

# Identifying the Right ‘Fit: What Can Libya Learn from Port Devolution in Malaysia?

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DESPITE THE FACT that Libya and Malaysia are located in different regions of the world, both countries have several ports which operate in similar environments. Malaysian ports have grown quickly since the end of the 1980s, to emerge as efficient, effective and productive. Libya’s government has developed the ambitious objective for its port sector of increasing container throughput in the country’s ports and to participate in the competition to become one of the hub container ports in the Mediterranean. This paper analyzes the results achieved from a change in Malaysia’s port structure and strategy. It then shows that the current situation within Libya’s ports parallels that of Malaysia prior to its implementation of a port devolution policy. A Matching Framework analysis is applied to compare the general situation of the two countries at three different points in time. The final point in time for the Libyan case is deemed to lie at some time in the future and is constructed from the results of the Malaysian success with its implementation of a policy of port devolution. In order to respond to the dynamic operating environment and the new government strategy affecting the Libyan port sector, the paper concludes that an organic structure may provide the best solution for the future success of Libya’s container port industry.

## INTRODUCTION

Libya is located on the southern side of the Mediterranean basin, a region where many ports compete to attract large volumes of transshipment traffic from the principal East-West container shipping lanes. Although Malaysia is located in South-East Asia, its main ports are similarly situated on the Malacca Straits, one of the busiest and most

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important areas of the world for international shipping. Both are developing nations with almost the same level of GDP and both are muslim countries with reasonably comparable cultures. Within the context of the container port sector, the two nations operate in similar environments. In addition, the current economic and port policies of Libya are similar to those that prevailed in Malaysia prior to its implementation of port devolution. However, while Malaysia successfully competes for container transshipment trade within its regional port system, Libya merely has the ambition to do so within its region of interest, the Eastern Mediterranean.

At the end of the 1980s, Malaysia's port development strategy was radically altered, through the adoption of a policy of port devolution. The main objective was to attract transshipment cargoes that were then served by the port of Singapore. Since that time, Malaysian ports have grown both quickly and successfully, built on their efficient, effective and productive performance, with two of Malaysia's ports now positioned as regional hubs. Because Malaysia's port environment and strategies prior to the implementation of its policy of port devolution are almost the same as those of Libya now, the Malaysian case has been selected as an exemplar for Libya's aspirations with respect to its container port sector. Consequently, the approach adopted herein is to review Malaysia's success retrospectively in order to understand Libya's challenges and its potential to follow a comparably successful path through port devolution.

By applying a matching framework at different points in time, this paper analyzes and explains the success of Malaysian container ports. It then aims to transfer that experience by predicting the best future 'fit' of environment, strategy and structure for Libya in order to fulfil its objectives for the nation's container port sector; to enhance performance and convert Libya into a regional container hub. This is achieved through a process of 'benchmarking' port devolution processes.

This paper begins with an overview of the matching framework theory, including a discussion of its pivotal components; environment, strategy and structure. It then provides a brief description of benchmarking and a justification for using the matching framework as the



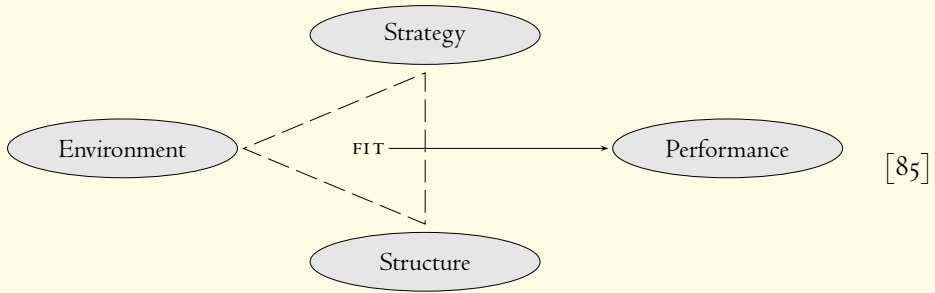


FIGURE 1 The matching framework

basis for benchmarking Libya's container port sector against that of Malaysia. The third section analyzes the main macroeconomic and port policies of the two countries, with specific attention paid to the port industry environment, strategy and structure. The matching framework analysis is conducted in the fourth section, with conclusions drawn and an agenda for further research outlined in the fifth section.

#### THEORETICAL BACKGROUND

Under the matching framework (Baltazar and Brooks 2001) illustrated in figure 1, the process which leads to the better performance of an organisation involves the facilitation of better or more appropriate matching between the characteristics of an organisation's environment, strategy and structure. The matching framework was developed from contingency theory, which itself has its roots in organisation theory and strategic management. The pivotal aspect of the theory underpinning the matching framework is the environment, in particular the operating environment, which has a direct impact on the organisation. The environment, as defined by Miles and Snow (1978), is not a homogeneous entity, but is composed of a complex combination of factors. Underlying theory calls for changes in organisational strategies and/or structure that are attributable to changes in the environment.

Connor, Lake and Stackman (2003) pointed out that there are two sources of change. External sources of change include those elements of the external environment identified by Daft (1992), namely: economic conditions, government, socio-cultural, international sector, in-

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dustry, raw materials, human resources, financial resources, market and technology. The internal sources of change include new knowledge learned, new goals and changes in organisational resources. However, Shrivastava (1994) argues that the environment of an organisation consists of the continually changing competitive marketplace operating within a global economy, and the factors mentioned above represent the forces which impact upon such an environment.

Uncertainty is the outcome of changes in the operating environment. Daft (1992) described the environment as being of low or high uncertainty. High uncertainty environments consist of a large number of dissimilar factors (complex); these factors change frequently and unpredictably. In contrast, with low uncertainty, these factors work in the opposite way. He further argued that environmental uncertainty represented an important contingency for an organisation's structure and internal behaviour. From an organisational theorist's point of view, adjusting the organisation's structure is the best tool for facing uncertainty.

In their seminal work, Burns and Stalker (1961) propose that a close functional relationship exists between the formal structure of an organization and its performance and that this is closely linked to the nature of the business environment in which it is operating. They conclude that dynamic and uncertain environments are best addressed by the adoption of an *organic* structure. This refers to a concept applied in contingency theory to describe an organizational structure that is characterised by a virtual absence of formal hierarchy where the emphasis is on horizontal, rather than vertical coordination, a lack of rigid procedures, very limited functional specialisation and only minimal specification of individual work roles. This form of structure is purported to rely on the power of individual personality and to promote communication and teamwork in the form of loosely-coupled networks of multi-talented individuals who each perform a variety of tasks. It is designed to promote flexibility so that employees can initiate change and adapt quickly to changing conditions (George 2005).

