The Governance of Libyan Ports: Determining a Framework for Successful Devolution

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Abstract

Following a period of isolation, and particularly since the lifting of sanctions imposed by the United Nations at the beginning of the 1990s in 2003, Libya's economy has witnessed a remarkable growth with a corresponding increase in external trade. The country's economic policy has changed and become more liberalised; involving a move towards a market economy, an increase in the participation of the private sector in all economic activities, and diversification of the sources of national income. At the port sector level Libya aims to rehabilitate and modernise the container port sector, in order to cope with the technological development that has occurred in the global shipping and port industry. The future of the sector will also involve moving beyond serving the local trade; there is a desire to convert one or more of country's ports into a hub in the Mediterranean region, and as a gateway serving the trade of landlocked countries.

Many researchers have suggested that to handle changes in the operational environments at the ports the structure of the port should be an organic one in order to secure port responsiveness. Organic structure can be achieved via implementation of a devolution policy, and over the past two decades, devolution of port governance has proved to be one way of enhancing the efficiency of ports and of handling port authorities/governments strategy shifts. Furthermore; thus far changes in governance structure, via the implementation of devolution policy, have assisted in resolving port problems, which include physical, management and administration. This research contributes significantly to the literature in the field of ports' studies; offering the policy makers of Libya with a guide for the best way to govern the port sector in Libya and outlining the steps that need to be followed to achieve this.

To achieve this, the thesis reviews the policy of port devolution, and the current situation within Libya's port industry in detail; discussing the challenges' facing the Libyan port sector (container and general cargo ports). Empirically, the necessity for the devolution of Libya's ports is examined with a matching framework analysis and this is further demonstrated via a stakeholders' attitudinal survey, including suggestions for the best future governance structure and the expected impact of adopting a devolution policy. The findings are validated using a Delphi survey; the technique was utilised to deduce the critical determinants for the successful implementation of a port devolution policy in Libya.

The findings reveal that in order to help the sector to survive in the existing competitive environment, the technical performance of Libya's ports needs to be improved. A fundamental change to the governance structure of the sector is perceived as a top priority for enhancing its performance; the results confirm that the allocation of responsibility for port functions does not fall neatly into the categories proposed in the widely-accepted port privatisation matrix, and is instead subject to different factors, e.g. the country's financial capabilities. A further contribution is that stakeholder interests were used as a basis for measuring the performance of the new governance structure.

The analysis indicates that changes in port governance structure are widely expected to have a positive impact, leading to benefits for the majority of port stakeholders. However, the success of the devolution policy was found to be determined by factors beyond the selection of an appropriate governance structure and stakeholder satisfaction; some of the success factors identified relate to the institutional environment of the port sector. By combining the findings of the primary surveys with the literature, a systematic integrated vision for the success of port devolution in Libya is proposed.

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Declaration

I declare that this thesis for the degree of Doctorate of Philosophy of The Governance of Libyan Ports: Determining a Framework for Successful Devolution is my own work, and that material adapted from other sources have been fully and specifically acknowledged. The thesis has not been submitted to the Edinburgh Napier University or any other University.

Hesham M Ghashat .....

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List of Abbreviations

ABP	Associated British Ports
BLO	Build-Lease-Operate
BOO	Built Own Operate
BOT	Built Operate Transfer
BOST	Build-Operate-Share-Transfer
BROT	Built Rehabilitate Operate Transfer
BTDB	British Transport Docks Boar
CBL	Central Bank of Libya
ESDFC	Economic and Social Development Fund Company
FDI	Foreign Direct Investment
FTZ	Free Trade Zone
GDP	Gross Domestic Products
GFPL	General Foundation for Ports and Lighthouses
GNMTCo	General National Maritime Transport Company
GOC	Government-Owned Company
IMF	International Monetary Found
IPO	Initial Public Offering
JV	Joint Venture
KCT	Kelang Container Terminal
KMT	Kelang Multi Terminal Sdn. Bhd
Km	Kilometre
KTK	Konnas Terminal Kelang
KPM	Klang Port Management
LNIA	Libyan National Information Agency
LMTPA	Libyan Maritime Transport and Ports Authority
LYD	Libyan Dinar
m	Metter
m^2	square Metter
m. t.	Million Tons
MEBO	Management/Employee Buy-Out
MFTZ	Misurata Free Trade Zone
MPA	Maritime and Port Authority
n. a.	Not Available
NDLS	National Dock Labour Scheme
NPC	National Planning Council
OBG	Oxford Business Group
PKA	Port Kelang Authority
PPD	Public Property Department
PSA	Port of Singapore Authority
PTP	Port of Tanjung Pelpas
ROT	Rehabilitate Operate Transfer
SPC	Socialist Port Company
SOEs	State Owen Enterprises
TCGPC	General People Committee for Transport and Communication
TEUs	Twenty-foot equivalent unit
UK	United Kingdom
UNCTAD	United Nation Conference on Trade and Development
WBPRTK	World Bank Port Reform Toolkit

WFB	World Fact Book
$ USD	United States Dollars

Papers and Activities

Refereed Journal:

Published

- Ghashat, H., Cullinane, K., and Wilmsmeier, G. (2011) Identifying the right fit: what can Libya learn from port devolution in Malaysia. International Journal of Euro Mediterranean Studies, 4 (1), pp 85 – 120

In process

- Ghashat, H and Cullinane, K. (In process) Port devolution in Libya: Identifying a roadmap for success. Journal of Governance

Refereed Conference Proceeding:

- Ghashat, H and Cullinane, K. (2011) The future governance structure of Libya's ports: A survey of stakeholders' attitudes. Paper presented at the annual Conference of the International Association of Maritime Economists (IAME) Santiago, Chile 25-28 October 2011.
- Ghashat, H. (2009) Devolution of Libya's ports governance: reasons and challenges. Paper presented at the Seventh International Conference of the World Association for Sustainable Development (WASD), Bahrain, 9 - 11 November 2009.

Non- Refereed Conference Proceeding:

- Ghashat, H. & Cullinane, K.P.B. (2010). Port Devolution, Reasons, Approaches and Implications. Paper presented at the First International Symposium on marine ports investment and coastal defense, Tartous, 28-30 April 2010.

Attendance at conference and seminars:

External

- "9th Annual CILT Young Professionals Transport and Logistics Conference", Organised by Chartered Institute of Logistic and Transport, Edinburgh, 02 June 2011
- "Forum on Maritime Transport Education & Training", Organised jointly by the Institute of Chartered Shipbrokers (ICS) and Transport Research Institute (TRI), Edinburgh, 02 March 2011
- "Workshop for Container Shipping Lines on: TECHNICAL AND ECONOMIC ANALYSIS OF THE FLOATING CONTAINER TRANSHIPMENT TERMINAL (FCTT)", Organised by StratMoS Project Partners in collaboration with Gottwald Cranes GmbH, Edinburgh, 02 March 2011

- "First International Dry port conference", Organised by SEStran and the Transport Research Institute (TRI), Edinburgh, 21-22 October 2010.

Internal

- Participate and attended the serial seminars organised by School of Engineering and Built Environment of Edinburgh Napier University

- Papers presented at Faculty of Engineering, Computing and Creative Industries (FECCI) annual PhD conference, in 2011 awarded the prize for 2nd best 3rd year paper

Chapter One

Introduction

1.1 Background

Seaports play an important role in international trade and are also central to fostering a marine nations' economy. Landlocked countries would benefit from the seaports of their neighbouring marine nations. In addition, ports can be considered as major economic stakeholders determining a nation's prosperity. An efficient port will help to reduce the costs of seaborne trade and play a key role in the economic development of the port and the region and country in which it is located.

The seaport industry is dynamic in nature; this dynamism results from different factors but particularly the dynamism of the operating environment, as characterised by the globalisation of the international economy and trade, recent technological developments in the port and shipping industries and increased competition between ports. In addition there has been a change in the role of ports, from being simple interfaces between sea and land to becoming components in a chain carrying out multiple activities. Other factors increasing the dynamism are changes in government/port authority strategies and objectives.

To address such dynamism governments and port authorities across the world have tended to change the governance structure of their ports via the implementation of devolution policies allowing the participation of the private sector in some of the port's functions. However, there are variations in the governance structure of ports that have resulted from the implementation of assorted policies (decentralisation, corporatisation, commercialisation and privatisation), as discussed within the context of international experience in the book edited by Brooks and Cullinane (2007). Nevertheless, there is no clear guidance to follow regarding the selection of an appropriate governance structure.

Most of the changes that have occurred have been driven by the belief that reforming the port structure will lead to higher levels of efficiency, increases in productivity and the resolution of problems experienced at ports such as low levels of efficiency and productivity which have led to the high port prices and poor services, that plague public

ports and which are contributed to by the excessive bureaucracy and the inflexibility of public port management (Beth, 1985; Eyre, 1992; Nagorski, 1972).

Up to June 2011, Libya's ports sector was administered and operated in a highly centralised fashion with all port functions (landlord, regulatory and operations) in the hands of public entities that report to the central government. The landlord and regulatory functions come under the control of the Libyan Marine Transport and Port Authority (LMTPA), whilst the operational activities at all the country's general cargo and container ports are managed by the Socialist Port Company (SPC); a government owned company (GOC) that takes the form of a corporation. The Port of Misurata is operated by Misurata Free Trade Zone (MFTZ) and is a GOC.

The port sector of Libya has been unable to cope with international developments within the sector and, currently, Libyan ports are characterised by low efficiency, low productivity and high levels of bureaucracy (Ghashat, 2009 and Ghashat et al , 2010). In addition there is a lack of adequate superstructure (mainly in the form of the required equipment for handling containers) (O.B.G, 2009), which causes Libya's ports to be unable to cope with the changes that are happening in the global market. Libya functions within the global environment and so is certainly affected by the dynamism in the operational environment. Therefore, Libyan ports need to interact with this dynamic operational environment in order to secure a satisfactory competitive position .

Following a period of isolation, and particularly since the lifting of sanctions imposed by the United Nations at the beginning of the 1990s from 2003, Libya's economy has witnessed remarkable growth with a corresponding increase in external trade. This has added an extra burden to the country's ports especially as the Libyan ports are characterised by low efficiency, low productivity and high levels of bureaucracy. The country's economic policy has changed and become more liberalised, involving moving towards a market economy, increasing the participation of the private sector in all economic activities except in the port sector and diversifying the sources of national income (Ghashat, 2009).

Libya aims to rehabilitate and modernise the container port sector, in order to cope with the technological development that has happened in the global shipping and port industries. Increasing the productivity of the sector is another goal of the government (Ghashat, 2010). This involves looking beyond serving just local trade, with the aim of

converting one or more of the country's ports into a hub in the Mediterranean region, to serve as a gateway assisting also in the trade of landlocked countries. All of these factors have made the operational environment at the country's container ports more dynamic and unstable (Ghashat, 2009).

Despite the setting of aims and objectives, so far there is no clear or documented policy for achieving them or, in other words for determining what adjustment policies the country should adopt in order to help support the objectives that are sought . However, despite the fact that there is a significant emergent body of opinion and lobbying which suggests that Libya should alter the country's port governance structure in order to achieve its future goals, there are no existing studies that would either support or negate such an opinion, and none that have examined the suitability of the current governance structure for achieving these ambitions.

1.2 Aims and Objectives

In the context detailed above, this research analyses the potential for a policy of port devolution in Libya, the possible approaches to it and the assorted governance structure that might result from the implementation of the policy. In addition, the analysis of the likely impact and implications of the policy approaches will be founded on previous relevant international experience.

The current situation in Libya's container ports will be analysed and framed to provide a unique academic piece of research work looking at the Libyan port sector (container and general cargo ports) in terms of an analysis of its operation and management structure, and the operational strategies and consequent challenges' facing the sector. Within this thesis, the researcher intends to address the following questions:

Question 1*: *Is there any need for the implementation of a devolution policy at Libya's container and general cargo ports?

Question 2: What is the most effective approach for governing Libya's container ports in the future?

Question 3: What are the expected outcomes of the implementation of the devolution policy?

Question 4: What are the critical factors for the successful and effective implementation of the devolution approach?

By answering the above questions, the following objectives would be achieved:

- Confirm or reject the necessity of applying devolution policy as a means of dealing with different issues (dynamism in the operational environment, solving port problems and dealing with changes in the strategic objectives).

- Determining the importance of the private sector involvement in the container port industry, identifying the extent of such involvement and selecting the most effective governance structure. In addition, this will involve highlighting those factors that play a crucial role in the selection of the governance structure.

