CREATING A LOGISTICAL-MEGA-GATEWAY: THE EMIRATE OF DUBAI POTENTIALS

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1. Introduction - Logistic Hubs and Gateways

Notteboom and Rodrigue (2008) describe gateways and hubs as "similar elements of the spatial structure of flows". Gateways and hubs manage flows of information, cargo and people on an international, world-wide level. Numerous manufacturers and logistics companies that seek new facilities are starting to notice the importance and presence of logistics freight corridors and hubs (Luttrell, 2015). The increasing importance of supply chain and logistics is the main reason behind this trend.

1.1 Hubs

The Euro-Platforms group (2015) defines a logistics hub as "a centre or specific area designated to deal with activities related to transportation, organisation, separation, coordination and distribution of goods for national and international transit, on a commercial basis by various operators". The buildings and facilities may be owned, leased or rented by the operators. Examples of facilities provided by a logistics hub are trucking and shipping services, offices, distribution centres and warehouses (The Gleaner Report, 2015). Rodrigue, Comtois and Slack (2013) refer to the logistics hub as a main place used for many purposes, ranging from shipping and distributing products to a specific geographic location for receiving, collecting, and organising products within the hub. This idea of a logistics hub originated from "Hub and Spoke" which is an air transport phrase used to describe one place for collection and distribution of both air passengers and freight. Also, manufacturing and warehouse distribution projects often choose to operate out of logistics hubs because according to Luttrell (2015), they are quite often "Metropolitan Statistical Areas (MSAs) that are strategically connected by various popular freight corridors". Luttrell (2015) also emphasises that logistics hubs are strategically located in proximity to important consumer markets or to freight corridors that are near to these consumer markets. Some may be situated in between markets, or they may be ports or cities that transformed from home to land-based rail and interstate interchanges. According to Luttrell (2015), inland hubs connected to port hubs also act as inland ports. When sea ports develop and increase in size and volume, the area becomes congested (Luttrell, 2015). To avoid overcrowding, incoming cargo from abroad is transferred immediately from ship to barge, rail or truck and then sent to a processing and distribution facility in the hinterland. LaSalle (2014) confirms that these hinterland logistics hubs enable sea cargo to get through the port terminal in a shorter period of time and at a lower cost. These hinterland ports are also equally efficient and cost effective if used as processing points for exporting cargo overseas.

1.2 Gateways

Gateways, on the other hand, are locations that enable ease of access to an entire huge group of flowing passengers and cargo (InterVistas as cited by the Southern Ontario Gateway Council Strategic Plan, 2006). Teo (2001) defines a gateway as "a pivotal point for the entrance and the exit in a region, a country, or a continent and often requires intermodal transfers." A gateway consists of a point of transit, a destination, and an origin, controlling what enters and exits its catchment area (Rodrigue, 2007). A hub is the transport system's central location with many inbound and outbound connections of the same mode. Rodrigue (2007) explains that a gateway often shifts and changes from one mode to another mode, like from land to maritime. Gateways are situated in important locations with benefits such as

proximity to a port, the joining of rivers, inter-state highways and have resulted in a lot of transport infrastructure, like terminals, being built (Senguttuvan, 2006). Rodrigue (2007) explains that a hub tends to be more transmodal, moving within a mode, whereas a gateway performs an intermodal function, moving in between modes. Gateways are linked with manufacturing and production facilities in the hinterland via transport corridors. Maritime gateways, as described by Notteboom and Rodrigue (2008), are “large terminals with high capacity inland connections (rail and road)". Satellite terminals or inland ports are increasing all over the world, especially in Europe, as a response to overcrowding and not having enough room next to maritime terminals to carry out logistics facilities (Notteboom and Rodrigue, 2008).

2. Logistics Gateways Attributes: Components

2.1 Port/Gateway System

To be considered efficient and to contribute effectively to overall gateway performance, a gateway port must have certain characteristics such as: strategic location, efficiency, adequate infrastructure, connectivity and a wide range of port services (Tongzon and Oum, 2007).

2.1.1 Strategic Location and Efficiency

For a port to be classified as being strategically located, it should fulfil three criteria: it should be located on main maritime routes with close proximity to production and consumption centres, it should have a natural deep water harbour or breakwater, and it should have a favourable climate. Hong Kong and Singapore, the two top-ranked ports world-wide, are prime examples of this. Tongzon and Oum (2007) assert that while having a strategic location is vital for being considered ‘gate-worthy’, many top ports have also concentrated on other competitive factors such as efficiency in differentiating themselves from the competition. For ports, this primarily means the speed and reliability of port services. Another determinant is adequate infrastructure. In addition, Rodrigue and Notteboom (2010) emphasise the importance of another factor that affects governance within the port system: land availability and ownership.