The organic structure lies in counterpoint to a *mechanistic* structure (Weber 1947), which is characterised by being highly centralised and stringently formal, with work distributed to highly specialised roles within a clearly defined hierarchy so as to induce employees to behave



predictably and with accountability. Because roles and routines are formally embedded within the organisation, there is a tendency towards the existence of functional silos. This, together with the fact that senior management is often separated from the dynamic reality of what is happening in the marketplace by multiple layers of bureaucratic hierarchy (Mintzberg 1978), means that this form of organisation structure does not respond quickly or well to environmental turbulence and is, therefore, best suited to more stable or certain environments (George 2005). In other words, this body of theory suggests that formalization decreases organizational adaptability to environmental changes (i.e. organizational agility), thereby increasing the risk of organizational failure. Most empirical studies investigating the validity of this theory (see, for example, Glisson and Martin 1980; Aiken, Bacharach, and French 1980; Covin and Slevin 1989) have supported the proposed inverse correlation between formalization and firm performance in dynamic environments, thus confirming that organizations in dynamic environments do indeed appear to perform better if their structures are more organic. However, the vast majority of these analyses have been based on samples of large and mature organizations and a question remains over whether the relationship is also upheld for smaller organizations in emergent markets (Sine, Mitsuhashi, and Kirsch 2006; Wally and Baum 1994).

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Strategic management has different views with respect to dealing with the environment. Porter (1980; 1985) argues that the organisation may alter its operational environment to cope with change; the organisation may choose, for example, a cost leadership strategy (which is an efficiency strategy) or differentiation (which is an effectiveness strategy). Miles and Snow (1978) argued that the organisation may choose between a defender and a prospector strategy; the former is an efficiency strategy, whilst the latter is innovation. The chosen approach represents a change in the strategy, rather than in the environment itself. However, even if changing the strategy is the solution to facing uncertainty, reengineering the organisation's structure is still necessary. Connor, Lake, and Stackman (2003), Shrivastava (1994), Dobson, Starkey, and Richards (2004), Rosen (1995), Miles and Snow (1978) and Miller (1986) all argue that changing strategy requires changes in the organisation's structure.

TABLE 1 The configuration of the matching framework

Organisation characteristics	Configuration 1	Configuration 2
Environment	Low uncertainty Low complexity and dynamism	High uncertainty High complexity and dynamism
Strategy	Efficiency-oriented Delivery of the basic product or services	Effectiveness-oriented Delivery of peripheral products and services
Structure	Mechanistic Centralised; standardization	Organics Decentralised; mutual adjustment

Adapted from Baltazar and Brooks (2001).

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The aforementioned theories yielded configuration theory, which was aimed at matching environment-strategy-structure in a way which affected or influenced performance. Quite simply, an uncertain environment needs an organic structure and an effectiveness strategy, while a stable environment requires a mechanistic structure and an efficiency-oriented strategy. In consequence, an alternative conceptualisation of the matching framework presented in figure 1 emerges as summarised in table 1.

One of the drivers for change in any given organisation is its operational environment. The seaport industry is no exception, especially since it operates in such a dynamic environment. This dynamism can be attributed to product globalisation, the growth of international trade and technological development in the shipping industry, in addition to inter- and intra-port competition. All of these factors are interrelated; trade growth has had an impact on the world container fleet, which has had an effect on the schedules of shipping lines, where ever-larger vessels have been deployed and more frequent services implemented (Cullinane and Khanna 2000; Notteboom and Winkelmanns 2001; Notteboom 2007).

The movement of containers by larger vessels in hub and spoke systems has secured economies of scale for shipping lines and shippers as the number of port calls in a given region is reduced (Cullinane and Khanna 1999). Thus, ports in the same region compete aggressively for the transshipment of cargoes and for the opportunity to act as a hub (Cullinane and Khanna 2000). Robinson (2002) points out that



ports need to consider themselves as elements within value-driven supply chains; providing value to different parties involved in the system. As such, they provide general logistics and value-added services and, inevitably, this involvement of different parties with different interests makes the port industry more complex. In particular, an important emergent contemporary trend lies with the extension of inland freight distribution to capture cargoes at source and, ergo, to enhance the competitive market positions of ports in the market (Notteboom and Rodrigue 2005). This, together with other recent phenomena, such as the globalisation and increasing concentration of both liner shipping and port industries, has necessitated the adoption of new approaches to port governance.

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The United Nations Conference on Trade and Development (UNCTAD 2007) states that a well-run and efficient port can attract transshipment and, therefore, does not have to depend on domestic supply and demand. Ng (2006) identifies several factors that play an important role in attracting shipping lines to use a port and, therefore, support efforts to establish the transshipment status of a port. These factors include monetary cost, time efficiency (which together make up what is referred to as the *generalised cost* of port calls), geographical location and quality of services offered. This latter factor relates specifically to the effectiveness of ports which, as stated by Brooks and Pallis (2008), leads to the enhanced competitiveness of ports. While enhancing productive efficiency remains an extremely important aspect of improving port operations (Cullinane, Ji, and Wang 2005; Cullinane et al. 2005; Wang and Cullinane 2006; Cullinane and Wang 2006) and a pivotal element of the wider concept of port effectiveness, the matching framework concept suggests that effectiveness-oriented strategies require organic structures to support them and that these are characterised by the flexibility and decentralisation of decision making, both of which can be achieved via the implementation of a policy of port devolution.

Devolution policy includes privatisation as a response to the dynamism of the external port environment and the attempt to ensure that a nation's ports secure a sustainable foothold in the market. The policy includes different approaches, which result in the creation of an

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organic structure; these approaches (decentralisation, corporatisation, commercialisation and privatisation) were all reviewed on the basis of international experience in Brooks and Cullinane (2007). The selection of an appropriate approach that would lead to net benefits in terms of port performance is subject to other factors, such as the major aims and objectives of the government or national port authority. These might include: solving port problems, modernising terminals, introducing new sources of investment, increasing efficiency, reducing port costs and expanding national trade. All or some of these factors have driven changes in port policy in many countries across the world. For instance, the UK government privatised ports primarily to reduce the financial burden on its shoulders (Baird 2000). In Latin America, sources of investment were the major objective behind the implementation of a devolution approach.