- Measuring the outcomes of any new governance that would be proposed and indicating the benefits and costs of the new management structure (if any was proposed).

- The research will address one of the gaps in the literature relating to port devolution, as one of the most important goals is identify a road map for the success of port devolution.

1.3 Methodology of the research

In order to accomplish the research and achieve the stated objectives, this research applies a triangulation approach. The three chief methods employed were in-depth interviews, a stakeholder survey and a Delphi survey. This approach has been adopted for the purpose of enhancing the validity of the research findings. The following methods of data collection are used within the research:

In-depth interviews: The interviews were conducted by the researcher in October 2009. The information gathered via the interviews was assessed with a **matching framework analysis,** and this has helped considerably in shaping the nature of the stakeholder survey because a clear picture of the future objectives of the sector was obtained. The interviews targeted representatives from the LMTPA (Libyan Maritime Transport and Port Authority) and the SPC (Socialist Port Company), in addition to some shipping experts in Libya (e.g. the Port of Misurata deputy manager).

Stakeholder survey (questionnaire): The main **aims** of the stakeholders' survey were to investigate stakeholder attitudes towards a changing of the governance structure of the country's container ports, and the potential impact of such changes. The survey targeted the entire population (**a census survey**) of the ports' key stakeholders; mainly those affected and those that would affect the governance structure of the port.

Delphi Survey: the technique was developed for two purposes: **Firstly**, in order to validate the findings from the previously discussed methods used in this research. **Secondly**, to investigate expert opinions regarding what criteria make the implementation of the devolution policy successful. In order to assure the effectiveness of the technique, the stages were constructed based on the literature and the findings of previous research methods and analyses applied in this research. Furthermore, literature from other industries was reviewed, in order to determine and investigate the factors and/or processes that played an important role in the successful changing of the governance structure.

1.4 Scope and validity

As illustrated by the above discussion, this research concerns the future governance structure of the Libyan ports sector and involves identifying the best method for managing and operating ports in order to survive in an aggressive and competitive environment. Therefore, despite the current crisis facing Libya the results of this research are still necessary and important for determining the best future for Libya's ports in particular and for the prosperity of the country's economy and the nation in general. Indeed, there are many different reasons why the validity of this research is not undermined by the current crisis in Libya:

- The port industry would never be disregarded following any change to the country's governance system or regime. Libya's ports will continue to exist and the need to operate them in a manner fitting with the scope, requirements and demands of the global market will continue. In fact, this will be even more so the case in the immediate future as Libya seeks to recover from the economic damage which the nation has suffered during the current crisis. Libya's ports will have a critical role to play in its economic recovery.

- Regardless of the nature of the country's future governance structure, state officials will need to know the most relevant information with regards to

governing the country's port sector. This will be for the benefit of both the sector and its stakeholders, notably the nation.

- In terms of the data collected within this study, the forecasting process was built on the evaluations provided by sector stakeholders and on the basis of expert scrutiny in relation to the country and its geographical position.

- The governance structure of Libya's ports has not been altered between the period of data collection and the date of the final writing up of this research.

Therefore, beside the contribution of this research to the port studies literature, it remains the case that the findings of this research provide a valid model for how Libya can best approach the future governance of its ports industry.

1.5 Thesis structure

This thesis consists of eight chapters (as shown in Figure 1.1). Chapter one contains the background to the research, aims and objectives of the research, alongside a brief description of the methodology and finally the structure of the entire thesis.

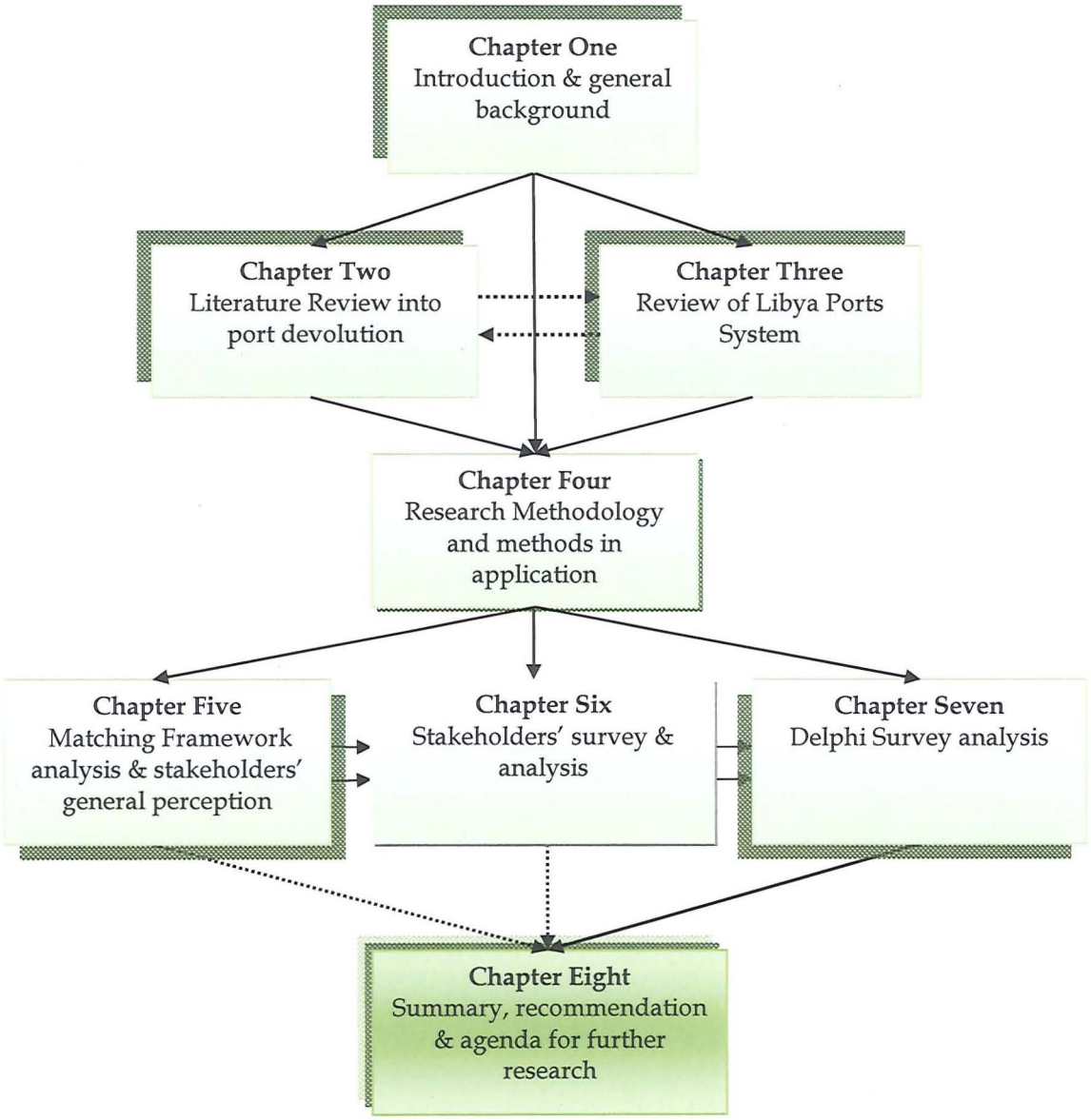
Chapter two provides a literature review on the subject of port devolution. It details the devolution concept, its drivers and potential approaches, alongside a critical discussion of the variety of governance structures that have resulted from the implementation of assorted approaches. In addition, it examines the impacts and implications of the approaches presented.

Chapter three is devoted to a discussion of Libyan ports, with a background to the country's geographical location, economic structure and general policy. Items related to this analysis of Libya's ports include their location and classification, operational strategy, throughput and the sector governance model. An analysis of the operational environment is also undertaken as well as the outlining of the government's objectives for the sector.

The research methods applied in this research are discussed in chapter four; the chapter begins with an introduction to the research methodology in general, and then discusses the methodology as applied in detail.

The empirical results of the matching framework, the in-depth interviews, the stakeholder survey and the Delphi survey are presented in chapters five, six and seven respectively. Chapter five presents the general perceptions of a sample of Stakeholders that were interviewed regarding future changes to the governance structure of the port sector and the outcomes of the matching framework analysis.

Figure 1.1 The research flow and thesis structure



Chapter Six presents the results of a stakeholder survey regarding the importance of changing the governance structure of Libya's ports and the best fit scenario for the Libyan case, in addition to evaluating the possible impact and implications of the implementation of devolution policy.

Chapter Seven details the findings of the Delphi survey; validating the findings from the previously applied methods and more precisely measuring the impact of each scenario in terms of the developed measurement. The results also cover other aspects of future port devolution in Libya and factors for the success of the programme are investigated.

The conclusion, policy recommendation and agenda for further research are detailed in chapter Eight. In this chapter the findings are highlighted with recommendations presented for the policy makers of the Libyan port sector. Furthermore, the development of a framework to ensure the success of devolution is also provided in this chapter.

Chapter Two

Literature Review of Port Devolution

2.1 Introduction

Over the past three decades the method of managing and operating ports has changed dramatically, with such changes resulting primarily from the implementation of Port devolution policy. This policy has been implemented across the world against different backdrops, with changes motivated by different factors, but including the dynamism of the operational environment (Notteboom and Winkelmans, 2001; World Bank, 2003; Notteboom, 2007). In addition a number of problems can be observed to face public ports; these include low levels of efficiency and productivity, which result in high port prices and poor services, and are contributed to by excess bureaucracy and the inflexibility of port management (Beth, 1985; Eyre, 1992; Nagorski, 1972). The goals of the private sector participating in the port industry include: improving efficiency, reducing government involvement, reducing the financial burden on the government, providing access to alternative sources of investment, introducing commercially focused management and expanding national trade (Frankel, 1992; Sherman, 1995; UNCTAD, 1995).

Changes have taken place in different ways across the world, with a great deal of the variation being explained by the differing degrees of private sector involvement and the extent of government interest in the industry; this has led to variety in the governance structure of ports. This diversity has resulted from the implementation of assorted policies, as was discussed within the context of international experience in the book edited by Brooks and Cullinane (2007). Different approaches are followed for changing port governance via the implementation of devolution policy; these are decentralisation, commercialisation, corporatisation and privatisation. This means that the exclusive participation of the private sector in the port industry is not the only option when devolution is sought. Public ports can still exist, and partnerships between the public and private sectors can also be formed.

This chapter will begin by reviewing the concept of port devolution. Then, in section three, an in-depth analysis of the common drivers for the implementation of devolution

policy will be conducted and will include a discussion of the problems facing the port sector in general, the dynamism of the operational environment and a critical review of the literature debating government strategies and the objectives behind devolution. Section four will endeavour to consider in detail the various approaches to port devolution. The enumeration of the methods of private sector participation in a port will take place in section five. Port governance models, resulting from the approaches to devolution followed, will be analysed critically in section six. The impacts of the devolution approaches are different and not all of these approaches will lead to the same outcomes. Thus, on the basis of international experience, the assessment of the impact of devolution approaches and their implications form an important element of section seven, alongside the identification of the gaps in the port devolution literature. A summary and conclusion to the chapter is provided in section eight.

2.2 Port Devolution Concept

Privatisation, reform and devolution are terminologies that have been used throughout the literature for describing, analysing and discussing the methods and approaches used in relation to changing the governance structure of ports. According to the literature, privatisation encompasses a set of approaches including decentralisation commercialisation and corporatisation; however, such a definition is somewhat limiting and contradicts reality. Approaches such as decentralisation and corporatisation have been implemented worldwide without the involvement of the private sector, meaning they cannot be regarded as intrinsic to privatisation. In addition, the dictionary definition of privatisation has limited this concept to the transference of ownership to the private sector.

The concept of reform was introduced by the World Bank through the World Bank Port Reform Tool Kit (the WBPRTK), which contains eight models covering different aspects of the port, discussed in reference to an alternative management structure for the ports. The concept of reform itself would be considered loosely, as it would be used freely to refer to any measure that may be taken to improve the scenario or condition at the ports. The Oxford Advanced Dictionary (2005) limited the definition of reform to improvements to a system, an organisation, a law etc., and included no mention of governance structure or anything similar. This could be implied however and this research does not undermine the use of such concepts, rather it aims to correctly position the appropriate concept in place.

The term most closely related to governance structure and hierarchal change is devolution; devolution as defined by the dictionary relates to the transference of power and responsibility from central government to a more localised setting. Subsequently, the literature pertaining to different disciplines, including seaport literature, has dealt with the concept of devolution in almost the same way; clarifying that it relates to the concept of change in the status of the governance structure.