2.1.2 Multi-modal connectivity

Time is crucial in logistical gateways. This requires the gateway port to have overall connectivity to other ports as well as different modes of transportation because containers sitting idle are costly and counter competitive in terms of transit time (Martin, 2004). Fast travel time between feeder and mother vessels and increasing the frequency of ship visits which allows freight forwarders greater choice in transportation of their cargo and therefore allows them to benefit from competitive costs, greater flexibility and lower transit time (Frazelle, 2004).

2.1.3 Infrastructure and Terminals

Even though gateways are vital for the land and maritime interface, functional regionalism is shaped by physical infrastructures known as terminals. While gateway systems are mostly similar, differentiation occurs in their respective hinterlands. To illustrate this, Rodrigue and Notteboom (2010) highlight the example of Europe which would require much more inland terminals to handle the same amount of volume as in America. Finally, the last key characteristic of a gateway port is the multitude of port services it offers to attract additional vessels to call the port. Tongzon and Oum (2007) suggest that a gateway port should provide integrated services such as bunkering, pilotage, warehousing, cold storage and other value-adding services to be considered a logistically efficient distribution system.

2.2 Customs and Supply Chain Management

Another hallmark of a logistical-mega-gateway is large custom free zone areas that facilitate value chain activities to be performed without incurring constraints on import duty

specifications. Value chains reflect the specific economic processes of the market. In logistical gateways, Rodrigue and Notteboom (2010) draw attention to a frequently-arising question which is: how and where do value-added functions take place along the supply chain? Customisation is an aspect which has added value to the chain through labelling, repackaging, localised manuals, etc. The more varied the cultures within a country or region, the greater becomes the need for further customisation which affects distribution efficiency (Rodrigue and Notteboom, 2010). Classical distribution structures have also been replaced with more fluid and flexible logistical structures that are actively linked with inland ports such as cross-docking and merge-in-transit.

2.3 Labour Mobility

Labour flexibility and mobility play a major role in logistical activities. Both of these factors vary according to region, and this variance is caused by items related to labour law such as recruiting and dismissing employees, flexibility of work timings and the requirements of workers' associations. Labour costs remain a sizable component of freight distribution costs, with the majority being attributed to container terminal operating costs as well as trucking. Due to these factors, Rodrigue and Notteboom (2010) conclude that there has been an increase in requirements of the educational system in these regions because companies place greater emphasis on improving logistics training and education. Equal emphasis is placed on evaluating workers' performance and productivity, measuring labour performance and efficiency, and improving logistics-related training and education.

2.4 Hinterland

Hinterlands are an important aspect of the port and maritime shipping industries, with its density and extent shaping inland freight distribution and inland port operations. The main hinterland defines a region where the terminal dominates the share of the flows. It has been suggested by Notteboom and Rodrigue (2007) that the rule has been that inbound hinterland traffic is consumption-based while outbound hinterland traffic consists of outcomes of production either as finished products, semi-finished products, or raw materials. To secure and maintain the position of a logistical-mega-gateway, there are additional factors that must be taken into consideration such as costs, quality, marketing, and transport time (Gordon, Lee and Lucas Jr., 2005). Another key characteristic of a gateway is pre-emptive investments in infrastructure based on forecasted future capacity requirements. Common services, such as finance, insurance and administrative services would also need to be provided in a business friendly atmosphere in order to attract manufacturing-related activities that require efficient and cost effective movement of goods (Gordon, Lee and Lucas Jr., 2005). Another recent trend associated with mega-gateways has been the development of e-commerce and e-services tools provided or coordinated by the government which is a critical enabling tool for the logistics industry worldwide, allowing gateways to serve as information networks while facilitating trade in the region (Lee and Yang, 2003).

3. Logistics Gateways Attributes: Proponents

3.1 Shipping Services

A gateway is the link between the regional or local market and the international market. One way this is accomplished is through the use of shipping services, such as containerships and the like, which provide direct access to and from a multitude of international markets. Excellent connectivity, a wide choice of carriers, quick access to global markets by having direct service and a high shipping frequency are all factors that encourage efficiency and offer a multitude of options by encouraging competition within shipping services (Pettit and Beresford, 2009).