Under the matching framework (Baltazar and Brooks 2007), port performance is the outcome of the match or fit between an organisation's external operating environment and its strategies and structure. A better fit will yield better performance, and a poorer fit leads to unfavourable performance. Within the context of the port sector, performance relates to the achievement of government's goals, whatever those goals may be. The matching framework is useful for researchers exploring the performance implications of management decisions in areas which affect the framework variables (Baltazar and Brooks 2007).

If performance leads to success and benchmarking is understood as learning from those who have achieved a superior performance, in order to enhance an organisation's or country's performance, and to achieve a satisfactory level of performance, then the matching framework as applied in this paper might be understood as a fundamental tool for 'benchmarking' port devolution processes. The authors follow Camp (1989, 3), who defines benchmarking as a 'positive, proactive process to change operations in a structured fashion to achieve superior performance.' He states that the benefits of benchmarking 'are that functions are forced to investigate external industry best practices and incorporate those practices into their operation. This leads to profitable, high-asset utilisation businesses that meet customer needs and have a competitive advantage.'

Further, Harris (1995, 16) states that 'benchmarking is the art of





finding out – in a completely straightforward and open way – how others go about organizing and implementing the same things you do or that you plan to do. The idea is not simply to compare your efficiency with others but rather to find out what exact process, procedures, or technological applications produced better results. And when you find something better to use, copy it or even improve upon it still further.' In this respect, the objective of this paper is to benchmark the process that leads to the satisfactory performance of container ports, instead of benchmarking the performance itself, or the technical efficiency of the ports of the two countries. Therefore, the matching framework of Baltazar and Brooks (2001) will be applied in order to go beyond the comparison of technical efficiency in order to understand the processes (as expressed in terms of environment, strategy and structure) that lead to the desired level of port performance.

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UNDERSTANDING ENVIRONMENT, STRATEGY  
AND STRUCTURE IN MALAYSIA AND LIBYA

*Geographical Location*

Malaysia is located in South-East Asia and has a total area of 329,750 km<sup>2</sup> and a coastline of 4,675 km. The country can be divided into two parts. The first is the Malaysian Peninsula (formerly West Malaysia) on the Asian mainland, which is bordered on the north by Thailand, on the east by the South China Sea, on the south by the Strait of Johor, and on the west by the Strait of Malacca and the Andaman Sea. The second part is formed by the states of Sarawak and Sabah, known as East Malaysia, located on the island of Borneo and bordered by Brunei in the north, Indonesia in the east and south, and the South China Sea on the west. Its geographic location puts the country in a central position on the Malacca Strait and consequently represents only a minor deviation for ships transiting the principal East-West trade lanes. The strait is one of the world's most important sea lanes, with about 60,000 ships carrying half of the world's oil and more than one-third of the world's traded commodities, passing through every year (Zubir n.d.). Further, its location gives the country a strategic intermediate position for trade within and around the Indian Ocean and East Asia (see figure 2).

Libya is situated in the Mediterranean in the centre of the North

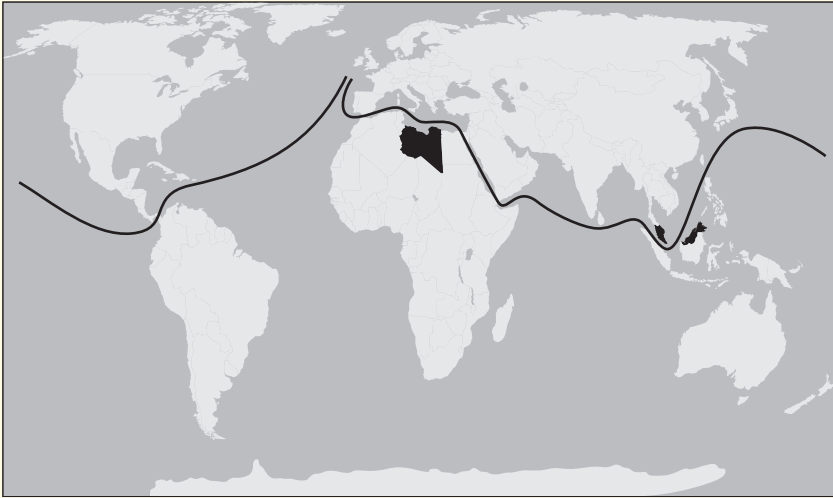


FIGURE 2 Libya and Malaysia with respect to the main shipping lanes

African coast. With an area of 1,759,540 sq km and a coastline of about 1,970 km, the neighbouring countries are: Egypt in the east, Sudan in the south-east, Chad and Niger in the south, Algeria in the west and Tunisia in the north-west (Otman and Karlberg 2007). The principal cities are Tripoli, (the capital of the country), Benghazi (the second largest city) and Misurata. The importance of Libya's location lies in the fact in it holds an intermediate position between Europe, Africa and Asia (Salama and Flanagan 2005). UNCTAD (2008) has pointed out that Libya, Tunisia, Somalia, Eritrea, Sudan and Yemen are the African countries least distant from principal international shipping lanes (see figure 2). Furthermore, Libya has the potential to act as a gateway to other African nations, particularly the landlocked countries to its south (Ghashat 2009).

*Macroeconomic and General Policies*

Malaysia

Malaysia is among the most successful economies in South-East Asia. Since the 1970s, it has successfully evolved from a reliance on the primary sector to being a multi-sector trading economy with particular strength in manufacturing. In 2009, its GDP per capita was \$14,700



(CIA 2009) and industry represented 43.7% of the country's total GDP (World Economic Forum 2009). GDP has grown consistently since the end of the 1970s when it stood at just below \$3,000 per capita (World Economic Forum 2009).

One of the principal reasons for the economic success achieved by Malaysia was the implementation of the New Economic Policy (NEP) introduced at the beginning of the 1970s. The main aims of this policy were the reduction of poverty and economic restructuring. In the middle of the 1970s, the country focussed on expanding its industry, and a series of development plans were implemented to achieve these goals. In the mid-1980s, the Malaysian government enforced a change in its general policy, in order to deal with the international recession which occurred. Thus, the country liberalised its economy, with a remarkable emphasis on privatisation. The new policy was implemented carefully and gradually (Ozman and Karlberg 2007). However, from the sixth Malaysian national plan, which lasted from 1990 to 1995, more attention was paid to manufacturing, and to facilitating trade and intermediary trade (Mak and Tai 2001).