Devolution as defined by the Oxford dictionary is "*The act of giving power from central authority or government to an authority or government in a local region*". Guibernau (2009) argued that the process of devolution may be implemented for political reasons. In the transportation sector, devolution is generally implemented in order to improve productive efficiency.

Many researchers have considered devolution as the transfer of transport matters to lower tiers of government (e.g. Wolf and Farguhar, 2005; Rhodes, 1994).

Rodal and Mudlar (1993) go beyond this definition when they define devolution as "The transfer of functions or responsibility for the delivery of programs and services from the federal government to another entity". They suggest that the entity might be another order of government or non-government organisation, community group, client association, business or industry. The definition refers to transferring the delivery of functions or services from the federal or central government to another entity, while in the port industry more than these functions are transferred to another entity; for example, the ownership and the regulatory function. Port privatisation in the UK is an example of this.

UNCTAD (1998) defines port devolution as "Increased participation by the private sector in the delivery of port services, without private investment". This definition is limited only to devolving the management aspects of the ports to the private sector.

Fisher et al. (2000), however, define devolution as the relocation of power away from central government. They separate the administration function, arguing that the relocation of the administration function can be considered decentralisation.

Brooks, Prentice and Flood (2000) argue that "Devolution can range from partial commercialisation to full privatisation", this definition does not include other devolution approaches.

Brooks and Cullinane (2007c) considered devolution to be a control-consultation-partnership continuum with reduced government involvement both financially and administratively, while participation of the new entity in terms of finance and administration is increased. This definition alludes to decentralisation, which is government control but at a different level.

In a broader context, devolution has been described by Brooks and Cullinane (2007a, p.7) as follows:

> "Devolution is the range of activities that might be undertaken by government in order to reform the governance of port activities"

This means that the government might tend to transfer the power (responsibility for one or more of the ports' functions to a different entity, including the regulatory function[1]) or tend only to transfer the business activity to another entity; different options are available.

Port devolution globally takes many different forms, with variations explained predominantly by the balance of public and private sector involvement and interest in the industry. As can be seen from the discussion regarding the different methods of altering the operational and management structure of the ports, some port functions or, indeed, all of them can be provided or controlled by a variety of means other than by a private entity. Port functions can be decentralised to a lower government tier, or provided by a commercial, corporate entity; this is not considered to be privatisation in this research.

2.3 Factors Behind Port Devolution

The literature shows that the motivation for implementing a port devolution policy varies from one country to another. However, the factors that drive institutional reform can be categorised into three groups. These are the dynamism of the operational

[1] Port functions encompass three main functions as displayed in table 2.3 of this chapter (Regulatory, Landlord and Operation). The regulatory function consists of all the activities related to control of vehicles and all modes entering or leaving the port, in addition to environmental control. Moreover, they relate to concerns regarding the control of dangerous goods, and about in relation to safety and security issues within the port area, involving control of documentation pertaining to immigration, health, customs and commerce.

environment, the port problems which may result and changing government strategies which aspire to achieve new objectives.

2.3.1 Environmental Dynamism

The seaport industry operates in a dynamic marketplace. Market dynamism refers to the globalisation of production, the growth of global trade and recent developments in the shipping industry, in addition to inter-port and intra-port competition. All of these factors have played and will continue to play a major role in shaping the port industry.

Over the past three decades in particular, trade routes have changed and trade volume has increased. Such change has been driven by the boom in the economies of China and India. These two countries have become major players in the world economy (UNCTAD, 2007). Thomas (1996) argues that this change in the nature of sea transport geography has had an impact on shipping economics. Building large container vessels has become a necessity rather than an option in order to reduce transportation costs. The design and capacity of ships and cargo handling facilities has developed to help carriers reduce the number of ports of call, with larger vessels having led to the exploitation of economies of scale and a reduction in ports of call because of their employment in hub-and-spoke networks (Cullinane and Khanna, 1999; Notteboom, 2002). Large vessels and the unitisation of cargo require specialised ports and/or terminals. Thus, investment in new port infrastructure, equipment and modern technology is required to cope with such development and this has led to the creation of a highly competitive environment in the port industry (Heaver, 1995; Trujillo and Nombela, 1999; World Bank, 2001).

The hub-and-spoke system can be considered to be a factor that plays an important role in shaping the pattern of governance in the port sector. For attracting shipping lines to use a port, Thomas (1996) and Ng (2006) identified several factors playing important roles; they include monetary costs, time efficiency, geographical location and the quality of services. Thomas (1996) suggests further factors as being important, particularly the influence of shippers. Quality of services relates to the effectiveness of ports and, as stated by Brooks and Pallis (2008), their effectiveness leads to the enhanced competitiveness of ports, while efficiency is still important for improving port operations. UNCTAD (2007) stated that a well-run and efficient port can attract transhipment and not have to depend on domestic supply and demand. By way of an example, Nanjing International Terminal in China has engaged in a joint venture with

foreign investors in order to deal with competition from neighbouring countries. The venture has enhanced China's port sector and given it a competitive edge (Cullinane and Wang, 2007).

Robinson (2002) states that modern ports have to be seen as a component of a value-driven chain system; they provide value to different parties involved in the industry. The focus today is on extending inland freight distribution, which has become important for enhancing the competitive situation of ports in the market (Notteboom and Rodrigue, 2005).

The industry has become more complicated, as numerous third parties are increasingly involved in providing essential services. These include shippers, forwarders, warehousing, inland transportation and value-added services. The evaluation of a port depends on the performance of other components rather than just the performance of the port itself (Notteboom, 2001; Robinson, 2002).

Another factor that tends to complicate the industry is the vertical integration of port operations with the providers of shipping services, particularly in the container port sector. Frankel (1992) stated that the trend towards the integration of shipping with port and inland transport has encouraged carriers or cargo owners to participate in port and terminal ownership and operation. Over recent years, many alliances have been formed between carriers and port terminal operators. Such alliances in terminal operation have been established on the basis that sharing terminals and cooperation in various aspects at sea and within the chain results in lower costs for all (Notteboom, 2007). Shipping lines have also become important players in container terminal operation in their own right, as they seek to secure their position in today's highly competitive market by entering into contracts for dedicated container terminals in major strategically located ports.

The World Bank argues that the way this development has occurred in the industry has affected the way in which the port sector is managed and operated. Heaver et al. (2001) argued that the port authorities need to respond to such changes in the market environment, while Baltazar and Brooks (2001) have developed the Matching Framework which suggested that to deal with changes in the operational environment of ports, the structure of the port should be organic (refer to sub-section 2.3.1.1) in nature (flexible and decentralised) in order to secure port responsiveness to the environment's

dynamism (uncertain environment). An organic structure can be achieved via the implementation of devolution policy.

2.3.1.1 The Matching Framework

Organic structure 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 Identifying the Right 'Fit' 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).

The matching framework (figure 2.1) was developed from contingency theory. As discussed above 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.

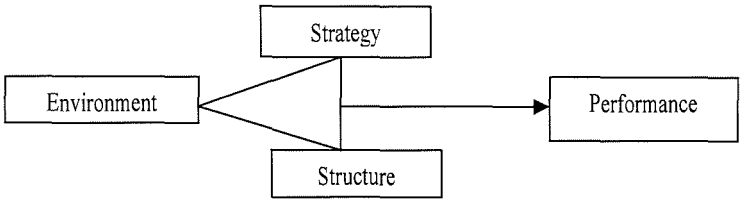


Figure 2.1: The Matching framework of Baltazar and Brooks (2001)

Connor, et al. (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, policies, socio-cultural, international sector, industry, 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 (dynamic). 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. Burns and Stalker (1961) concluded that the uncertain environment needs an organic structure (decentralised, flexible), whilst the mechanistic structure (formalized, centralized structure) is best suited to a stable or certain environment.

Strategic management literature has different views with respect to dealing with the environment. Porter (1980, 1985) argued that the organisation may change its operational strategy to cope with change; the organisation may choose 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, et al., (2003), Shrivastava (1994), Dobson, et al. (2004) Rosen (1995), Miles and Snow (1978) and Miller (1986) all argue that changing strategy requires changes in the organisation's structure.

Table 2.1 : The configuration of the matching framework (Baltazar & Brooks, 2001)

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[2] Decentralised; mutual adjustment

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 effectiveness strategy, while a stable environment requires a mechanistic structure and an efficiency-oriented strategy. Subsequently, an alternative configuration to the matching framework that was presented in Figure 2.1 is introduced in table 2.2.

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 the goals behind the policy, whatever those goals may be.

2.3.2 Port Problems

The main problems of publicly owned and operated ports are low levels of efficiency and productivity, which leads to high port prices and poor services (Nagorski, 1972; Eyre, 1992). The ability to react to market demand in order to meet customer requirements will be affected by government intervention, which most usually occurs when the entity is highly centralised (Goss, 1990a). The disadvantages of government intervention include bureaucracy, inflexibility of port management, inhibition of private initiatives and confused responsibility (Beth, 1985).

Goss (1993) argued that one factor against involving the public sector in ports is the bureaucracy and the attitude of employees in public enterprises that are not subject to market forces. Thomas (1994a) pointed out, however, that the restructuring of a port organisation has the potential to change staff attitudes in terms of loyalty to their jobs and the organisation.

Port infrastructure plays a vital role in enhancing the situation of ports in the market. Hence, this plays an important role in the port price (Wilmsmeier et al, 2005), and is an important criterion considered by shipping lines when they select ports to use (Ng, 2006; Tongzon, 2007). However, UNCTAD (2003) states that the availability of adequate infrastructure and port equipment does not necessarily solve the problems faced by the sector; good and effective management is required in addition to well-organised departments and highly qualified labour and management staff.

2.3.3 Government Objectives

The primary objectives of reforming port structure include improving efficiency, reducing government involvement, reducing the financial burden on government, providing access to alternative sources of investment, and introducing commercially focused management (Frankel, 1992; Sherman, 1995; UNCTAD, 1995; Humphreys, 1999).

Kimberly (2000) identified five major objectives that a national government seeks to obtain from reforming port operations and management. These are:

- Enhanced port competitiveness with the assurance of economic and social benefit

- To prevent monopoly and exploitation of market power by operators
- Entry into new markets and serving the future needs of local and international business
- Enhancing the efficiency of the port and its commercial operation
- Ensuring the benefit to customers and users from efficiency and competition. This will lead to consumer benefit.

Baird (2000) discussed the objectives of privatisation, some of which have already been mentioned above. He tends to divide these objectives into primary and secondary ones. As stated, the primary objectives include improving port efficiency, which will lead to trade facilitation, and introducing efficiency and know-how from the private sector. As discussed in section 2.3.1 the role of shipping companies and cargo owners in ports has increased. Baird (2000) attributes this tendency to the increase in the specialisations required within the shipping industry. However, this is a factor explaining such decisions, rather than an objective, of governments. Another governmental objective is the reduction of demands on the public sector budget, in addition to the reduction of expenditure on port labour. The secondary objectives identified include raising revenues for the state, encouraging competition between ports and widening share ownership.

Baird (2002) conducted a survey targeted at the top 100 container ports around the world and found that the main objectives of privatisation are increased efficiency and, consequently, a reduction in port costs, an expansion of trade, and a reduction in the cost of public investment. Other aims include speeding up the development of new terminals, enhancing public and private partnership, and increasing port revenue.

Baltazar and Brooks (2007) identified both economic objectives and non-economic objectives that are sought via the implementation of a devolution policy. Economic objectives are associated with maximising profit, maximising return on investment and maximising throughput, and mainly reflect the goals of the private sector not the government. They further argued that these economic objectives might come at the cost of the technical performance of the ports.

They found that very few ports in their survey (42 ports) sought to utilise port assets; thus, generating added value for the city or region, in addition to enhancing the role of

the ports as a national or/and regional gateway. This could have been considered as facilitating the trade further, or as an alternative means of promoting the main function of the ports for the benefit of the nation(s). These goals would be more beneficial to involved parties and to government and society alike.

However, the goals referred to would not be achieved unless the technical performance (efficiency, effectiveness and productivity) of the ports were enhanced via such a policy. In summary, it can be argued that the objectives identified by Kimberly (2000) would be ideal, as these objectives have the potential to forge a balance between the interests of the different involved parties as related to the ports and as affected by their condition.

2.4 Port Devolution Approaches

This section will discuss the most common devolution approaches, as identified in a variety of sources (e.g. Baird, 1995a; UNCTAD, 1995; Cass, 1996), including methods of privatisation, and approaches developed without the involvement of the private sector. This research is in agreement with Brooks and Cullinane (2007a) that these approaches should be considered as the means of devolution.