3.2 Logistics Infrastructure

After cargo has been received at the point of entry, regardless of the mode of transport, logistics plays the deciding role in how efficiently and effectively it will reach the end customer. This is done through various services. The higher the number of services, the more efficient the transportation of the goods, provided that the cost of procuring or rendering these

services will be competitive for the importers and exporters (Lambert, Stock and Ellram, 1998). The availability of multi-modal services with local, regional and global distribution centres complements the overall logistics infrastructure while providing comprehensive logistics and transportation options catering to the mega-gateway location. This results in overall cost-effective solutions to facilitate the large movement of cargoes coming in and moving out of the gateway.

3.3 Size and Type of Industry Operating in the Hinterland

For a mega-gateway to form, there has to be ample demand for the movement of cargoes in both directions, both imports and exports. This significant volume of demand is usually generated by the manufacturing related industry, with their need for raw materials which they may have to import as input for the manufacturing activities and thereafter generating semi-finished or finished products mainly for export, with potentially few products supplied in the local market (Helms, 2015). There are a variety of sectors within the manufacturing industry that contribute to this demand namely the automotive, electronic, garments, furniture, industrial goods and petrochemical industries. How much each sector contributes to the total demand will vary across different regions and countries. Both import and export activities are key requirements of logistical-mega-gateway activities.

4. Methodology

In this study, the explorative research approach is used where differences between a Hub and a Gateway are highlighted. In addition, the common-base attributes, components and proponents of Logistical Gateways are identified and applied to analyse the Emirate of Dubai's potential as a Maritime Logistical-Gateway. This research approach is chosen because of the versatility and wide-ranged approach it offers to the preliminary investigation. The exploratory research approach used in this study draws upon the already widely available secondary data sources, both from electronic and non-electronic means.

5. Analysis & Findings

5.1 Dubai as a Transhipment and International Logistics Hub

Dubai is internationally recognised for its extremely high standards of logistics facilities. Due to its strategic location and historically being a transit route between Asia, Africa and Europe, Dubai has grown to be where the East meets the West. India and China, as well as other thriving markets of the BRICS nations, have further strengthened Dubai's position as a strategic place for logistics and distribution worldwide. Thanks to its affordable logistics charges and number-one-rated outstanding infrastructure, Dubai has enjoyed massive foreign investment. It is these qualities that make Dubai ideal for companies in the logistics sector whether the need be to set up a company in Dubai or to open a branch of their company in this region (Business Benchmark Middle East, 2014). As such, Dubai is both regionally and globally seen as a major multimodal transportation and logistics hub.

Dubai's assets as a logistics hub include a liberal and advanced government, top-notch infrastructure, and strategic location. The World Bank Logistics Performance Index (2012) ranked Dubai's overall logistics as 17th worldwide in 2012. A recent survey undertaken by the Menon Business Economics Group (2015) ranked Dubai as the 5th place globally with respect to ports and logistics. In 2011, Dubai Port was ranked third place worldwide in terms of capacity and world-class services provided. Additionally, Dubai comes in third place in size for re-export hubs. In fact, from 2010 to 2011, Dubai's exports and re-exports grew by 21 percent to AED 431 billion or US$ 117 billion (HULT Consulting Club, 2015). Frost and Sullivan (2014) forecasted that by 2014 the UAE logistics market will have contributed AED 34.5 billion (US$ 9.4 billion). Due to increased manufacturing locally and increased volumes of import and export, it is predicted that Dubai's logistics market will increase to AED 99 billion (US$ 27 billion) by 2015 (Manda, 2014). Income derived from logistic services for the agricultural sector, import-export trading, domestic manufacturing, and services accounted for US$ 23.4 billion in 2013 (Manda, 2014). Out of the UAE gross domestic product (GDP) in 2013, six percent was contributed by the logistics sector (Manda, 2014).

5.2 Dubai: Potentials as a Competitive International Maritime Logistical-Mega-Gateway

Having evaluated the components and proponents of a logistical-mega-gateway, the next logical step is to analyse Dubai and where it stands currently in this regard. Dubai's Jebel Ali Port is unique because it is not located close to any of the main maritime routes but it has established itself as the logistical hub of the region, positioning itself as the major hub port between Rotterdam in Europe and Singapore in Asia. It also offers a multitude of port services, another key factor to being considered as a gateway port. However, to attract more shipping services, Jebel Ali port needs to continue investing in other value-added port activities such as LNG bunkering while ensuring seamless integration of multi-modal activities with the development of Etihad Rail, the UAE railway project currently under development.