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### Libya

Libya's economy relies heavily on the oil sector. Oil revenues, coupled with a small population, have provided Libya with one of the highest per capita GDPs in Africa and the Middle East. In 2009, it stood at \$14,400 (CIA 2009). The oil sector contributed to slightly more than 25% of total GDP between 2003 and 2007, whilst the contribution of the non-oil sector ranged between 72.3% and 76.5%. As a result of this dependence on the country's oil sector, GDP is affected by changes in the oil price (International Monetary Fund 2006). In general, Libya's GDP has witnessed a fairly constant increase, with some fluctuations around a mean rate of growth. In 2005, the rate of growth was 9.9%, and in 2008, it decreased to 3.8%. (International Monetary Fund 2007; World Food Programme 2009).

Libya has always been supportive of state-owned enterprises and civil service employment and has utilised oil sector revenue for this purpose. However, since the lifting of sanctions at the beginning of the twenty-first century that had been imposed on Libya by the United

TABLE 2 Key general indicators for Libya and Malaysia in 2008

Category	Libya	Malaysia
Population (millions)	6.3	27
GDP, 2008 (billions USD)	100.1	222.1
GDP per capita (USD)	14,400.0	14,700.0
Real GDP growth, 2008	3.8%	4.6%
GDP components	Agriculture 1.7%, industry 70.9%, services 27.4%	Agriculture 10.1%, industry 43.7%, services 46.3%
Major policies	Struggling to find alternative sources of income, Privatisation considered, Liberalisation of the economy and moving towards the market in an effort to benefit society.	Moved away from being a single source of income economy, the economy already liberalised, privatisation has been implemented successfully, society has already benefited

Adapted from CIA (2009), World Economic Forum (2008), International Monetary Fund (2007), Central Bank of Libya (2008) and Otman and Karlberg (2007).

Nations from the early 1990s, the economy of the country has witnessed remarkable growth (Otman and Karlberg 2007). The privatization programme announced in 2003 has contributed to this growth of the country's economy. The government has been preparing the nation for a move towards a market economy, and re-engaging the country in the global economy. At the current time, attention is being paid to developing and upgrading different specific industrial sectors, such as tourism and fishing, in order to diversify the economy away from the oil sector. A more equitable distribution of the country's wealth among its citizens is another main concern of the government.

### *Port Industry Overview*

#### Malaysia

The main container ports of the country are Port Klang, Port of Tanjung Pelepas (PTP) and Penang, which are located on the Malaysian Peninsula. Port Klang is the largest in the country and serves the industrialized region of the country. In 2005, the port was the 12th largest port in the world. The Port of Tanjung Pelepas (PTP) is the tranship-





FIGURE 3 The location of Malaysia's major ports

ment hub of the country and has been one of the fastest growing ports in the world since it started operations in 1999. Penang Port is the gateway to the northern region of the peninsula. It serves the Malaysia-Indonesia-Thailand triangle. The port is well connected by different modes of transportation. Johor Port handles a variety of cargos and has storage and logistics facilities. It has attracted major carriers such as Wan Hai, Evergreen and PIL. Kuantan Port and Kemaman serve the oil, chemical, gas and petrochemical industries. The focus of this paper is mainly on the major container ports of the country (Port Klang and PTP – see figure 3).

*External Environment.* The South-East Asia region has witnessed remarkable economic growth over recent decades. This has led to the region's current status of enhanced importance for the shipping industry and to the development of the region's ports. The ports in the region have not only expanded remarkably but, since they strategically connect the major economic blocks across the world, they are also competing intensely with each other to attract customers and to position themselves as transshipment hubs within the region.

The most important issue affecting Malaysia's external environment was the global crisis which occurred in 1985. This played an important role in prompting the strategy to alter the structure of the Malaysian economy from being based on agriculture, to one which now revolves around manufacturing and trading. This strategy required the readjustment and development of the country's transporta-

tion system, as well as other sectors which would play an important role in the country's economy. As an integral part of this initiative, Malaysian ports entered the competition for the regional market with the specific aim of serving the country's own trade and competing for transshipment traffic.

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*Strategy.* While Malaysia focussed both on building the state and on national integration in the 1980s, the country's trade depended mainly on the port of Singapore. At that time the port of Singapore was more efficient, and provided lower transactions costs, than any of the Malaysian ports. For the sixth national plan, which covered the period 1990–1995, more attention was paid to facilitating trade and intermediary trade (Fung and Lee 2007). As a consequence of this, the Malaysian government adopted a policy for the port sector aimed at capturing Malaysian cargo so that it would be served through the country's ports, instead of through the port of Singapore.

For achieving the core of the country's port strategy, the state aimed at converting Port Klang to a national load centre, and then a regional hub port and transshipment centre. This ambition was supported by the policies of the country, which were aimed at: (a) developing and expanding the facilities of the port; (b) utilising the existing port facilities; (c) improving the performance of the port and; (d) as a precursor to the port privatisation, initiatives would aim to develop and improve ancillary services, landside transportation and the computerisation of port operations.

The seventh Malaysian plan (1996–2000) involved enhancing the position of Port Klang as a national load centre and establishing free trade zones at the port. The most important aspect of port strategy was allowing foreign equity to be invested in dedicated terminal projects (Mak and Tai 2001). The overall strategy focussed on capturing local cargo and serving it through the country's ports, enhancing the competitive situation of the nation's ports by introducing skilled management and building internal capacity, and then competing with the ports of other nations within the region in attracting transshipment. In so doing, privatisation was adopted and foreign investors were attracted.

*Structure.* In 1986, all Malaysian ports were part of the public sector.



The first step in port devolution was privatising Port Klang. The port was selected as the first public enterprise to be privatised, as a test of the consequences of the government policy of privatisation (Ozman and Karlberg 2007). Four berths for container operations were awarded to Klang Container Terminal (KCT), a joint venture between the Port Klang Authority (PKA) and Konnas Terminal Kelang (KTK), with a 49% and 51% share respectively (Peters 1995; Khalid 2007). The new company leased the facilities for 21 years. The Malaysian government then sold 40% of KCT to the public in order to secure benefits for the public and protect it from privatisation (Peters 1995). After the sale, 20% of the company's shares were in the hands of PKA, 40% were with KTK, 5% were sold to KCT employees and the general public bought 35% of the total share capital.