2.4.1 Decentralisation.

This concept is linked to local responsiveness, whether at the local authority level or at the port authority level, in order to allow a quick response and a fast reliable decision when required. In other words, as stated by UNCTAD (1995), it is an effective method for instating the freedom of port managers. Under decentralisation, everything is still controlled by the government but the sale of assets is likely. The characteristics of a public port still exist and so such an approach needs careful consideration because the problems of ports the government seeks to resolve may still remain under decentralisation. In China, for example, decentralisation is widely used as a tool for port devolution. It is true that decentralisation is often incorporated with other methods to facilitate the participation of the private sector in a joint venture. Joint ventures between Chinese ports and foreign investors have played an important role in enhancing the competitive edge of China's ports (Cullinane and Wang, 2007). Crucially, the aim of the joint venture is mostly focused on creating cargo handling facilities, while the rest of the port functions have remained intact and managed by a public port authority.

2.4.2 Corporatisation.

In this circumstance, port functions and/or services that were provided by the public port authority are fully or partly converted into a public sector corporate entity. The new body will have a board and a manager who have the right to operate and manage the port in a commercial manner and source funds from the private market (Cullinane and Song, 2002). The difference between commercialisation and corporatisation is that with the latter it is likely there will be a transfer of ownership of existing capital assets and the responsibility for risk will transfer to the corporate entity. The most important difference between commercialisation and corporatisation is that under the latter the new entity will be independent, both legally and financially, although it is still a public entity that will provide certain port functions (usually the operational functions).

However, corporatisation can be considered a form of commercialisation. The corporate entity may be a combination of both the public and private sectors and so it could be considered a form of privatisation, as the private sector participates in the new entity. Examples of port corporatisation are when the New South Wales and Queensland ports in Australia were corporatised under the government's corporation act. These ports were moved from being under a government department to an independent government-owned entity (Everett, 2007). The Port of Singapore Authority (PSA) is a corporatised government-owned entity working in a commercial manner without a regulatory function, and is responsible only for container terminal operations (Cullinane et al, 2007).

2.4.3 Commercialisation.

Commercialisation means operating and managing ports in a commercial manner. In other words, it is managing ports in the same way as the private sector, having the freedom to set and develop strategies in order to meet market requirements, change operational practices and/or even organisational structure, setting tariffs, and being able to hire and fire personnel without the need of bureaucratic approval (Kent and Hochestein, 1998). Under commercialisation, the activities of a port authority can be divided into separate operating units which conduct functions in a commercial manner (Baird, 2000). However, some difficulties may arise, as argued by UNCTAD (1995). For example, it is difficult to achieve goals when the government is still responsible for managing and operating ports, as it is widely agreed that government intervention may

hamper the commercial functions of port operation due to political and bureaucratic influence and control (Everett, 2003; Everett and Robinson, 2007; Pallis, 2007; Notteboom and Winkelmans, 2001). Commercialised ports are operated by separate non-recourse bodies[3].

2.4.4 Privatisation.

Privatisation is the permanent transfer of the ownership of assets and liabilities of an entity to the private sector, in part or in whole. UNCTAD (1998) tend to divide privatisation into four schemes: *comprehensive privatisation, partial privatisation, full privatisation* and *part privatisation.* In comprehensive privatisation, the port land, the water area and all port assets are transferred to a successor company (private or public/private company), while in partial privatisation just a part of the assets and activities are transferred to the private sector or a concession is granted to the private sector. With full privatisation, the complete ownership of facilities and/or services is transferred to a private entity. In the last, only a part of the facilities and services are transferred to the private sector. Under the UNCTAD definition only two elements of port functions were considered, namely, the landlord and operator functions, while the definition does not include the regulatory function[4].

Full Privatisation is the extreme end of the devolution of port governance. In essence, it can be defined as the actual transfer of assets and services provided by the public sector to the private sector (Baird, 1995; Cass, 1996; UNCTAD, 1998; Brooks, 2004; Brooks and Cullinane, 2007c) and is also inclusive of the regulatory function (Baird, 1995a, 1997, 1999, 2000). For the purposes of this research, the term privatisation only relates to those situations when actual transfer of ownership takes place (with the UK providing the main example). There are several other ways for the private sector to participate in the port industry, as will be discussed in section 2.5.

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[3] A government may rent out their existing port or ports for an agreed amount for the purposes of them being operated and managed effectively (UNCTAD, 1995; Cullinane and Song, 2000; Brooks and Cullinane, 2007c).

[4] the framework developed by Baird (1995), in respect of private sector involvement in the ports (discussed in section 6), was clearer and broader than that proposed by UNCTAD (1998), as he considered all of the port's functions, including the regulatory function (see table 2.1, section 2.6.1). While the UNCTAD classification is rather odd, as little difference (if any) can be seen between comprehensive and full privatisation and between partial and part privatisation. In addition the functions' items are left undefined.

2.5 Methods of private sector participation in a port

Cass (1999), found that the different methods of private sector participation in ports include lease, concession agreements, Joint Venture and the sale of shares or/and port assets. The sale of shares of the entity that controls the port and/or the port assets can be considered as a privatisation, since the buyer of the shares gains control of them and has the ability to trade them. However, the concession arrangement is better considered as a means to commercialisation, as it is typically applied for a certain period of time and, usually, not all of the port functions are transferred to the private sector. Rather, the approach involves operating the port in a commercial manner, and so is not about the transfer of ownership. Nevertheless, the concession arrangement is considered here as a method of enabling private sector participation in port function(s); also involve private investments, in infrastructure and/or superstructure.

2.5.1 Joint Ventures (JV)

Basically, a joint venture involves the setting up of a venture by two or more entities. These parties could be private, public or jointly owned independent organisations. The usefulness of such an approach can be seen when the different entities have a mutual interest. The joint venture allows one side to gain technical expertise at the same time as the other gains, for example, access to different markets, or when a project is expensive a number of companies decide to pool their resources to share the risks (UNCTAD, 1998). The Joint ventures between Chinese ports and foreign investors is an example that led to enhancement of the competitive edge of China's ports.

2.5.2 Lease and concession arrangement.

The definition of a lease, as stated by UNCTAD (1998, p. 8), is:

> "*...an agreement conveying the right to use an asset (land or equipment, or both) for an agreed period of time in return for a payment or a series of payments by the lessee to the lessor.*"

This involves leasing out a developed or undeveloped area of a port in order to rehabilitate the area using private capital, or operating and managing a ready terminal.

The lease will be against an agreed amount of rent, which can be a share of revenue. It is almost the same as a concession agreement. However, under a concession agreement the grantor, which is the government (public sector), grants the grantee the right to finance build and operate infrastructure and superstructure (including equipment) to be used by the provider (grantee) for a certain period of time. Then, at the end of the agreed period, all of the business conducted by the grantee will transfer back into the hands of the public sector.

Concession agreements are the most common approach in infrastructure projects. The approach is used by ports in order to facilitate the involvement of the private sector in port activities (Baird, 2002). Their adoption is driven by the belief that the participation of the private sector in the operation and management of port services or a terminal will lead to greater flexibility and efficiency in the market and better responses to consumer demands (Notteboom, 2007). In addition, the participation of the private sector in the port sector through concession agreements is likely to provide a source of capital needed to maintain the flow of transport (Pallis et al., 2008).

The concession agreement is almost always considered under the landlord port model, in which the public sector carries out the regulatory function while the other functions are conducted by a private entity. However, as stated by Notteboom (2007), with respect to construction, financing and operation of the terminal facility, a variety of options under a concession agreement can exist. They include Build-Lease-Operate (BLO), Build-Operate-Transfer (BOT), Rehabilitate-Operate-Transfer (ROT), Build-rehabilitate-Operate-transfer (BROT), and Build-Operate-Share-Transfer (BOST). All of these options are about bringing in private capital for a certain duration of time in order for it to be invested in ports or terminals. The nature of the investment depends on the concession terms; new construction activities may take place, or they may be simply rehabilitation and modernisation of existing ones. Bringing in private money for investment in ports is important for many countries that suffer from underdeveloped ports, where traffic is not exploited to its full potential, and where the cost of capital is high (Van Niekerk, 2005).

Notteboom (200) argues that a concession agreement is a powerful governance tool for port managers; in particular in the terminal operating business, even though they only last for a period of time under the landlord port model. As he states, redefining port

authority roles becomes necessary in an aggressive market and under a concession agreement, the port authority is able to hold some control over the port.

2.5.3 Selling shares on the stock market

Governments may decide to sell shares in a company (corporatised) on the stock exchange, thus the shares become traded openly. Buyers of these shares may be the public, employees and small or even large investors. The reasons for selling shares include widening ownership and raising funds that might be required in order to expand or modernise the business. The sale of shares may take place when a port is centrally owned and controlled; for instance, in 1983 the British Transport Docks Board (BTDB) was privatised through the sale of its shares on the stock market (Baird and Valentine, 2007). In addition, the sale of shares can also occur after corporatisation; for example, the port of Singapore Authority (PSA), as a port services provider, sold some of its shares through an initial public offering (IPO) (Anonymous, 2006). The sale was about distributing shares of the operator entity, which differs from the selling of assets; the port authority (regulator) was separated from PSA – the terminal operator.

2.5.4 Sale of port assets

UNCTAD (1998) stated that the sale of public assets to the private sector is becoming more prevalent as a way of transferring the ownership of assets. The sale of assets may occur in different ways, including trade sale, share flotation, and management/employee buy-out (MEBO). With the first option, assets may be sold to a preferred bidder, selected through a competitive tender on the basis of best price or, alternatively, the bidder may have been asked to provide the government with a plan for the development and improvement of the port, including a strategy, operational methods, and tariff policies. This option has been used in the UK. The privatisation of Associated British Ports (ABP) was conducted via negotiated sale. Under this method the target is the assets of the port, not just a share in the entity conducting the operational and management affairs. With a MEBO, the buyer of the port assets is usually the incumbent directors, with small shares sometimes obtained by the dock labour. However, these methods have mostly been applied in the case of the UK port privatisation, and have not really been adopted for application elsewhere (Baird, 1997).

2.6 Port Governance Models

2.6.1 Definitions

Over the past three decades the governance structure of ports across the world has changed quite dramatically as a result of government devolution programs (Brooks, 2004). The basic models of port governance are as provided by Baird (1995a, 1997) and by the World Bank.

Baird (1995a, 1997) identified four models of port administration depending on the extent of involvement of the private and public sector in port elements. Baird classifies port elements as utility cargo-handling, regulatory functions within the port, and finally, land ownership within the port. The four port models are as illustrated in Table 2.2.

Table 2.2: Allocation of responsibility, as described by Baird's port function privatisation matrix.

Port Models	Port Functions		
	Regulator	**Landlord**	**Utility**
Public	Public	Public	Public
Public/Private	Public	Public	Private
Private/Public	Public	Private	Private
Private	Private	Private	Private

Source: Baird (2000, table 1, p.180).

This model tends to classify a port as a public port when all the port's key functions remain in public hands. Goss (1990b) defines this sort of port as a comprehensive port. The second option is that only the utility function is privatised, which refers to the operations function and is limited to the handling of cargo. This function may include added-value services that are provided nowadays in ports. The third is where both the utilities and land-ownership function are transferred to the private sector under the private/public option. Finally, in a private port, all port functions are transferred to the private sector. Baird (2000a) showed that out of 100 container ports surveyed, only 7 ports conformed to the public model, 3 ports were fully privatised (mainly UK ports), and 2 ports matched the private/public model. The majority of these 100 ports (88%) had adopted the public/private model, with public entities retaining control over port land and regulation, but with private companies undertaking cargo handling/terminal operations.

The World Bank Port Reform Toolkit (WBPRTK) (Module 3, pp.16-19) proposed four port administration models, classified as *Service Port*, *Tool Port*, *Landlord Port*, and the fully privatised *Private Services Port.*

A **Service Port** is a fully public port, hence all the port's functions are provided by the port authority. Such ports have a mainly public character. The public sector owns, maintains, manages and operates all port assets. Furthermore, the handling of cargo and other port services (e.g. nautical activities) are carried out by a public body. Such ports are usually controlled by a ministry of transport and/or communication, and the director or chairman is a civil servant appointed by and/or directly reporting to a government minister.