Another critical factor in the development of a logistical-mega-gateway is land availability and ownership. For economic development to take place, an incentive would be to lower land to lesser than that of its intrinsic value (Southern Ontario Gateway Council Strategic Plan, 2006). One way to achieve this is by the establishment of special economic zones or industrial zones with efficient logistics interfaces within the port. In general, Dubai has excelled in developing business free zones that are present in the Emirates such as JAFZA, DAFZA, DWC, DMCC, DIFC, and JLT which offer cost effective business solutions and enabling measures such as the reduction or waiving of import duties and customs or corporate taxes.

As Jebel Ali Port is a logistical and transhipment hub, it has a variety of large shipping lines calling at it on a daily basis. Thus, another feature of a gateway is the port's ability to connect to multiple shipping services in order to provide importers and exporters with a multitude of shipping options. Furthermore, port efficiency is considered as the most important factor in categorising a port as gateway worthy. This can be seen in the infrastructure of Jebel Ali Port, one of most up-to-date ports in the area and completely prepared to cater to the requirements of current and upcoming demands by investing in new capacities ahead of time. A more recent trend with logistical-mega-gateways that Dubai has already implemented at a basic level consists of e-commerce and e-service activities. "Matajircom", a purpose-built smart retail hub, was recently launched by Dubai's Economic Zones World (EZW) along with Dubai Customs with the aim of rising above markets from local levels to country-wide and global levels (Department of Economic Development, 2015).

On the other hand, a major criterion of international gateways which Dubai fails to realise to its full potential is the size and type of industries operating in its hinterland. Efforts to reduce this gap can be seen in neighbouring emirate Abu Dhabi with KIZAD, an industrial zone close to the newly built Khalifa Port, which has aspirations to become a hub for manufacturing, logistics and trade industries. In addition, a lack of major manufacturing industries within the UAE severely hinders the growth in the volume of cargo movement designated as exports, thereby negatively impacting the potential of Dubai becoming a logistical-mega-gateway. Furthermore, Dubai needs to ensure that its customs procedures are coherent for the movement of cargoes to and from other emirates such as Fujairah or Abu Dhabi. This will enable seamless and smooth cargo movement within the UAE for land transportation.

5.3 Expansion, Development and Growth Trajectory

As cited by the Department of Economic Development (2015), the BMI foresees that between 2011 and 2015, Jebel Ali port's throughput will increase to 9.3 percent approximately with 18 million twenty-foot equivalent units (TEUs) forecast as box throughput. In addition, a dedicated inspection facility has been jointly launched by Dubai Municipality, Dubai Customs and DP World to provide rapid clearance of freight and cargo (Bin Sulayem, 2015). Aimed at reaching 50 million TEUs when completed in 2030, the total investment for the 14-stage inspection facility is AED 5.5 billion (USD 1.5billion). More recently, the Ports, Customs and Free Zone Corporation and the Department of Economic Development launched the Dubai's Virtual Freight and Logistics Corridor (VFLC), which aims at sustaining the business leadership and competitiveness of Dubai through provision of a unique automated customs procedure designed to facilitate goods transport between two Dubai Customs centres by road,

connecting the point of entry to the point of destination in Dubai under the Cargo Transport Requests submitted by clients.

Connectivity to other modes of transport is a hallmark of a logistical-mega-gateway, and Dubai plans on delivering this, as evidenced by the development of Dubai World Central (DWC) where super-airport-hub Al Maktoum International is based. DWC also connects with DP World's leading port which is Jebel Ali. In addition, encompassing Jebel Ali's port, cargo and logistics developments, the Jebel Ali Free Zone (JAFZA) has also had continuous investments. Al Maktoum International's plan for the Dubai Logistics Corridor will create the largest multimodal logistics platform in the world by connecting JAFZA and DWC thereby encompassing sea, land and air. Dubai's logistics advantages such as Jebel Ali Port, ranked eighth busiest worldwide and largest between Rotterdam and Singapore; its connection to DWC through the Logistics Corridor; and its strong unimodal land infrastructure, both via road and the upcoming nationwide and inter-GCC rail system, offer endless opportunities for trade into and out of the Middle East. With proper strategies in place for the creation of more Inland Ports (IPs), Freight Villages (FVs), extensive 'Massification' and 'Atomization' activities, coupled with an Industry Strategic Plan for strong Manufacturing Hinterlands (MHs) that are spatially planned and capable of offering the "last mile effect", Dubai will be able to create strategic Logistics Poles (LPs) and Clusters that are linked with its Port Centric (PC) Jebel Ali through a Logistics Corridor to position itself as the central Spoke Hub status for the MENASA region which encompasses the Middle East, North Africa and South Asia region. Along with the fully geared move to be the most efficient, effective and cost competitive logistics and supply chain management centre, backed by the latest and competitively advanced logistics and SCM technologies and systems, Dubai is doing all the right things to position itself to becoming a competitive international maritime logistical-mega-gateway.

