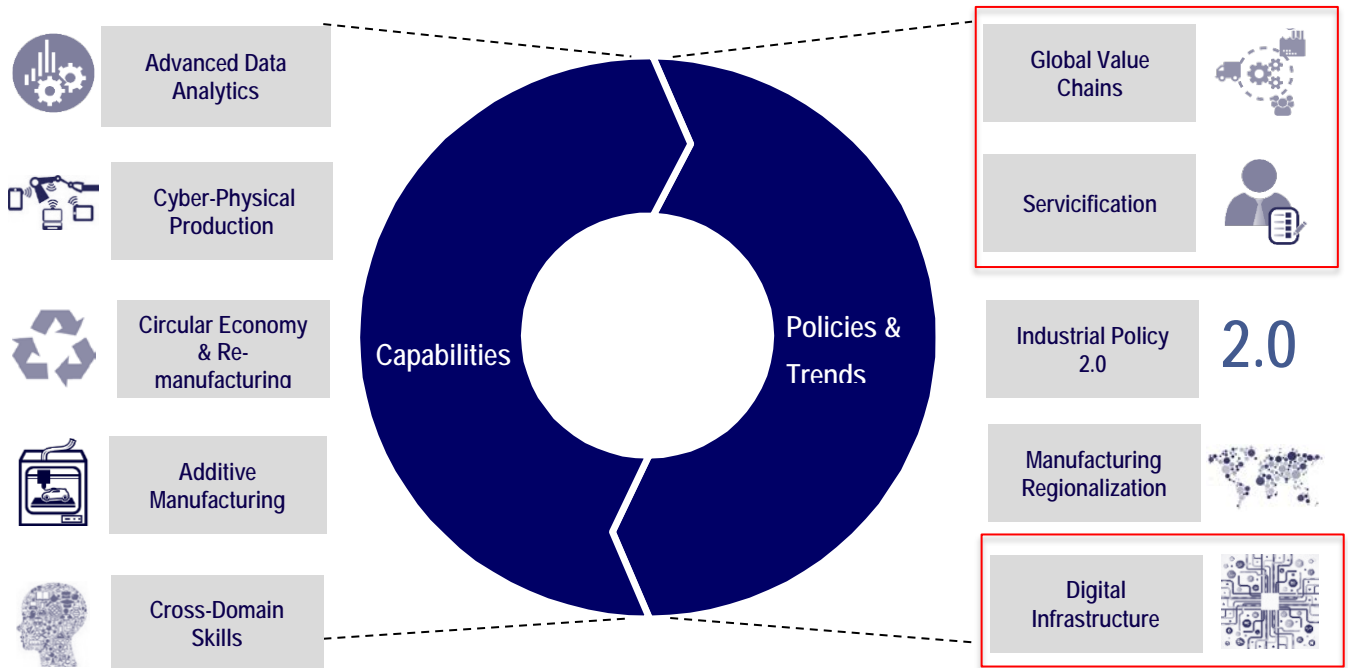


# Case 12

## Logistics at the Crossroads: Panama and Dubai

### Drivers of the Future of Manufacturing



Source: World Economic Forum Global Agenda Council on the Future of Manufacturing, Whiteshield Partners framing



### 1. Challenge Confronted

Because of commercial and technological changes, the role a location plays in the global transport system can evolve, deriving higher levels of added value and economic development. Globalization has incited the emergence of a highly fragmented manufacturing landscape requiring substantial logistical services such as transport, transshipment, transloading and warehousing. As the global manufacturing system became increasingly dependent on logistics, its landscape started to be modified by logistical capabilities and the locations at the core of global distribution became increasingly attractive. This tends to blur the distinction between manufacturing and logistics since both processes are interdependent. Future technological developments in manufacturing and transport may favour a convergence taking place over two dimensions.

**Functional convergence.** The process that has favoured specialization and fragmentation could be counterbalanced by new manufacturing technologies providing more integrated outcomes, namely because of the possibility to provide a more completed product (if not a final good) at one location. It is thus possible to shorten value chains depending on the complexity of the product. For simpler goods, this convergence could lead to a single fabrication process requiring only raw or processed materials. In this context, accessibility to material inputs and markets therefore becomes the core locational factor, which underlines its dependence on logistics.

**Geographical convergence.** Because of the previous dimension and also because of the need to access a variety of material inputs and markets, locations of improved freight mobility offer a higher value proposition for manufacturing. This favours a convergence of manufacturing and distribution in logistics zones. Further, the development of mass customization strategies for an array of consumer goods encourages performing customization at suitable intermediate locations between suppliers and final markets.

### 2. Solution Used

Looking at the geography and history of two major crossroads of the global economy, Panama and Dubai, to identify how logistics shapes the manufacturing landscape of the Fourth Industrial Revolution.

### 3. Lessons Learned



1. Locations of **high accessibility to global freight transport systems** play a core role in the emergence of a new manufacturing landscape associated with the Fourth Industrial Revolution.