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The second phase of devolution started in 1990 when an Act on port privatisation was introduced by the government. This action was taken in order to enhance the efficiency of the country's ports and solve the insufficiency of the country's port facilities, both of which were stemming any growth in throughput. About 30% of Malaysia's throughput was being diverted to the port of Singapore (Indran 1992). Facilitating further private sector participation in the port sector was aimed at introducing more equity capital to the sector and making the country's ports more competitive within the region (Malaysian Transport Minister, cited in Reyes 2001).

The third phase of port devolution began in 1994 when the new facilities on Pulau Lumut Island were devolved to Klang Multi Terminal Sdn Bhd (KMT), which is known as Westport (Phang 2000). After the 1990s witnessed the privatisation of Penang, Kuantan and Bintulu ports, the beginning of the 21st century witnessed an increasing participation of the private sector in the country's ports, coupled with a continuous increase in container throughput. The latter was particularly driven by the new involvement of major carriers in the Port of Tanjung Pelepas (PTP). In 2000, Maersk-Sealand bought a 30% share of PTP and a year later was joined by Evergreen, making the port the second largest transshipment port in the region (Lam and Yap 2008). Seven years later, the Malaysia Internal Shipping Company (MISC) signed a contract with Malaysian Mining Corporation (MMC), an investment

TABLE 3 Total container throughput at Malaysia's major ports (1986–2005)  
(million TEUS)

Port	1986	1991	1996	2001	2005
Port Klang	0.242	0.608	1.409	3.759	5.715
PfP	—	—	—	2.050	4.177

Adapted from Containerisation International (<http://www.ci-online.co.uk/>).

holding company that, in 2009, held 70% of PfP shares. It operates a container terminal at PfP and has become the port's third largest customer. In 2009, CMA-CGM became the fourth major customer at PfP (Anonymous 2009a). In addition to what has happened at PfP, other private sector companies hold a 30% stake in Port Klang (Hutchinson International), and manage the port's FTZ (the Dubai-based company, Jafza).

*Outcomes of port devolution.* Port devolution in Malaysia succeeded in enhancing Port Klang as a national load centre and consequently converting it and PfP into transshipment hubs (Khalid 2009). A sustained high level of growth in container throughput (see table 3) is due, in particular, to the development of dedicated terminals. In 2000, for instance, Maersk-Sealand shifted 2 million TEUS from Singapore to PfP and a year later Evergreen moved 1.2 million TEUS to PfP after signing a deal with the Malaysian port (Olivier 2005; UNCTAD, 2007). Both deals related largely to transshipment traffic. Based on Port Klang data, over 50% of the containers handled at the port between 2005 and 2008 were transshipment traffic, while Penang and Johor are the primary handlers for domestic trade.<sup>1</sup>

Privatisation led to increased investment in the port (augmented by government revenue) and improved efficiency in cargo handling (Galal et al. 1994; Agustin 1998). Table 4 shows the government's earnings from the three phases of privatisation of Port Klang. After the last phase, the productivity of the port had increased by 76%, employees' wages have increased by 78% and the quality of services has improved, a benefit felt by consumers. The new management has acted to enhance the quality of the labour force and improve skills. Haarmeyer and York (1993) and Galal et al. (1994) point to the fact that the general cost of the ports has been reduced by about half, the number of public-sector





TABLE 4 Payments received by the Malaysian government from privatising Port Klang

Year	New company	Method of devolution	Amount received by the government
1986	Klang Container Terminal	Sale, Lease of Assets	RM 111 million
1992	Klang Port Management	Sale, Lease of Assets	RM 361 million
1994	Klang Multi Terminal	Sale, Lease of Assets	RM 582 million*

\* The 1994 exchange rate was \$1 = RM 2.564 (see <http://wwp.greenwichmeantime.com/time-zone/asia/malaysia/currency.htm>). Adapted from Otman and Karlberg (2007).

container employees enlarged and the level of pensions has increased.

The role of the Malaysian government post-devolution has been limited to regulation. A regulatory body monitors private sector operations at the privatised ports to ensure they are conducted in a commercial manner. However, there was more than one regulatory body and each one had its own board of directors, headed by a chairman (Hand 2001; Khalid 2007).

### Libya

The National Planning Council (NPC) (2006) classifies the country's ports as either Major or Secondary and as any of Regional, Oil, Transit and Tourism ports. The principal ports relevant for the handling of containerized trade are: Benghazi, Misurata, Elkhoms and Tripoli (figure 4). Container throughput across all major Libyan ports did not exceed 300,000 TEUs in 2008 (Socialist Company Ports 2009).

*External Environment.* The Mediterranean basin is one of the most competitive port regions in the world, due to the fact that many ports are striving to attract high proportions of transshipment and to act as hubs for the east-west and north-south trade. The Mediterranean basin is segmented into three distinct regions, namely the Western, Central and Eastern (Zohil and Prijon 1999). The basin handled about 22 million TEUs a year in 2009. Several ports in the Mediterranean are operating as hubs, such as Algeciras, Valencia and Barcelona in the Western region, Gioia Tauro, Marsaxlokk and Taranto in the central region of the basin, and Piraeus, Izmir, Limassol, Damietta, Port Said



FIGURE 4 The location of Libya's major (●) and secondary (○) ports

and Alexandria in the Eastern region (Vassilopoulos 2004), the latter being in heavy competition with the ports in the central region.

Gouvernal, Debrie, and Slack (2005) state that the region has witnessed remarkable expansion and restructuring over the last decade. In recent years, more countries have sought to participate in the transshipment business. For example, Tunisia has reached the final stage of bidding for the building of a 5 million TEUS hub port at Enfida (Hailey 2009), and Algeria has given a concession to Dubai Ports World (DPW) to operate the container port of Tangier (Anonymous 2009b). These developments have contributed to the dynamic competitiveness of the Mediterranean container shipping environment.

Other factors influencing the environment include the political situation, the economic conditions and technological development. Salama and Flanagan (2005) and Ghashat (2009) have pointed to the fact that Libya is a stable country in terms of its political situation. The economic conditions, while still highly dependent on oil, exhibit constant growth rates, a slight expansion of trade (National Information Agency 2006) and an increasing contribution of the non-oil sector to GDP. At the same time, the Libyan government has engaged in strong efforts, particularly through a policy of privatisation, to lift the burden of providing financial support for public enterprises from its shoulders.

