is highly dependent on other countries in outsourcing Halal substitute ingredients.

The GLC also plays important role in leading project-based R&D. The other five remaining firms and one SME are relying solely on their own internal R&D. Due to the lack of partnership in R&D activities with overseas

firms, the local firms have a very limited amount of Halal food products selection available or on offer. According to Sulaiman (2020), with a well-developed R&D project partnership, the firms would be able to produce a new range of products, and at the same time, utilised limited raw materials as production became efficient. Hence, by having an R&D partnership, firms can reduce their reliance on outsourcing Halal raw materials from other countries, in addition, increase their capabilities in releasing a range of new products and supporting future market needs.

Paper-based packaging materials are outsourced mainly from China, Malaysia, Taiwan, and Korea. Packaging such as bottles, jars, aluminium pouches, and canned are outsourced from Malaysia, China, and Vietnam. Such coupling strategies are possible to the limited presence of packaging-related industry locally. To date, 12 known domestic companies supply packaging solutions in Brunei and 3 firms have canning capabilities. The canning and packaging industry is one of the investment opportunities in the country (BEBD, 2017). However, according to the respondents, the FDI on this has been underwhelming hence, the outsourcing from other countries as part of lowering production costs.

One of the five established companies outsources technology and packaging from three countries (Malaysia, China, and Vietnam) as part of a technology transfer. However, for the past few years, the firm has only outsourced from Malaysia. The decoupling relations with China and Vietnam is because both countries pose language barriers, and hence, prevent business transactions from communicated effectively. Coupling relationship with Malaysia is due to its proximity, low-cost capability ratios and effective communication. Furthermore, the packaging from Malaysia has fulfilled the requirements of Brunei Halal food standard (PBD 24:2007) in terms of materials halalness and safety. The firm involved in meat processing also offers domestic contract packing to other Halal food producers lacking in food packaging capability, a form of horizontal integration with other SMEs through coordination and control. The strategic role of the firm and the domestic relations it forged owe to the competency and capacity of its packing technology and machinery, as well as its capability in producing large volumes of canned food products per day. The availability of manpower and food technology expertise is empirical proof that capacity building and development in the packaging sector could further boost halal

food production activities within the country. It also assists in adding value to existing domestic products.

Strategic coupling in the production of OEMs also existed. Five of the firms studied managed to establish strategic partnerships with one of the respondents, a local GLC, by supplying it with products to be rebranded under the GLC brand name. In this case, the GLC functioned as the lead firm which acts as a buyer and purchased the products from their strategic partnership at an agreed price. The rationality of this coupling is for the lead firm to pave the ways for its strategic partners to enter the export market. At the same time, it also helps its partners to minimize the cost and risk associated with the distribution and marketing of the products. According to Abdul Ghafar et al. (2009), many opportunities can be explored in this kind of relationship. However, according to the five SMEs involved, rebranding under the GLCs name does not necessarily guarantee the sustainable exportation of these products to foreign markets. There are still challenges in the regulatory process for exports, especially for meat-based and fisheries products.

The firms involved also prioritize local employment especially fresh graduates, in serving the local communities. With regards to specific human capital, some firms still scout and recruit overseas experts in certain technical fields of expertise mainly from Malaysia and Indonesia. Reasons for such foreign recruitments are due to limited number of local graduates in the fields of food sciences and technology as well as food nutritionists. There have been attempts in recent years, where Brunei saw an increase in the number of local experts in food technology. New programmes relating to agriculture and food sciences are also introduced at vocational, technical and university level. Some of the firms studied employed staff with Food Science and Technology degrees from Universiti Teknologi Brunei (UTB) as well as from local technical institutes (IBTEs).

Brunei as Halal Food Production Hub: Does Brunei Fulfil the Criteria?

To become a global hub, the Halal food production in Brunei needs to be rigorous. This study supports the statement. The findings suggested that although Brunei managed to develop some degree of domestic halal

manufacturing as well as halal-related FDI, it is still far from reaching the global hub title, as there are still criteria that need to be achieved particularly in terms of inter or intra-firms research and development linkages and capabilities, infrastructure, and the government institutional support.

In terms of capability, Brunei is highly dependent on other countries in outsourcing Halal substitution materials as our capacity in scientific research and development (R&D) in Halal science and technology is still not established well in comparison to our neighbours - Malaysia and Indonesia - where most of the materials originate from. One firm mentioned that to improve the production capacity in the country, Brunei should attract more FDI. Brunei, according to Hisyamuddin and Oh (2018), required certain strategies to attract FDI to do production and business in Brunei.