A **Tool Port** is when the handling of cargo on board vessels, on the apron and on quays is usually conducted by private firms that specialise in such activities. The ownership, development and maintenance of port infrastructure and superstructure are the responsibility of the port authority. The operation of the equipment of the port authority is usually carried out by port authority labour. A shipping agency or other entity in the port that is authorised by the port authority may contract out the responsibility for cargo handling, but such action can create a conflict between small operators, stevedoring companies and the port authority. Brooks and Cullinane (2007b) stated that a duplication of facilities provided is avoided if the investment in infrastructure and superstructure is provided by the public sector. However, the risk of under-investment still exists. It is necessary to mention that this sort of port is more suitable for those still handling break-bulk cargo. Unitising cargo, using containers and cellular vessels, affects this model of the port and hence the activities connected to handling this type of cargo and supporting services are usually carried out by a single entity.

A **Landlord Port** is where the land and infrastructure are publicly owned and leased to a private entity for operational purposes. The port authority will generate the lease from the new operator. Establishing and providing superstructure is the responsibility of the private operator. In addition to the equipment that is required in ports such as cranes and conveyors, stevedoring and other port labour can be employed either by the private entity or by the port authority, depending on the sort of activities that remain in the hands of the port authority. Brooks and Cullinane (2007b) state that under this model responsiveness to market requirements is secured. However, risks may arise under this model in terms of excess capacity in infrastructure if more than one operator company presses for expansion. Another problem that might arise is the duplication of marketing efforts. Thus, a high level of coordination is required in terms of planning and marketing.

A **Private Services Port** is a fully privatised port. The government or public sector is no longer involved in the port; all port elements are transferred to the private sector. This includes the land, the assets and the operations function. At the beginning of the era of reform of the port sector, this kind of port was mainly found in the UK (Thomas, 1994a; Baird 2000a; Brooks and Cullinane, 2007). However, the wave of devolution affected many countries across the world and this sort of port now exists in other countries, such as New Zealand and Turkey (Brooks and Cullinane, 2007 b). Under this model, a private monopoly will very likely exist. The withdrawal of government interest will lead to the abolition of the government's ability to implement long term economic development policy for the port's business. Based on the World Bank port reform toolkit (WBPRTK), the allocation of responsibilities between the public and private sectors is summarised in Table 2.3.

Table 2.3: Distribution of responsibilities as determined by the WBPRTK

Type	Infrastructure	Superstructure	Port labour	Other functions
Public Service Port	Public	Public	Public	Majority Public
Tool Port	Public	Public	Private	Public/Private
Landlord Port	Public	Private	Private	Public/Private
Private Service Port	Private	Private	Private	Majority Private

Source: WBPRTK (2003), Module 3, p.21. (Mixed means public/private).

2.6.2 Discussion of the Models

The two approaches are simple enough. However, fundamentally, both of them tend to determine the different models of governance based on the extent of private and/or public sector involvement in ports. Baird (1995a, 1997) tends to classify ports based on the more traditional main functions of land, regulator and operation. Such classification provides a better understanding of the port governance model and represents a straightforward classification.

With the World Bank approach, however, the regulatory function does not exist or, in other words, the approach does not provide a better understanding of the models that might be followed. The civil engineering function is divided into two components, namely infrastructure and superstructure. In addition to labour and other services, this approach is concerned with the involvement of each sector (private/public) in service provision and the ownership of the infrastructure and superstructure of a port, as well as

the orientation of the port. The other traditional functions of port authorities, which are classified within the regulatory function by Baird (1995a), including planning, safety and environmental protection and are not addressed when following this approach. Such distribution, and the ignoring of one of the main port functions, makes the model provided by the World Bank questionable.

Baird (1995a, 1995b, 1997) provides a broad picture when he divides port functions into three basic functions (namely: regulator, landlord and utility – see Table 2.1). He suggests that the different models of port governance can be driven from the matrix of port privatisation, and he draws a horizontal line matching each function in general to each performer, whether private or public. It should be mentioned here that each individual port function encompasses a set of activities. The following questions can be asked at this point: Are all of these activities conducted based on one of these two models? And can these two models be used as a framework for the devolution of port governance in any country in the world?

In examining the port governance model provided by Baird (1995a, 1997), Baltazar and Brooks (2001) tend to divide the functions listed above into two main categories: regulatory functions and port functions. As listed in Table 2.4, each category encompasses sets of activities. They clearly separate the regulatory function from the operator and landlord functions. Both the landlord function and operator function are classified as port functions.

Table 2.4: Port functions allocation matrix, as stated by Baltazar and Brooks (2001), adapted from Baird (2000)

Governance	Regulatory Functions	Port Functions	
		Landlord	Operator
Public **Mixed** **Private**	▪ Licensing, permitting ▪ Vessel traffic safety ▪ Customs and immigration ▪ Port monitoring ▪ Emergency services ▪ Protection of public interest on behalf of the community ▪ Determining port policy and environmental policies applicable	▪ Water side maintenance (e.g. dredging) ▪ Marketing of location, development strategies, planning ▪ Maintenance of port access ▪ Port security ▪ Land acquisition disposal	▪ Cargo and passenger handling ▪ Pilotage and towage ▪ Line handling ▪ Facilities security, maintenance, and repair ▪ Marketing of operation ▪ Waste disposal ▪ Land side and berth capital investment

They argue that the allocation of responsibility for carrying out different functions of a port will vary across countries adopting devolution policy. However, the allocation of port functions under the model assumed by Baltazar and Brooks (2001) cannot be regarded as optimal allocation; hence, the regulatory regime of each individual country can affect such distribution. Also, the allocation of responsibility can vary between governments and the private sectors, and between tiers of government. In addition this model did not provide a guide for who should provide what.

The model provided by Baird can be considered the base line of participation of the private sector in a port. However, Baird (2000 a) states that not all ports will fall neatly within the framework of the port privatisation matrix. A mixture of private and public sector involvement can exist in a variety of ways. The Korean port sector is an example of such variety, as in the ports of Busan and Incheon the regulation function is in the hands of central government, while the ownership of the land is shared between the government and the private sector (Song and Lee, 2007). Finally, port functions are completely carried out by a private company. Thus, at these two ports the private sector has the leading role (Song and Lee, 2007). In some cases, like Singapore, the operations function is devolved to corporatised public entities. In other cases, such as France, the port authority is devolved to lower tiers of government (Debrie et al, 2007).

2.6.3 Looking beyond the Models

Brooks and Cullinane (2007b) conducted a survey of 42 ports in 10 countries. The aim of the survey was to determine how and what combination of port activities were allocated to the public and private sectors. For the purposes of the survey, the various types of port governance were developed into five governance models that provided an accurate reflection of port governance implemented all over the world. These five models were as follows:

- The port is centrally owned, managed and controlled by the government.
- The port is owned by central government. The control and management of the port has been transferred to a local government body (decentralisation).
- Management and control of the port is carried out by a corporatised body, while ownership of the port is still in the hands of the government (federal, regional or municipal).

- The government is the owner of the port, but it is managed by a private entity via a concession or lease arrangement or it is managed and owned via a public-private partnership agreement.

- A private entity is the owner, manager and controller of the port.

The activities examined by this study were all those required and carried out within and around ports, including operation, planning and financing. The link between these activities was based on the nature of the service provider, not the nature of the activities.

According to Brooks and Cullinane (2007b), there are many combinations of the aforementioned activities in the transition process of port governance, and there is no specific framework that can fit all port governance aims and strategies. Out of the 42 sample responses, about 34 combinations were adopted. The main functions of ports were moved away from being listed as the traditional functions of ports. This resulted from the different strategies behind the adoption of devolution policy. As a result, the authors suggest that an almost infinite number of governance models may exist.

Port devolution revolves around the participation of the private and public sector in port activities in general, and it is quite difficult to determine the distribution of the port activities between the private and public sector. These activities have the potential to be in the hands of the government under the decentralisation model. In fact, the new government entity may seek to pass the right of managing and controlling one or more of them to another entity, whether public or private, under a lease contract or concession agreement. A quasi-private (e.g. corporatised or commercialised) entity involving central government may also be considered.

Some countries tend to privatise only one function, while others privatise both. Full privatisation is still limited to the UK and more recently one port in Turkey has become fully privatised (Brooks and Cullinane, 2007b). However, the most common governance model under the Baird approach is the public/private one, particularly in container terminals, when just one element of a port is privatised or is conducted by a private entity, namely the operations function (Baird, 2002; Cullinane, 2002). Indeed, Brooks and Cullinane (2007b) have further confirmed that participation of the private sector in the port industry has increased and that the three main models that exist in the industry are public, private or mixed.

2.6.4 The Public Role Post-Devolution

Traditionally, the port sector has a governing body referred to as the port authority, port management or port administration. Prior to the reform of a port's structure, this body would be responsible for carrying out and performing all functions and activities of the port. Before starting the process of port reform in the early 1980s, the governing body was mainly a central public/government body which owned and operated all ports and assets (Tongzon, 2006). However, this was not the case for all the world's ports: Trust ports in the UK were, and a number of them are still, governed by independent statutory entities established as a Board of Trustees (Baird, 1995a; Baird, 2007).

Goss (1990 b , 1995) and De Monie (1994) pointed out that the main role of the port authority is conducting the port regulatory function, which includes providing vessel traffic management, supervision of conservancy, enforcing applicable laws and regulations, licensing port services and protecting port users against the risk of monopoly. Douglas and Geen (1993) also considers pilotage, cargo handling and operation and providing supply for ships as the duties of the port authority. He further argues that these activities can be transferred to the private sector.

As can be seen from the discussion of the port governance model, the implementation of the policy of port devolution has impacted the public port authority in terms of its hierarchy and its role and function. Currently, port authorities can be divided into private port authorities (that are almost exclusively limited to the UK), the corporate port authority that is independent but is a government-owned entity (as in Sydney and Melbourne in Australia), and the commercialised statutory port authority with greater autonomy (as in the Fremantle port authority) (Ircha, 1995; Cass, 1999). In some cases, the function of the port authority is still in the hands of the government but at a lower level. The port of Shanghai is an example of when the administrative and regulatory functions are transferred to a municipal port administration Bureau (Chin, 2009).

In spite of the great involvement of the private sector in the port, the role of a government/public port authority is still important. Goss (1995) stated that the presence of the public authority in the ports after a privatisation is important for maintaining some public interests such as property rights, planning and ensuring competition. Juhel (1999) pointed out that the three main functions of the public port authority are (a) catalyst mission, (b) statutory mission; ensure safety of navigation, environmental

protection, coastal management and fostering common development policies between ports and cities (c) facilitation mission; helping public governance to monitor private/public partnership, facilitate trade, spearheading initiatives conducive to trade integration. Baird (2002) also argued that the government may act as regulator in order to protect public interests in terms of safety and security and the prevention of maritime pollution.

2.7 Devolution approaches – Impacts and implications

The discussion in section 2.4 revealed that port devolution policy has been implemented against different backdrops, with not only improved technical performance being sought, but also the achievement of a set of different objectives representing the spectrum of port stakeholder interests. Port stakeholders that are affected by the operational and management shifts brought about by devolution, are including shippers, shipping companies, the port authority and/or government and dock labour. Each of these has their own agenda with respect to the port, with their concerns possibly including the technical performance of the port (efficiency, effectiveness and level of productivity), competitiveness, level of subsidy, income, port costs, labour conditions, etc.

Within the field of port devolution policy, there are a number of empirical studies which have reviewed the impact and implication of devolution programmes (e.g. Thomas, 1994; Baird, 1995a; Liu, 1995; Gentle, 1996; Shashikumar, 1998; Everett and Robinson, 1998; Estache et al, 2002; Cullinane et al, 2002; Gonzalez and Trujillo, 2002; Cullinane et al, 2005a; 2005b; Serebrisk and Trujillo, 2005; Wang and Cullinane, 2006). These studies assessed the outcomes of the devolution programme from different perspectives; some discussing the financial performance of the port after the implementation of the policy, and others focusing mainly on the technical performance of the port (including productivity). Some researchers argued that port devolution policies do not always deliver the anticipated benefits. However, it is difficult to assert that a specific devolution programme has failed. Rather, it could be argued that a selected approach and the resultant governance model are inappropriate for the context. In other words, it can be said that not all of the approaches would lead to the same outcomes, and that each approach has its own consequences.

Many ports (of different sizes) across the world are managed at a decentralised level (low government tiers, e.g. municipal). The port of Rotterdam was a municipal department. In 2004, the port was corporatised and ownership remained with the Rotterdam municipality. This increased the degree of port autonomy. Amsterdam also functions on the municipality model and was corporatised in 1998 in the hope of increasing autonomy, although investment decisions and annual accounts still need to be approved by the city council (De Langen and Van der Lugt, 2007). In the UK a number of municipal ports exist; these are still subject to the local authority in terms of limits imposed on their borrowings. These ports could be converted into privatised entities in order to assure commercial operation, Bristol is a municipal port that contracts out port operations to a private consortium (Baird and Valentine, 2007).