2. The planning of logistics zones connected to port and airport terminal facilities encourages the **setting of distribution and manufacturing facilities** servicing complex value chains.

## Logistics at the Crossroads: Panama and Dubai

**Dates:** 2000-2015

**Keywords:** logistics zones, freight distribution, fourth industrial revolution, panama, dubai

**Author:** Jean-Paul Rodrigue

**Entities involved:** Hofstra University

**Points of Contact:** Department of Global Studies & Geography, Hofstra University, Hempstead, New York, USA

#### Key facts:

- Globalization has favoured the setting of a fragmented manufacturing system.
- Panama and Dubai are salient elements of the emerging manufacturing landscape of the Fourth Industrial Revolution.
- Their growth and dynamism are linked to their connectivity to the global maritime and air freight transport systems.



3. The emergence of Panama as a logistics platform is rather incidental and the outcome of the setting of Panama as a **major regional trans-shipment hub** for containerized shipping.



4. The emergence of Dubai as a logistics platform is the outcome of **massive investments in port and airport infrastructures** co-located with logistics zones aimed at a wide array of activities.

## Panama: An Emerging Logistics and Manufacturing Platform for the Americas

Panama and its transoceanic canal are highly reflective of this evolution. From a simple point of transit, Panama is shifting towards a range of higher added value activities related to its growing role in maritime trans-shipment.

Through the colonial era, Panama was a **transit country** connecting Pacific and Atlantic trade routes through trails across the isthmus. The function of Panama City as a transit hub can be traced back to the 17th century when it acted as a trade platform for the Spanish Empire, particularly on the South American west coast. The completion of the Panama Railroad in 1855 provided an additional impetus to the transit function with the ports of Balboa and Colon established as termini on their respective maritime facades.

The growth of global trade (particularly intra-American trade) and the development of steamships provided an impetus for the construction of the Panama Canal, which was completed in 1914. This set the stage for Panama to become a **tollbooth country**, deriving revenue from canal crossings. Within decades, Panama became an important connector within the global maritime transport system and imposed Panamax as a de facto standard in maritime shipping. However, limited investments related to this connectivity took place as long as Panama remained a location where cargo was simply passing by. It could be said that Panama was a weak intermediary location since the cargo transiting was not “touched”. Even with the Colon Free Trade Zone established in 1947, it was not until the 1990s that the zone experienced significant growth, but the logistics and manufacturing activities were relatively of low added value. Still, service functions such as flags of convenience and bunkering emerged. Today, Panama remains the world’s leading shipping registry country.

In the 1990s, a series of events favoured the transformation of Panama’s conventional role as a transit country, which culminated in 1999 with the Panama Canal Authority taking full control of the canal. Before 1995, Panamanian container ports (Cristobal and Balboa) handled very limited amounts of containerized cargo, in the range of 100,000 to 150,000 TEUs. Port privatization reforms in 1995 were accompanied by significant investments in port infrastructure and the entry of major global terminal operators (HPH, SSA and PSA). Containerized traffic handled by the ports grew rapidly. The setting of post-Panamax ship services and the growth of transpacific trade induced a new dynamic in Panama. It quickly became a trans-shipment hub helping to reconcile long-haul and feeder maritime services, both on the Atlantic and Pacific sides of the canal. Of the 6.8 million TEUs that were handled at Panamanian ports in 2012, about 95% concerned trans-shipment activities. For instance, before 2001 there were almost no traffic handled by the port of Balboa on the Pacific coast. By 2014 the port was handling about 3.5 million TEUs. The Panama Canal railway was reopened in 2001 to support growing container flows between the Atlantic and Pacific container ports. As such, the **intermediary role of Panama** was expanded as trans-shipment involved growing quantities of containers being stored temporarily at the port

terminals and also containers being repositioned through the isthmus, putting pressure on road and rail infrastructure.

As the first decade of the 21st century progressed, a new trend emerged, reinforcing the role of Panama as a **global trade platform**. The growth in trans-shipment volumes, the central position of Panama within the Americas, the growth of the finance sector and its emerging function as an air transport hub encouraged the setting of logistics activities that were not present before. In such a scenario, Panama could become a logistics platform servicing global and regional supply chains by providing added value activities for the region, such as manufacturing, customization and distribution. This transition is far from being complete and several challenges will need to be addressed to ensure that Panama is able to develop world-class logistics capabilities. In particular, the development of additional port capacity is necessary, particularly on the Pacific side, as well as port-centric logistics zones and a more extensive road system to support these new interactions. In 2015, a new container port expansion project was approved at Corozal, just upstream of the port of Balboa, on 120 hectares. It is expected that the project will bring a closer integration between port activities and value-added logistics.