Another firm added that the government should first focus on the SMEs before they strategized to attract FDI into the country. If local producers are struggling, it will give negative implications for FDI. It will also convince them that the local business environment is not conducive and favourable, hence, retreating them from investing. Malaysia is a good example of how clear policies and strong government support resulted in economic certainties that attracted Multinational Enterprises such as Nestle to invest in the halal production (Hisyamuddin & Oh, 2018). There has been some promising FDI development in Brunei recently with regards to the production of halal ready-to-eat, ready-to-cook packed food and industrial margarine based on the establishment of Saahtain Asia Ltd in 2017 and Western Food and Packaging Ltd in 2019, two joint ventures (JVs) established in partnership with the Brunei Government. Both JVs were made under Brunei Darussalam's Ministry of Finance and Economy Strategic Development Capital (SDC) Fund, in partnership with UAE-based Al-Sahtain Group and Turkish Marsa Yag Sanayi Ve Ticaret Anonim Sirketi (Ministry of Finance and Economy, 2017). It is still too early to assess the competitiveness and sustainability of these joint ventures. Further research on their production network is needed to further measure Brunei's halal hub status. At the time of writing, however, Brunei's status is still being a hub in the making, developing more as a regional compared to a global halal hub.

Local ports and logistics services should support the country's hub activities of exportation and importation. This study found local shipping

and freight transportation activities are not as rigorous and competitive as our neighbours. This is due to our small country and our small economic activity. This has caused the high freight transportation cost. One firm has mentioned with more FDI, it could help the economic activity in the country as well as lower the transportation cost due to the high competitiveness. Hence, Brunei does not meet the requirements to be a global halal hub in the region yet.

Despite the government initiatives, the lack of two-ways traffic communication between the firms and the government has hindered the progress of Brunei to becoming a production hub. This has become a long-term challenge for some firms, especially in exporting meat-based and fisheries products to certain foreign markets. With effective communication between firms and government stakeholders, regulatory issues regarding the safety and health of the products can be overcome. Regulatory processes and policies in the country as well can be improved with better communication between two parties thus this will create a business environment that is conducive for businesses and at the end of the day, is favourable and attractive for FDI.

Table 1 summarizes the hypotheses' status based on the findings and discussion in the earlier sections.

Table 1: Hypotheses Status

#	Hypotheses Status	Revision and modification
1	Not confirm	The extensiveness of exportation networks of Halal food products is due to the close proximity, the trust in Brunei Halal food, good marketing strategy of products with Brunei Halal logo, as well as the well-developed infrastructure.
2	Confirm	Hypothesis matches with supported data collection
3	Confirm	hypothesis matches with supported data collection

Limitation

One of the limitations of the data is the lack of participation from FDI firms in Brunei. With their participation, the food production networks would be intense, and more issues can be covered about their strategic relations. In addition, the study is focusing on the inter-firm relation, and a detailed study on the intermediaries' network (such as financial intermediaries, logistic providers, and intermediaries in standards) which are working together with the local firms can be further explored, to expand the intensity of production network and elaborate on the knowledge of GPN. The role of the government and important halal institutions in establishing Brunei as a global Halal hub also needs further exploration.

CONCLUSION

This study on Brunei Halal food production using GPN theory showed how well-connected and interlinked Bruneian firms are, in terms of exportation and outsourcing of material, technology, and services, on both local and regional scales. Despite such regional connectivity and networking, some issues need to be addressed to prevent reversals from the current development trajectory. There is a need to increase Bruneian firms' capabilities and infrastructure if Brunei is to grow globally as a halal food production hub. All stakeholders, both government and the private sectors alike, need to collaborate integratively to improve the national business environment and create a favourable and conducive for both local businesses and investors. Brunei's attempt should be applauded, however. Though lacking in factor endowments and appropriate infrastructures to facilitate growth further, the domestic firms have shown their centrality and resilience. Some function as lead firms who dictate or influence multiple aspects of production, whilst others are slowly upgrading their function from OEM producers to producers of their brands. These functionalities, as analysed, usually exist in processes that are of mid-level value-adding activities such as marketing and R&D, particularly in the 'taste-related sector. There were new developments in the industry after the research concluded in 2020. Changes such as BMC Food industries' appointment to produce halal Japanese products licensed under the Ginrei and Chibo Japanese brands for both domestic and export markets and the construction of a new halal

manufacturing plant for Ghanim International Ltd, a GLC and bearer of the Bruneihalalfoods brand, in Salambigar Industrial Park in 2021, to name a few further justify the hub development. Research on SMEs' role in certain commodity-related sectors shows potential for this goal. Three strategic options can be utilised in realising the hub vision. The first option is to become a hub for certain production activities and services whilst serving major hubs within the region. The second is to focus its development by becoming a regional halal food hub within the BIMPEAGA region which is currently the strategy used. Last is to develop itself into one of the global halal food hubs within the ASEAN Economic Community (AEC) through the new belt and road initiatives (NBRI) via more FDI or inward investments. More research is needed to further assess the sustainability and competitiveness of Brunei Darussalam as a halal food hub. However, as evident from this research, Brunei's role as a halal food hub is still in the process of becoming, with more likelihood of developing into a regional halal hub within the BIMPEAGA regional triangle and ASEAN within the next few years to come.

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CONFLICT OF INTERESTS

The authors declare no competing interests such as financial or personal relationship with regard to the writing of this article.

AUTHORS' CONTRIBUTIONS

Izni Azrein Noor Azalie is responsible for introducing the relevant concepts and framework to Nur Fajriyah Haji Samad. Nur Fajriyah is responsible for

writing and gathering the relevant works of literature and data necessary for this study. Final proofreading, paper coherency, and data interpretation were done by both writers.

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