6. Conclusion & Recommendations

Dubai has all that it takes to become a competitive international maritime logistical-mega-gateway. In order to do so, it is recommended that Dubai undertakes the following initiatives:

1. Further develop the functional relations between Inland Terminals and their Hinterland to strengthen Dubai's logistics capability of 'Massification' and 'Atomization'.
2. To enable Dubai to create large Logistics Poles, strong zoning and polarisation of logistics sites and the hinterland is required, coupled with de-zoning in primary logistics zones and the functional bundling of logistics zones.
3. Collective, connected and coordinated large Logistics Poles would further help to form strategic Logistics Clusters in Dubai.
4. In addition to continued expansion in industrial and manufacturing zones in its hinterland and the region, and the development of new port facilities, the national and regional rail network (Etihad Rail) is being developed. These developments have implications for what services can be provided competitively by Dubai and the UAE. As such, the key is to identify the optimal range of logistics infrastructure and facilities that will attract service providers and ensure that Dubai and the UAE can continue to compete for investment and support the development of maritime logistics.
5. Facilitate the establishment of vocational level training as well as encourage further investment in the institutes of higher learning catering to the port and logistics sector within the UAE. This should be complemented with an increase in research activities related to the port and logistics sector and with a stronger collaboration between educational institutions and the industry.
6. By 2020 the UAE economic activity may increase to more than double its current levels (Department of Economic Development, 2015). This level of activity may support the critical mass even further in developing and sustaining logistics infrastructure and services in the long run.
7. The UAE has to work strategically to improve its status within the World Logistics Performance Ranking. From a World LPI ranking of 17 in 2012, it has been overtaken by many international newcomers, rendering its latest LPI ranking to be at the 27th position globally (The World Bank, 2014).

8. Dubai and the UAE need to take the challenge of developing Logistical Poles and Clusters, and create a Maritime Logistical-Mega-Gateway to take on and be ahead of international competition.
9. Furthermore, on a national level, the UAE needs to: 1. Develop a UAE Comprehensive Integrated Multimodal Transportation and Logistics Strategy; 2. Develop the UAE into strategic Logistics Clusters and Mega-Gateways; 3. Harmonise and make seamless the regulations, processes and procedures between Airports, Ports, FZs, FVs, Hinterlands, Logistical Terminal/Depots and interconnectivity components; 4. Support the development of physical and virtual logistics corridors including the logistics 'Last Mile' business model; 5. Form the National Logistics Council to work on enhancing the inter-Emirate and inter-GCC logistics model and processes; 6. Increase the supply of skilled personnel trained and educated from local institutions combined with an increase in research activities to ensure the long-term and sustainable growth of the port and the logistics sector.
10. Dubai has the added advantage of attracting leading names in logistics, distribution and manufacturing to enable the industry to reach a critical mass of key players. Dubai can position itself as a location providing skilled resources and cost-efficient logistics infrastructure. It will be able to attract more manufacturing industries catering to the regional and international market. This will lead to a significant increase in the movement of goods going through Jebel Ali port, hence establishing Dubai as an undisputed mega-gateway.

The MENASA region consists of the world's most rapidly developing emerging markets, accounting for 25% of the world's people who come from a much more consumer-led environment. Dubai's significant location within this region offers a means of entry into an economy which has grown three-fold in the last ten years with AED 13.2 trillion(USD 3.6 trillion) as the total GDP. In this scenario of logistics, development and expansion, Dubai plays a very significant role. Given the above ten recommendations and the assurance of continuous development and investment, Dubai stands as the regional leader in logistics facilities. With its exceptional opportunities, its unparalleled geography, and its strategic location, Dubai's vision to develop into a competitive international maritime logistical-mega-gateway is not only inspirational but achievable.

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