Libya is located in the triangle of existing hub ports in Egypt, Malta, Italy and the Western basin ports; the most competitive, central



part of the Mediterranean basin. The Libyan port sector has remained largely unchanged, in terms of infrastructure, management and operational structure, since the end of the 1970s. This lack of development has led to inefficiency and low productivity and the sector has been falling behind in comparison to those of other countries in the region. In consequence, the sector has become increasingly unable to cope with the growth in the country's economy (Ghashat 2009) and Libya now depends mainly on feeder vessels for serving the country's trade. As a result, its ports are not in direct competition for transshipment traffic with those in the rest of the region. Libyan ports have even lost some of their share of container traffic to neighbouring ports, largely due to the fact that the country's port sector is perceived as having low efficiency and is highly bureaucratic.

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*Strategy.* As part of its general transport policy, the government of Libya aims to maintain and enhance the ports' infra- and superstructure with the intention of increasing the country's overall port capacity. In order to speed up cargo handling processes and enhance efficiency, the government has become very much aware of the importance of equipping ports with the most modern and sophisticated equipment needed to handle unitised cargo. Providing the sector with such equipment has thus become one of its priorities. Providing storage areas inside the ports is also considered important (Annual Report of the General People Committee and its Secretariats 2008). Retaining existing customers and trying to encourage others to use the country's ports, reducing congestion and shortening the time ships spend in port (especially in fulfilling purely bureaucratic requirements) are top priorities of the Libyan Marine Transport and Port Authority (LMTPA).

A key objective of the government is to convert some of the country's major ports to hubs in the Mediterranean basin, competing with other ports in the region to attract transshipment cargoes, as well as meeting the needs of domestic trade. Although not part of any official policy document, the strategy for achieving this objective is clearly to focus only on the ports of Benghazi and Elkhoms as selected candidates for this role. Benghazi port has been selected as a point of transit to serve the cargoes of landlocked African countries. The basis is a Memorandum of Understanding between Chad and Libya (8 Au-

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gust 2009) for the use of Chad's imports and exports. The port has already been used by the World Food Programme (WFP) as a corridor for providing aid for Darfur's refugees via Chad in 2004 (World Food Programme 2004; 2005; 2009). This fundamental function for the port would help greatly in attracting transshipment traffic to Libya's ports.

*Structure.* In 1985, the Socialist Port Company (SPC) was established under law no. 21/1985. The company was established as a 100% government entity, becoming responsible for all the activities and services which were provided by the ports it operated (Ghashat 2009). It also had responsibility for providing the infra- and superstructure needed for operating and managing the sector and acted as the owner of the sector. It tended to contract out some of the sector's functions; for example, the SPC sometimes contracted out the stevedoring function to other companies, such as the Germa Shipping Company.

In 2006, the ownership, management and operational responsibility of Misurata Port was transferred from the SPC to an autonomous new entity, the Misurata Free Trade Zone (the MFTZ), under resolution no. 33/2006 of the General People Committee (the Prime Ministry). In the same year, the General People Committee (the Prime Ministry) issued resolution no. 280/2006, appointing and authorising a General Manager for all Libyan ports except Misurata to supervise most of the regulatory functions of the port in a reporting line to the LMTPA. Having previously managed the sector, the SPC were delegated with the responsibility over solely operational functions. Since the role of the LMTPA was still not fully understood at that time, there were notable conflicts between the duties of the LMTPA and the SPC.

In 2008, the role of the LMTPA (the Port Authority) was activated and empowered. In consequence, it gained more autonomy (but was not fully autonomous) and greater financial flexibility,<sup>2</sup> the sector became more organised and the functions of the sector were demarcated and distributed more clearly between the different entities involved with it. Since 2008, therefore, the role of the SPC has been limited to the operator function, although even some of its operator function has since been transferred to the LMTPA. Despite the activation of the LMTPA role, there remains a significant involvement on the part of the national government.



Although this structure represents the situation for almost all Libyan commercial ports, the port of Misurata is an exceptional case. As mentioned briefly above, the MFTZ became responsible for all functions related to the port (regulator, landlord and operator) in 2006. However, the duty of port state control is still conducted by the LMTPA. The new entity has already leased out one bulk terminal to a foreign cement company; the company became responsible for operating the terminal without making any changes or adding to the infrastructure and/or the superstructure. Such actions illustrate the new autonomy of the MFTZ, especially as this was implemented without any requirement for national approval.

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Up until now, there has been no private sector involvement in the rest of the country's ports, except for inland transportation where the trucks which are used to move cargoes to and from the ports belong to private companies. Some shipping agents own storage areas outside the ports, but such ownership is not common.<sup>3</sup> It is worth noting that the rest of the country's ports are still highly centralised, and suffer from bureaucracy.

Based on a survey conducted by one of the authors in a separate study, the sector in general is still underperforming in terms of capacity utilisation, responsiveness to customer demands and time efficiency. Further, despite the sector's income, it is still supported by the government, especially in respect of major rehabilitation and investment activities.

#### APPLYING THE MATCHING FRAMEWORK

The starting point for undertaking a Matching Framework analysis is the environment. Therefore, an analysis of the environments of the two countries at three different points in time will be instigated. The matching framework is applied to try to determine the effects of a changing environment on the strategy and operational management structure of the port. The Malaysian Port sector environment changed over about 30 years (between the beginning of the 1980s and the middle of the 2000s) as the result of changes in government strategy and policy. Baltazar and Brooks (2001) classify the environment as exhibiting 'low uncertainty' and 'high uncertainty,' while Sanchez and

Wilmsmeier (2007) use 'more uncertain' or 'less uncertain.' For the purposes of this paper, the environmental conditions are referred to as 'stable,' 'uncertain' and 'more uncertain,' since this better describes the Libyan and Malaysian cases at different points in time.

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As can be seen from table 5, the three configurations are developed for both Libya and Malaysia, equating to each of the time periods under scrutiny. The first configuration of the Malaysian case covered the period before 1986, when the port sector was centralised and did not interact with the external environment. As previously mentioned, Malaysian trade was served by the port of Singapore. The Libyan port situation exhibited the same characteristics until 1999, as the sector was isolated from the external world and unresponsive to the external environment because of the United Nations sanctions imposed at the end of the 1980s. During this period, development plans for the ports were stopped and, in consequence, the sector became unable to cope with the changes which occurred in the external environment. This led to many shipping lines changing their port of call to neighbouring ports in order to avoid the low efficiency of the sector that resulted from a shortage in equipment and bureaucratic procedures. Subsequently, a portion of Libyan trade was served by the ports of neighbouring countries (Ghashat 2009). The extent to which the operating environment impacts upon an organisation represents the degree of uncertainty. Therefore, it can be said that, during the first configuration of both countries, the environment was stable, as nothing was affected within the port and there was no interaction with the external environment. Therefore, it can be said that for both countries the sector was essentially a closed system.