Ports are not always decentralised to the municipality. In France, the country's small and medium sized ports were decentralised to the local or *department*-level public agency (e.g. Chambers of Commerce and Industry) with the hope of releasing the national government from the burden of managing and operating the ports, however, they faced challenges in term of securing funding, lack of ability to modernise the ports, and conflicts between the new owner (low government tiers) and the national government in terms of policy, planning and development (Debrie et al, 2007). China is another example of such a model, with decentralisation widely used as a tool for devolving the port sector with the aim of facilitating strategic and operational decisions. Decentralisation is incorporated with other methods to facilitate the participation of the private sector in a joint venture. Joint ventures between Chinese ports and foreign investors have played an important role in enhancing the competitive edge of China's ports (Cullinane and Wang, 2007).

As discussed in the case of Rotterdam and Amsterdam, corporatisation was adopted to enhance the autonomy of the ports. Another example of corporatisation is the port of Singapore. Tongzon (2006) stated that the port of Singapore was corporatised with the aims of enhancing the flexibility and increasing efficiency further. The port remains a public port. While its operational function is conducted by a corporatised entity (PSA), the remaining functions rest with the Maritime and Port Authority (MPA). Corporatisation has allowed the port to lower its charges, enhance flexibility and cooperation to become a business-oriented entity (Tongzon, 2006) and it remains ranked among the top ports in its region with respect to container handling and shipping volumes (Cullinane et al, 2007).

In contrast, corporatisation has been highly criticised due to the fact that it supposedly releases the port from government intervention, whilst the government still retains the majority of shares, meaning the problems of the ports are not solved. Australian corporatised ports are examples of this (Everett, 2003). In 2007, Everett and Robinson (2007) concluded that in the case where the problem of political interference could not be resolved, it might be better move towards the private model.

Decentralisation and corporatisation have failed to deal with such problems when the government was still the holder of the majority of shares (Everett, 2003; Pallis, 2007; Notteboom, 2007). In this regard, Brooks and Cullinane (2007c) suggest that it may be better to commercialise a port via a concession or management contract. Their conclusion was a confirmation of the findings of Baird (2000), Cullinane et al. (2002) and Tongzon and Heng (2005) who all similarly concluded that operational efficiency can, to some extent, be enhanced through the participation of the private sector in ports, although not necessarily through full privatisation. However, in many cases more than the operational efficiency was enhanced via partial involvement of the private sector in the port function(s).

An interesting example is Malaysia, as that country has employed a variety of methods to involve the private sector. The private sector was first introduced by selling stocks and via joint ventures, where container operations at Port Kelang were moved to a port operating company called the Kelang Container Terminal (KCT) (Peters, 1995; Khalid, 2007). The government of Malaysia then sold 40% of KCT to the public in order to secure benefits for the public and protect it from privatisation (Peters, 1995). The 2000s saw a great deal of participation from the private sector in the country's ports, especially with the dedicated terminals that were offered at the Port of Tanjung Pelepas (PTP). The benefits gained by Malaysia included increased investment in the port (augmented by government revenue) and improved efficiency in cargo handling (Galal et al, 1994; Agustin, 1998), as well as the enhancement of the role of the Port of Kelang as a national load centre, and the consequent conversion of it and PTP into transhipment hubs (Khalid, 2009), with constant growth in container throughput ensuing. The productivity of Port Kelang increased by 76%, employees' wages increased by 78% and the quality of services has improved; a benefit felt by consumers. 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 container employees has risen and the level of pensions has increased.

Commercialising the ports via a concession arrangement is widely used and accepted as a means for achieving a set of goals and solving problems related to investment in ports, thus enhancing their performance. Agustin (1998) and Cass (1999) stated that in the Philippines and Thailand, concession arrangements have led to increased investment in the ports, increased government revenue and improved efficiency of cargo handling. Hoffmann (2001) found that the concession arrangements adopted in Latin American countries have led to enhanced efficiency, increased revenue, increased throughput, lower port costs and decreased waiting times.

The Port of Tartous in Syria was commercialised with the aims of introducing private capital investment into the port superstructure (mainly related to container handling equipment) and know-how and to increase container throughput gradually over an agreed period of time. These targets were clearly possible, when in the first stage of the concession the throughput was increased by about 44%, the performance of the container terminal was enhanced and the number of calling vessels were increased (Anonymous, 2009c). Another benefit gained was an increase in the labour force, concurrent with higher wages[5]. After the success of the concession arrangement in Tartous, the trend was extended to Lattakia, the country's biggest container port (Anonymous, 2009c). However, in the Lattakia case, the investor was a shipping line in a joint venture with a local investor, with the target of increasing port capacity, investing in container handling equipment and further improving the quality of service offered to the port's customers (Paris, 2009).

Privatising all port functions is still an unusual approach. However, it does exist, albeit under some criticism. The UK conservative government sought to reduce the financial burden on its shoulders and raise funds in 1983 by privatising the ports via the public flotation on the stock market of the British Transport Docks Board (BTDB), becoming the better known Associated British Ports (ABP). The second phase took place after the introduction of the 1991 Ports Act, when seven trust ports were sold to the private sector. The UK experience is still unique as it revolved around the transfer of all port functions (Landlord, Operation and Regulator) to the private sector (Baird, 1997). Such a devolution approach (privatisation by outright sale) was criticised as it was only

[5] Private discussion with the head of Tartous port company

related to the withdrawal of the state from the ports, the raising of money (this was at a discounted rate which is in turn an effective subsidy, which was criticised as well), and a move away from rehabilitating the ports, facilitating trade and enhancing the situation at the ports in general (Baird, 2000). The private sector benefited financially from the privatisation intercepting economic rents (Goss, 1999). However, these gains were achieved at the cost of the other stakeholders.

The technical performance of the UK privatised ports has been enhanced as a result of the abolition of the National Dock Labour Scheme (NDLS), rather than by the initial privatisation process itself (Thomas, 1994a; John, 1995). These conclusions were further confirmed by Baird (2000), Cullinane, Song and Gray, (2002) and Tongzon and Heng (2005) who argued that operational efficiency can be enhanced through the participation of the private sector in the ports to some extent, although not necessarily through full privatisation. The UK privatisation can be viewed as encompassing a set of flaws rather than advantages. Baird and Valentine (2007) argued that the UK model needs to be reviewed, and such a review should take into account the needs of the port users.

2.8 Summary

The theoretical background to port devolution has been reviewed in this chapter. It has described how port devolution policy has been implemented across the world against different backdrops, having been influenced by a number of different factors, but particularly the dynamism of the operational environment and the low levels of efficiency and productivity that have led to high port prices and poor services, and hence lower trade volumes than might have been expected. These characteristics still plague public ports and are contributed to by the excessive bureaucracy and the inflexibility of public port management. The objective of encouraging greater private sector participation in ports includes; improving efficiency, reducing government involvement, reducing the financial burden on government, providing access to alternative sources of investment, introducing commercially focused management and expanding national trade.

Ports can be managed and operated by different governmental tiers (decentralising the responsibility for (a) port function(s) to local authority level, or to the (public) port authority level, in order to ensure quick responses and fast reliable decisions when required) or commercialised via the introduction of the private sector through

concession arrangements (where some port functions are devolved to the private sector for an agreed period of time). The private sector can also be introduced by alternative means, e.g. selling stocks or joint ventures as is the case with Malaysia's ports. Selling stocks and/or assets lies at the extreme end of the devolution spectrum, when the private sector was able to take control over all port functions as in the UK; Together with 'giving' the regulatory functions or controls to the same private actors. There is no clear border between the forms of devolution. Based on the international experience of port devolution, the first two forms are usually implemented in combination with the introduction of the private sector, while the methods for introducing the private sector to the port can be implemented jointly (figure 2.2).

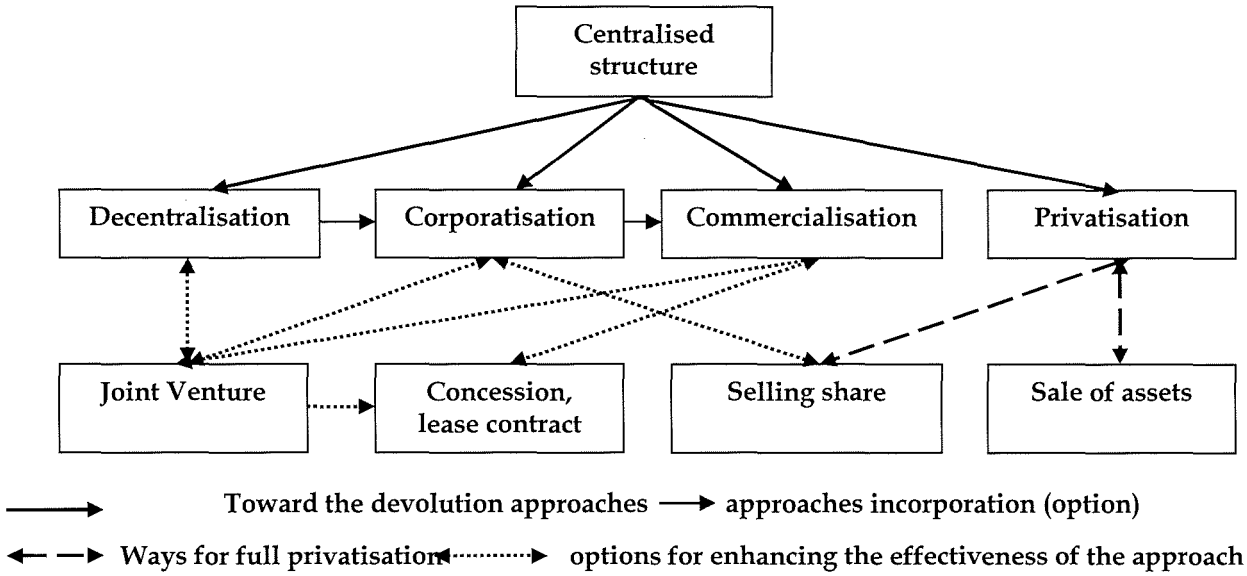


Figure 2.2. Devolution approaches, and options adopted for operating and managing the port
Source: developed by the author from international experience (section 2.7)

The full spectrum of governance models ranges from fully governmental at a highly centralised level at one extreme, to complete private sector control at the other. However, in general, the dilemma with all the potential approaches to port devolution is that there is no definitive guide as to precisely which function(s) (particularly the operation and management function) need to be devolved and to whom.

From the international experience, it is not always feasible that the entire port services (services to cargo and vessels) are transferred to the private sector, the Syrian experience revealed that only cargo handling and its related investments are contracted out to the newcomer. However, the rest of the services (to vessels) could also transfer to the commercialised (private or public) entity as well.

In terms of the impact, according to table 2.5, commercialising ports has led to superior benefits as almost all the stakeholders were satisfied with the outcomes, while the other approach helped in achieving the goal(s) being sought. However, these achievements often come at the cost of other stakeholders' satisfaction, as the objective could not include the full spectrum of stakeholder interests. It should also be mentioned that it is not always the case that the number of employees will be reduced; if port activities increase as a result, then extra labour will be required. An example of this is the case of Mexico, Argentina and Syria where the number of dock labourers has increased.