Economic development and expanded trade relations taking place throughout Latin America will benefit Panama both directly (trans-shipments and freight distribution) and indirectly (more canal transits). The development of a logistics platform is, therefore, more than an infrastructure issue but must be linked with effective governance and human capital development. The expansion of the canal represents for Panama a unique opportunity to position the country as a hub interfacing longitudinal and latitudinal trade flows and deriving added value in the process. This may further trigger additional trans-shipment activities and potentially some diseconomies due to port, road and rail congestion. The new Panamax ships (about 12,500 TEUs) that will transit the expanded canal and call at Panama's ports are likely to be associated with different service configuration and different forms of freight distribution within the region. What remains to be seen is the scale, nature and function the logistics platform will take. What is clear is that Panama is no longer a location where ships are simply transiting through. It is becoming a **hub of the global transport system**; its conventional geographical advantage is being expanded by logistics.

## Dubai: Logistics at the Crossroads

In the past two decades, Dubai has emerged as a **world-class logistical platform**, a role which is in part attributed to its geographical location at the crossroads of major trade routes between Asia, Europe, South Asia and East Africa. This role began to take shape in the 1960s when the growing availability of capital derived from oil exports in neighbouring countries led to initial infrastructure investments, such as the first modern port facilities (Port Rashid), completed in 1971. These facilities were further expanded with the completion of the **mega port of Jebel Ali** in 1979, which supported the growth of related maritime activities such as trans-shipment, bunkering and repairs that would expand to make Dubai one of the world's leading cluster of maritime activity. By 2014, Dubai handled 15.2 million TEUs, ranking as the world's eighth largest container port.

The 1980s and 1990s saw an acceleration of the logistics role of Dubai, with Asia-Europe trade booming and its growing role as a logistical platform. Dubai used the sovereign wealth fund approach to finance state-sponsored enterprises to fulfil its strategic objectives. Emirates Airlines was established in 1985 and Dubai International Airport was gradually expanded and upgraded with new runways and terminals. Dubai started to emerge as a **passenger and air cargo hub** for the Middle East. By 2014 it handled 70.5 million passengers and 2.2 million tons of cargo, making it the third busiest in the world for passenger traffic and the sixth busiest for cargo. The opening of the **Jebel Ali Free Zone** in 1985, a zone of 5,700 hectares beside the Jebel Ali container terminals, conferred the role of Dubai as a free port with incentives concerning foreign ownership and taxation regime. Dubai Internet City, inaugurated in 1999, represented another free zone initiative specializing in the information

technology sector. These initiatives were followed by a number of free zones specializing in specific sectors such as Dubai Media City, Dubai Studio City, Dubai Healthcare City and Dubai Industrial City. The logistics and manufacturing functions became increasingly complex and blurred.

The setting of the global terminal operator Dubai Ports World (DPW) in 2005 marked a renewed **internationalization of Dubai** with a growth of its maritime connectivity and trans-shipment volumes. DPW is the outcome of a merger of Dubai Port Authority that was established in 1991 and of Dubai Ports International, a **company** founded in 1999 to develop and manage port terminals at the international level. As of 2014, DPW managed a portfolio of 65 terminals handling 59.9 million TEUs, making it the fourth largest in the world. The main terminal of DPW is Jebel Ali, which handled the quasi totality of Dubai's 15.2 million TEUs in 2014. In 2010, a second international airport (Al Maktoum International), with its associated free zone, **Dubai Logistics City**, was opened. The airport was designed with a capacity for 160 million passengers but so far has not yet been extensively used for that purpose. Air cargo handled by the airport has been growing rapidly, underlining a possible specialization of air cargo operations.

To further expand the freight distribution and added value opportunities of the port and airport terminals as well as the free zones, a **"virtual freight and logistics corridor"** linking these facilities was created. This corridor enables simplified customs procedures for the bounded cargo, reducing transactions costs and improving the velocity of freight. In 2015, Abu Dhabi International Airport opened a customs pre-clearance facility for the US Department of Homeland Security, the only one in the Middle East. This enables passengers bound for the United States to clear customs in Abu Dhabi and avoid doing so at congested American gateways. It is expected that a similar facility will be opened at Dubai International Airport.

The **convergence of maritime and air cargo connectivity**, coupled with a free zone status, has anchored Dubai as a regional logistics and manufacturing hub providing added value. For instance, as an intermediate location, Dubai is able to perform assembly, labelling and packaging for goods manufactured in South, South-East and East Asia and mainly bound for European and North American markets. While relative proximity (intermediacy) to Europe underlines the importance of this market, the North American reach of Dubai is illustrated by the growing volumes handled through the Suez Canal and bound for the east coast of North America, which accounted for 15% of its traffic in 2014. However, such developments have placed several socioeconomic pressures on Dubai to improve infrastructure and capabilities. In addition to cycles of boom and bust in the provision of infrastructure and real estate, Dubai depends heavily on foreign workers who have transformed the city into a cosmopolitan world city.

## Drivers & Enablers



Locations of high maritime and air connectivity



Setting of logistics zones (port or airport-centric)



- Growing importance of intermediary locations
- Setting of manufacturing and distribution platforms

## Barriers

The dynamism of logistics zones can be impeded by a number of challenges including changes in the service configuration of shipping lines and air cargo. The infrastructure intensiveness of freight distribution requires significant investments.