In order to respond to the international recession, between 1986 and the mid-1990s, the strategy of the Malaysian government changed. At the beginning of the 1980s, the government believed that the centralised system did not work and, thus, attempted to develop the system into a free market economy, with the first attempt at privatisation seen within the Port Klang Container Terminal.

In the second configuration, the Malaysian port environment changes slightly, and moves from being 'stable' to being 'uncertain,' as the sector tries to serve all of the country's trade and cope with



TABLE 5 Benchmarking the situation of Libya's port sector against Malaysia's case: Applying the matching framework configuration

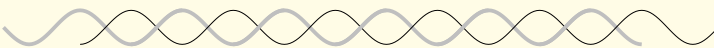
Characteristics	Malaysia		Libya	
	Before 1986	1986-mid 1990s	Mid 1990s onward	Before 1990s 1999-2009
Environment	Stable; the sector did not interact with the external environment	Uncertain; the sector opened the market	More uncertain; the completion was considered, thus the situation became more complex and dynamic	Stable; did not interact with the task environment Uncertain, response very slow to the task environment More uncertain, the government tends to open the port to international competition, and entering new market; working as hub and gateway
Strategy	Efficiency; providing a basic services	Efficiency	Effectiveness; customer satisfaction proposed to attract new one	Efficiency; improved, but the customer still not satisfied Efficiency; provide basic services but under perform Effectiveness; attracting new customers
Structure	Mechanistic, centralised	Mechanistic/organic; privatisation introduced but gradually and the government still controls the sector effectively	Organic; the sector becomes highly decentralised, dedicated terminals existed; private entity the main players	Mechanistic; highly centralised and not organised more organised Nothing decided, but based on section 3 and Malaysian experience the structure should be organic

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developments in the shipping industry. The system was moved from being centrally supported and isolated from the international market (not even competing for local cargo), to being one that was subject to market forces. The actions taken fell within the broad policy of reforming the country's economy. However, as discussed above, there were three steps to privatisation; the second step took place in 1992, and was aimed at enhancing the situation at the port. After that, the policy of 1993 was aimed at helping the port become a national load centre, with the final step taken in 1994.

This era witnessed a great change in government policy that had a resounding impact on the environment within which the sector worked; Port Klang emerged as a serious competitor for Malaysian trade that used to be served exclusively by Singapore. With greater private sector involvement, ports began to operate in a commercial manner, with the development of port facilities responding, for the first time, to the possibilities offered by technological development. Thus, the sector gave in to market forces and the environment moved from being stable to uncertain. The government still retained some control, however, as the structure was hybrid; a combination of mechanistic and organic.

In the Libyan case, the second configuration relates to the time since 1999. United Nations sanctions were lifted and the country tried to reposition itself in the international economy. Development plans resumed, and reforming the country's economy became a priority. In order to enhance its performance, many public sector enterprises were privatised, and the economy of the country has since witnessed remarkable growth. Within the port sector, a number of changes have occurred. This includes re-organising the sector through the activation of the port authority role. The sector faces challenges from continuously increasing trade volumes and container throughput. Modernising the sector is seriously considered to help the sector cope with the developments occurring in the market, and the most important thing which happened in this era (1999–2009) was the establishment of the Misurata free trade zone, when the Misurata port became totally under the control of the new entity, leading to intra-port competition. Thus, in an uncertain environment the efficiency-oriented strat-





egy continued to focus on local cargo, despite its low level of success. The mechanistic and centralised structure also inhibited much-needed improvement of port infra- and superstructure, as well as prevented a greater involvement of the private sector. Consequently, Libya has not been able to create a configuration that results in a successful fit. One result is the falling behind of port development and not being able to claim a significant role in its region's port system due to the sector's lack of competitiveness; which stands in significant contrast to the development in Malaysia.

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The third configuration covers the period from the mid-1990s to 2010 for the Malaysian case and equates to the anticipated, and hoped for, future in the case of Libyan ports. The environment can be described as 'more uncertain' in comparison to the previous period. An effectiveness-oriented strategy is of high relevance for maintaining and developing a role in the transshipment market as it requires providing a high level of customer satisfaction. Following the matching framework theory, a 'more uncertain' environment, in tandem with an effectiveness strategy, requires an organic structure. Since the mid-1990s, Malaysia has faced up to competition by allowing foreign equity to participate in dedicated terminals within its container port sector. This represented a remarkable change in the structure, which has facilitated the success of the country's container port sector in competing for, and winning, the right to serve the nation's domestic trade, as well as transshipment cargo.

#### CONCLUSIONS AND RECOMMENDATIONS

Baltazar and Brooks (2001) and Sanchez and Wilmsmeier (2007) explained the outcomes of devolution policy by applying the matching framework. The matching framework applied in this paper has compared the situation of two comparable countries. This was done in terms of the macro and micro environment, in order to understand the processes that led to the satisfactory performance of Malaysian container ports and to provide policy suggestions for the future of Libya's container port sector, particularly its operational and management structure within the context of emerging changes to government strategy and objectives.

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The lessons learned from Malaysia are that port devolution within the context of the 'right' fit can facilitate the development of a nation's port sector from being an 'underdog' within the regional port system to becoming a competitive player. However, the required political will and the length of such a process should not be underestimated. Malaysia recognised the competition facing its port sector within the regional environment in which it operated. It took the dramatic decision to allow foreign equity to participate in dedicated terminals within its container port sector, thus bringing about a fundamental change in the structure of the sector. Not only did the sector prove successful in competing for the country's domestic trade, it was also able to win regional transshipment traffic from Singapore, particularly after it established the new port of PTP in 1999. Most terminals at PTP are dedicated terminals, which helps the country compete aggressively with traditional competitors in the region. Maersk-Sealand and Evergreen, have been attracted to use PTP, rather than Singapore, as their strategic transshipment hub in the region. The attraction of these transshipment volumes has helped Malaysia position itself as a hub nation in the region, with both PTP and Port Klang ranked amongst the top 20 container ports in the world.