Table 2.5. The devolution approaches and objectives extracted from the international experience discussed in section 2.7

Devolution approaches	*Decentralisation*	*Corporatisation*	*Commercialisation**	*Privatisation***
Devolution Objectives				
Eliminate political intervention	*Still under government control*	*Needs legislation*	*Yes, in the operational aspects*	*Totally*
Introduce new source of capital, new technology and skilled management	*No evidence, but reinvesting the revenue is possible*	*Reinvest the revenue, no evidence for new sources*	*Yes, mainly for superstructure*	*Dependent on the private entity strategy*
Enhance the efficiency and productivity of the sector	*No evidence, further action was taken (introduce private sector or corporatised)*	*No real impact, as there are different cases with different performance level*	*Yes, proven for almost all cases*	*Resulted from another factor (labour reform)*
Enhance port competitiveness and effectiveness	*No evidence, might depend on government strategy*	*Yes, when there is no competitor*	*Yes, especially in the case of vertical integration*	*No evidence, but dependent on the private entity strategy*
More effective transportation chain and logistics	*No evidence, might depend on government strategy*	*Concentration was on the port*	*Dependence on the new entity's strategy*	*No evidence, but dependent on the private entity strategy*
Distribute benefits to all stakeholders	*No evidence, may be only local government may benefit*	*Dependence on whether further action toward the end of devolution is taken or not*	*Yes*	*Has not been proved as privatisation of UK ports negatively affected many stakeholders*
Increase profits for shareholders	*No shareholders (only local and national government)*	*Dependent on corporation strategy,*	*Dependent on the method used to commercialise the port*	*Yes, and mainly from trading the shares (selling the port itself)*
Increase cargo throughput	*Dependence on government strategy*	*Dependence on many other factors but evident in some cases*	*Based on the concession terms and condition*	*No evidence for the direct impact of privatisation*
Facilitate trade	*May be the objective of the decentralisation, dependence on government strategy*	*Depends on the strategy*	*Malaysia was the best example*	*Would be, when customers are treated equally*
Labour condition	*No evidence about the impact*	*No clear evidence*	*Number and wages increased*	*Numbers reduced*

Source: Produced by the Author

**introduction of the private sector but not full privatisation (mainly on aspects related to the operational function)*

***transfer the ownership (full privatisation) based on the UK experience*

To assure the success of any port devolution programme, a number of issues still need to be addressed, including the selection of an appropriate approach to port devolution

and the right governance structure, that would lead to a balance between stakeholder interests, the allocation and distribution of the responsibility and accountability for port functions to different entities and the determination of what factors would impact upon such allocation, while bearing in mind stakeholder interests as a program performance measurement.

Furthermore, operational tasks have been extensively devolved to foreign investors (outsiders), carriers or port/terminal operators or to global port/terminal operators. Typically, newcomers have modernised the port superstructure in order to enhance the technical performance of the ports and increase throughput. However, research into the most effective new entity is required. This is particularly necessary in order to determine what area(s) the selected entity should invest in to assure the policy's success. It is also important to decide if it is important for the role of the new entity to extend beyond the port's boundaries.

Chapter Three

A Review of Libya's Port Industry

3.1 Introduction

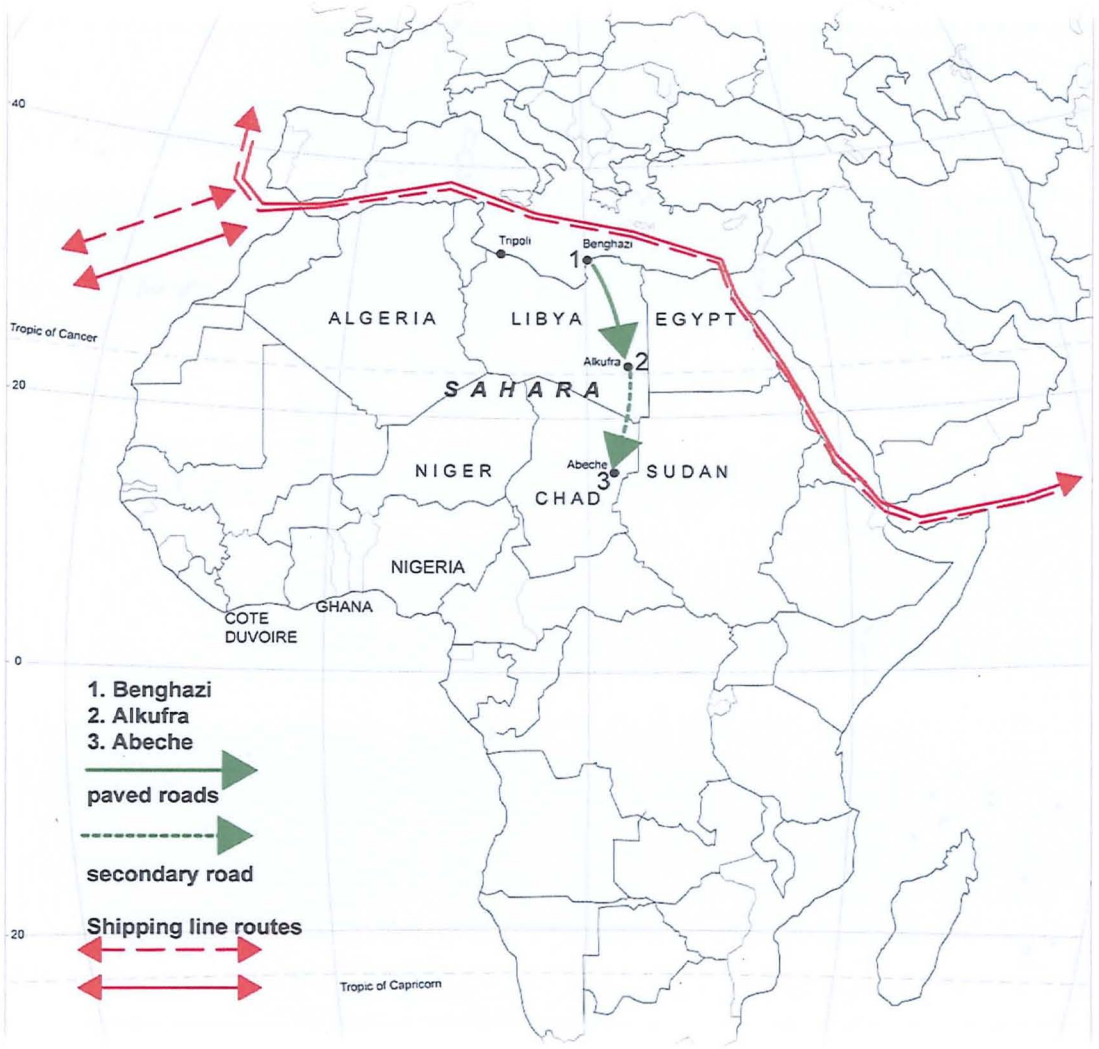
The aim of this chapter is to review the current situation with respect to Libya's container ports. A country profile is provided in section 3.2, which includes a description of the country's geographical location, economic structure and external trade. Section 3.3 reviews the port sector in general and analyses the governance structure of the country's container and general cargo ports in greater detail. In addition, the section discusses the operational environment of Libyan ports and the key future strategy of the government and the challenges it faces.

3.2 Background

3.2.1 Geographic location features

Libya is situated in the middle of the northern coast of Africa, the fourth-largest country on the continent, with an area of 1,759,540 sq Km (679,362 sq miles), extending 1,989 km (1,236 miles) South East–North West and 1,502 Km (933 miles) North East–South West. The country is bordered to the North by the Mediterranean Sea (with a coastline of about 1,970 Km), to the East by Egypt (1,115 Km), to the South-East by Sudan (383 Km), to the South by Chad (1,055 Km) and Niger (354 km), to the West by Algeria (982 km), and to the North-West by Tunisia (459 Km), giving a total land boundary length of 4,348 km (2,702 miles). A great part of the country lies within the Sahara (Otman and Karlberg, 2007). This location gives Libya great strategic importance and, hence, it has a high profile in the region. The major cities of Libya are: Tripoli, which is the capital of the country; Benghazi, which is the second largest city in Libya; and Tobruk, Misurata and Sebha, the latter being the capital of the southern region.

Figure 3.1 The location of Libya in relation to the main Europe-Asia shipping lane and landlocked countries



Source: Produced by the Author, based on the information available at different sources such as UNCTAD 2008, Libya's desert corridor - realising a logistical dream http://www.wfp.org/node/7539 and O.B.G 2009.

The importance of the location of Libya lies in the fact that Libya stands as a crucial link between Europe, Africa and Asia. In addition to its geographical importance, the country's climate is also very attractive and this, as well as other factors such as the labour forces and etc, makes it suitable for inward investment (Salama and Flanagan, 2005). The country itself has the potential to become a hub as it is located close to a major shipping route. As stated by UNCTAD (2008) and shown in Figure 3.1, Libya, Tunisia, Somalia, Eritrea, Sudan and Yemen are the least distant African nations from international shipping lanes, these nations have not yet benefited from their locations.

In addition, Libyan trade depends mainly on the sea. Furthermore, Libya has the potential to be the gateway to the other African countries that need seaports to trade

(Ghashat, 2009). In essence, Libya could be used as an alternative corridor for some of its land-locked neighbours; in 2004 the World Food Programme used Libya as a corridor to provide aid for Darfur refugees via Chad. The Aid was transported about 2700 Km from Benghazi Port in Libya to Abeche City in Chad (world food programme, 2004, 2005 and 2009), which is located less than 700 Km from the Capital of Chad. The location of Libya in relation to the main Europe-Asia shipping lane and to its neighbouring landlocked countries can be seen in figure 3.1. The figure shows the routes that were used by the World Food Programme in 2004.

3.2.2 Macroeconomic and general policies

Libya's economy relies heavily on the oil sector, which remains largely state-controlled and regulated. Oil revenues, coupled with a small population of about 6.3 million people, including about 170,000 foreigners, have provided Libya with one of the highest per capita GDPs in Africa and, indeed, the Middle East; 14,400 USD as of 2008 (C I A, 2009).

Table 3.1: Key General Indicators for Libya (2008)

Category	Libya
Population (millions), 2008	6.3
GDP, 2008 (billions of USD)	100.1
GDP per capita	14,400.0
Real GDP growth, 2008	3.8%
GDP components	Agriculture 1.7%, Industry 70.9%, Services 27.4%
Major policies	Straggling to find alternative source of income, Privatisation considered, Liberalising the Economy and moving towards the market, in an effort to benefit society

Source: Ghashat et al 2010

The oil sector contributed slightly more than 25% of total GDP between 2003 and 2007, while the contribution of the non-oil sector ranged between 72.3% and 76.5%. However, more recently, the contribution of the oil sector has increased, thanks to a rise in Libyan crude oil prices. It is clear that the oil sector plays a leading role in external trade and represents the main source of foreign currency. In general, the Libyan GDP has witnessed a steady increase with a fluctuation in 2005, when the rate of growth was 9.9% and in 2008 when it decreased to 3.8% (see Table 3.1). The Non-oil sector includes agriculture, fishing and forestry, in addition to industry, transportation, insurance, banking and public services (IMF, 2007; WFB, 2009).

Based on International Monetary Fund 2009 data, the contribution of the transportation, telecommunications and storage sector ranges between 9.2% and 10 % of total GDP.

However, the sector has an average growth of 6.4%, with the growth of this sector and other non-oil sectors attributed to the participation of the private sector in such activities, (CBL, 2008). The expenditure of the government on the transportation sector is still modest; in 2006 about 7 billion LYD (1.3LYD = 1USD) was allocated for infrastructure expenditure, including housing, water, roads, etc., with transportation, telecommunications and storage accounting for 293 million LYD of this (CBL, 2008; IMF 2007).

The country has always supported SOEs (State Owned Enterprises) and civil service employment that are dependent on oil sector revenue. However, since 1997 the government has been struggling to reform the regulatory and institutional framework in preparation for the move towards a market economy, and has made efforts devoted to re-engaging the country in the global economy. In addition, Libya had long been struggling to diversify the economy away from the oil sector. To this end, more attention has been spent on developing and upgrading different sectors, such as tourism, fishing...etc. In addition, many laws and regulations have been issued in support of this effort; with lots of economic activities having been opened up to the private sector and foreign direct investment (FDI) (Otman and Karlberg, 2007).

3.2.3 Libyan External Trade

The volume of Libyan foreign trade grew gradually between 2001 and 2007 and reached a rate of growth of 13% during 2007. In this year the value of trade reached 49.5 billion LYD as compared to 8.1, 20.5 and 39.1 billion LYD for 2001, 2003 and 2005 respectively. This growth is attributable to Libyan exports, which increased by 5.2 billion LYD thanks to a rise in the price of the country's oil and an increase in the quantity exported. However, in general terms, exports had grown in both the oil and non-oil segments of the Libyan economy, although the oil sector represents the highest percentage of total exports, with 96% of the total in 2007. Non-oil exports include agricultural and fishing products, petrochemicals and iron, steel.., etc and represent only 4% of total exports in the same year.

Figure 3.2 Libyan External Trade in million LYD*

Source: National Information Agency (2007)
* 1.3 LYD = 1 USD (Libyan Central Bank)

The main commodities that the country imports are manufactured goods and raw materials totalling about 8.5 billion LYD in 2007. The main imports are machinery and transport equipment, representing about 49% of total Libyan imports in 2007, while the rest of the country's imports for the same year were 12.7% foodstuff and livestock and 18% Manufactured Goods Classified Chiefly by Materials. As can be seen from Figures 3.3 and 3.4, Libya trades with almost all the world's regions, but most of its trade is with continental Europe.