The country dealt with the required changes in its strategy by applying an organic structure; within the context of the matching framework theory, the strategy of the Malaysian government led to changes in the structure of its port sector from being a hybrid mechanistic/organic structure to one which was almost totally organic, as characterised by flexibility and decentralised governance. A number of different approaches to devolution were applied. These included adopting two methods of privatisation; (1) a joint venture between the Kelang Port Authority and the Konnas Terminal Kelang bringing a new company into existence, namely the Kelang Container Terminal (KCT), with 35% of the company's shares sold to the public and 5% sold to KCT employees to ensure benefits for all of the stakeholders and; (2) a BOT concession arrangement which has emerged as the most important of the two approaches, since this has helped the country to convert PTP into one of the main transshipment centres in the region.



Malaysia has achieved a very satisfactory outcome from the devolution of its port sector. This includes *inter alia*: in the initial stages, reducing the financial burden of modernising the port, which would otherwise have been placed upon the government; an increase in the profits from the port, expanding the ownership of the employees and general public, serving the whole trade of the country; and in the second phase, helping the country enhance the competitiveness of its port sector and attract transshipment traffic from significant competitor ports within the region.

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By analysing the third configuration of the Malaysian case, it can be deduced that the implementation of devolution policy has been driven by changing government policy and the pursuit of more strategic goals; this confirmed that the 'fit' should be between *goals, environment, structure and operational strategy*. The goals and policy of the government have altered the operational structure of the sector and opened it up to an environment which is already highly dynamic. One of the principal success factors in the case of Malaysia was its ability to convert to an organic structure and achieve a high degree of 'fit' that effectively drove the effectiveness-orientated government strategy. The latter involved the attraction of highly efficient port operators, who were able to compete successfully in an increasingly uncertain environment.

Libya aims to rehabilitate and modernise its port sector, so that it serves the whole country's domestic trade and allows it to develop its ports as hubs within the Mediterranean region. This is almost precisely the same objective as Malaysia had for its port sector prior to the implementation of its policy of port devolution. By applying the matching framework over different timescales, this paper has shown that Malaysia responded to uncertainty by adopting an effectiveness-oriented strategy and organic structure. This has evolved from an initial offering of shares to employees and the public and, more latterly, has culminated in the offering of dedicated terminals to shipping lines; a development trend that has contributed significantly to the country emerging as a hub in the region. There is a significant emergent body of opinion and lobbying which suggests that Libya should do the same in order to achieve its objectives for the future. The question that remains is: what is the right 'fit' for the case of Libya? Within a given

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environment, the answer centres on the ‘right’ structure and strategy to successfully work towards achieving the objectives set by the Libyan government. As we have seen from the matching framework analysis, Libya was not able to sufficiently adjust its strategy when the environment changed from stable to uncertain, and a certain redundancy and lack of flexibility can be observed in its structure. Since the government has recognised that it needs to change its operational strategy, the lessons learned from the Malaysian case also indicate the importance of allowing or facilitating a change towards a more organic structure.

The current governance structure will not work anymore; there is a lack of ‘fit’ between the highly mechanistic structure which currently exists and the increasingly dynamic regional environment within which Libyan ports operate. The sector is currently controlled by corporatized entities that report to central government. In order to deal with the dynamism of the port sector’s operational environment and recent fundamental changes in government objectives and strategies, the governance structure of Libya’s ports needs to be more decentralised in a way that allows for fast and reliable decisions that avoid bureaucracy. However, bureaucracy is not the only problem at Libyan ports; they also need to be developed to cope with the ambitions of the State and the dynamism of their operating environment.

International experience in general (Brooks and Cullinane 2007), and in Malaysia in particular, shows that the introduction of the private sector to ports has yielded a satisfactory outcome. However, the private sector can be introduced through different means, each of which would serve a specific purpose. With Libyan objectives and financial capability in mind, privatising the port operational function would appear to be the most desirable initial solution, preferably through some form of concession arrangement with either global terminal operating companies or with shipping lines that are seeking to establish dedicated terminals within the region. The terms and conditions under which such concessions may be agreed are obviously subject to negotiation, but would be influenced by factors such as availability of funding for infrastructure investment, port and terminal infrastructure development programmes and an assessment of the risks



associated with future fluctuations in currency and interest rate parities, as well as country/political risk.

It would inevitably be the case that the first one or few concessions would be perceived as risky ventures by prospective bidders. As such, the level of concession fee payable will need to be relatively low in order to attract global players into the market and until the future returns from such ventures are known with greater certainty. Thus, the Libyan government will not only need to instigate the required legislation in order to facilitate the privatisation of the port sector on such a basis, it would also have to be prepared to continue to finance infrastructure development (but at a higher level than currently if operations are to be successfully privatised) and, to some extent, even possibly subsidise the operational function, at least over the duration of the first concession or until some efficiency or throughput threshold has been attained. Initial costs associated with privatisation will be high, therefore. However, if the Malaysian experience is anything to go by, the privatisation of container terminals on a concession basis could help Libya to convert one or more of its ports to the status of regional hub (through the development of organic structures within port organisations) and increase sector efficiency and throughput across the board. This will allow the country to utilise its own ports for trade facilitation, reduce the costs of trade and, therefore, help to enhance national competitiveness. In the longer-term, this will lead to enhanced socio-economic welfare within the country and, possibly, greater employment within the sector following on from the short-term cuts that will inevitably arise.

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In summary, the matching framework has provided a guide for the most appropriate policy direction that should be followed. However, further research is required to deal with a number of specific questions: (1) Is the Libyan institutional environment mature enough to accommodate such change? (2) What is the nature of private sector involvement that would lead to the most benefit? (This question arises because this paper shows that devolving some of the port functions to the private sector would be a workable solution; however the possible form this may take is variable.) and; (3) Beyond government objectives, would the selected approach lead to a balance between interests? In

other words, what is the most effective governance structure for leading to a balancing of stakeholders' interests (Daft 1992)?

NOTES

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- 1 For more details see [http://www.portsworld.com/news/pw1jan21\\_08.htm](http://www.portsworld.com/news/pw1jan21_08.htm).
- 2 For further details regarding the Maritime Transport & Port Authority, see resolution no. 81/2008 of the General People Committee, available at <http://www.gpc.gov.ly/myfiles/2008/pdf/decision/81-1.pdf>.
- 3 The information provided is based on the interviews and survey conducted by one of the authors during October 2009.

ACKNOWLEDGMENTS

The authors are grateful to an anonymous referee and the editors of the Special Issue for helpful comments on an earlier draft of the paper.

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