Figure 3.3. The value of Libyan exports to its main trading partners in 2007

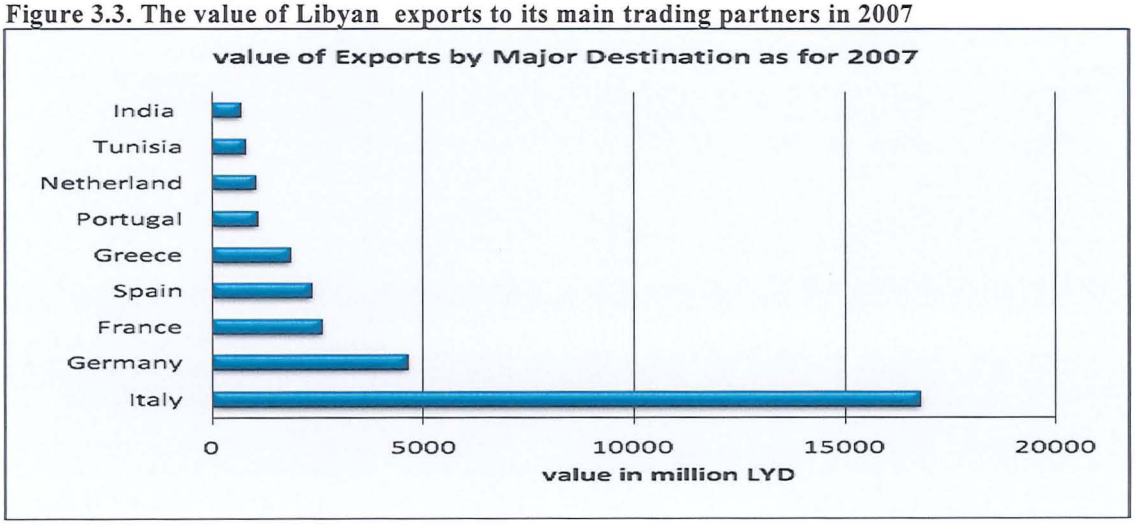
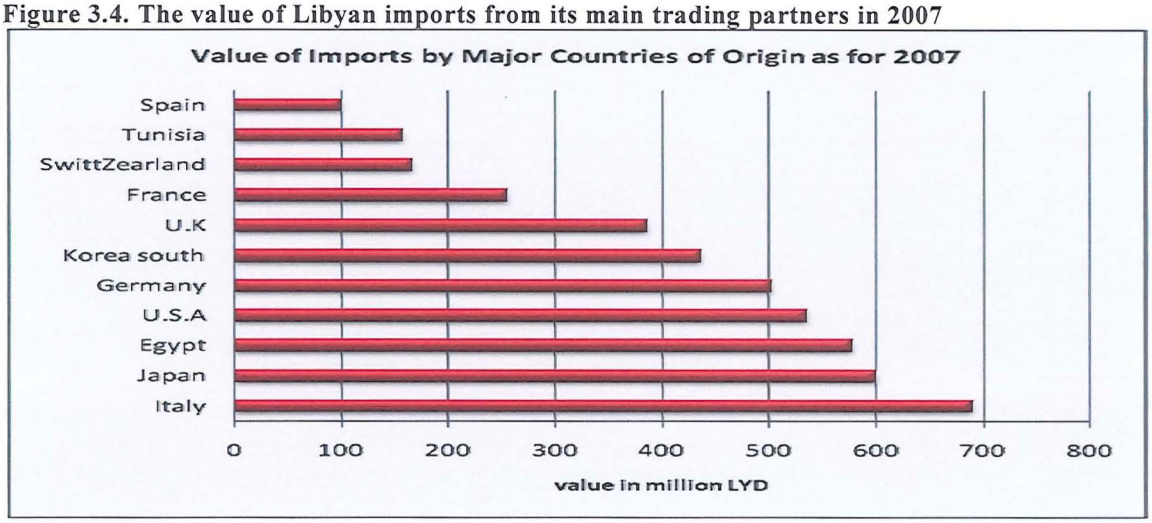


Figure 3.4. The value of Libyan imports from its main trading partners in 2007



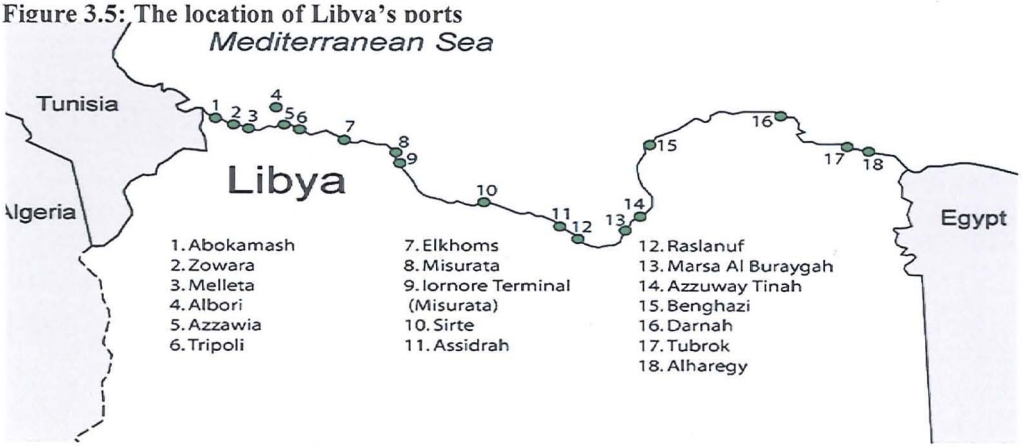
3.3 Libya's Ports System

This section describes the location of each port and is then followed by a general classification of all of the country's ports. In so doing, it details the operational characteristics of the country's principal and secondary container and general ports.

3.3.1 Location and Classification

There are 18 ports located along the almost 2000 Km shoreline of Libya on the North African coast (National Planning Council (NPC), 2005) (figure 3.5). Ports in Libya handling containerised and general cargo are classified by the National Planning Council (NPC) as commercial ports. Other classification categories for ports are 'oil' and 'industrial' ports (see table 3.2). While few of the country's ports engage in handling all types of cargo, oil and industrial ports have been established to serve specific industries. For instance, the port of Abokamash was built to serve the Abokamash petrochemicals complex. The ports that are handling containers and general cargo are sub-classified as principal and secondary ports. The principal ports include Benghazi, Misurata, Elkhoms and Tripoli. While the ports of Zowara, Sirte, Tobruk and Darnah are classified as secondary ports. There are, in addition, two other ports handling oil and its derivatives (as the main activities and the vast majority of cargo handled there) alongside containerised cargo. These ports are MarsalBurygah and Ras lanuf which are classified as secondary ports by the NPC (National Planning Council, 2005; Ghashat et al 2010)

Figure 3.5: The location of Libya's ports



Source: developed from information provided by the National Planning Council (2005)

There are different criteria that have been used in order to classify ports. They can be classified based on their developmental stage, as proposed by UNCTAD (1992), where there are three models, namely first, second and third generation.

- First generation ports act as the sole node between the sea and the land and interact with different stakeholders.

- Second generation ports are more advanced in that they conduct several additional functions alongside the traditional ones; these include industrial and commercial activities.

- Third generation ports are considered to be intermodal logistics centres and are modern, well-equipped and automated.

The UNCTAD (1992) approach has been criticised by Beresford et al (2004) who concluded that the UNCTAD model is unrealistic and inaccurate due to the fact that the proposed approach did not consider the various factors that may affect the port's development process. These include port size, geographical location, working culture and the extent of public/private involvement. However, it's clear that UNCTAD have classified the port based on the physical development, such classification would fit different size of ports with regardless of the nature of the governance structure and working culture.

Drewry (1998) classified ports into small, medium and large size ports based on the number of containers handled, with medium size ports being those handling less than one million TEUs, while large ports handle over one million TEUs. Another classification could be based on the main purpose of the port. In general terms,

whether a port is commercial or military (Alazabee,1997), with commercial ports further sub-classified into the major type of cargo handled; oil, container, general cargo, Ro-Ro or mixed. A further form of classification is based on the type of ownership or administration, (Alderton, 2005).

Abomadena (2000) classifies and describes Libya's ports on the basis of their location (in the eastern, western or the middle sector of the Libyan coastline) and the distance between them, the nature of the activities carried out at the port and finally the relative importance of the port as indicated by the volume of cargo handled at each port.

The NPC classified Libya's ports based on the activities that are carried out at each one and whether it is a port or a terminal. They further divided the country's ports into six categories as follows:

1- *Major Ports* - These ports function as the main ports handling the country's international trade. From east to west along the coastline, the ports in this category are Benghazi, Misurata, Elkhoms and Tripoli.

2- *Secondary Ports* – These are defined by the NPC as 'supportive ports' that serve the area immediately surrounding them. The ports that fall into this category are Tubrok, Darnah, Alburaygah, Ras lanuf and Zowara.

3- *Regional Ports* - These are ports serving specific regions of the country, with the additional capability to trade with neighbouring countries. These ports are Tobruk and Zowara.

4- *Oil Ports* – The main activities of these ports are exporting oil and hydrocarbon products. These ports include, Alharega, Azzuwaytinah, Alburaygah, Ras lanuf, As Sidrah, Azzawia Melitta and Abukammash

5- *Transit Ports* – These ports that have the potential to become a hub in the region, or act as a gateway for landlocked countries.

6- *Tourism Ports* – These are defined by the NPC as those ports that are equipped and ready to accommodate passenger vessels and provide all the facilities that are required for such activities. Only three ports in Libya are

ready for such activity and these are Tripoli, Benghazi and Darnah. Only the port of Tripoli has a passenger terminal.

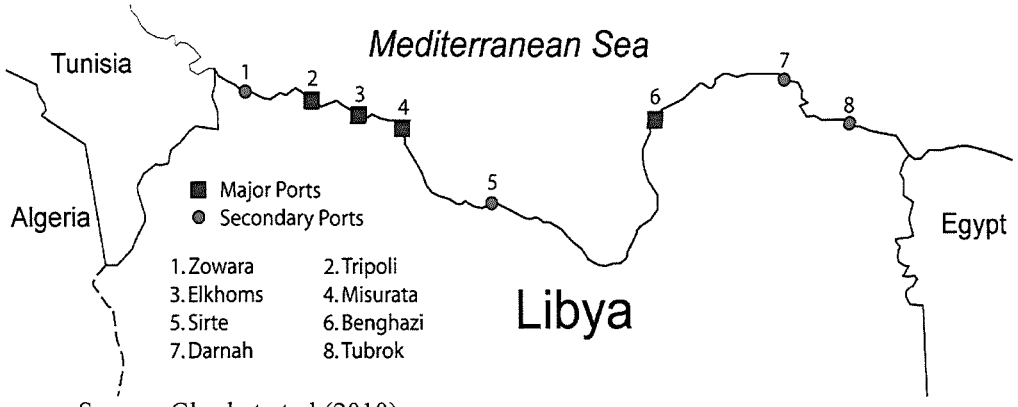
Based on the classification criteria discussed above, all of Libya's ports would be classified as either small or medium-sized ports. In terms of their stage of development, all ports are currently somewhere between first and second generation. Although Libyan ports do handle containerised commodities and accommodate different type of vessels, on the basis of the UNCTAD classification, they cannot be categorised as second generation because they work solely as a node between land and sea, providing very basic services and not interacting with their users (transport and trade partners) or other stakeholders. Table 3.2 shows the Libyan ports as classified by NPC. The NPC did not provide a justification for this classification; however, the decision to classify the country's ports into major and secondary ports could be attributed to location and trade volume. The major ports are located in the main cities of Libya, handling the majority of the country's trade (excluding oil) and are bigger in size, furthermore, the major ports are better equipped than the secondary ports (refer to section 3.3.2, 3.3.3 and 3.3.4 of this chapter)

Table 3.2: Libyan Port Classification and activities

Serial	Name	Type	Main Activities	Major Port	Secondary port	Location or city
1	Abukammash	Terminal	Industrial			Abukammash
2	Melleta	Terminal	Oil			Melleta
3	Zwara	Port	Container &GC		•	Zwara
4	Azzawia	Port	Oil			Azzawia
5	Tripoli	Port	Container &GC	•		Tripoli
6	Elkhoms	Port	Container &GC	•		Elkhoms
7	Misurata	Port	Container &GC	•		Misurata
8	Iron-steel Misurata	Terminal	Bulk			Misurata
9	Sirte	Port	Container &GC		•	Sirte
10	Ras lanuf	Port	Oil / Container &GC		•	Ras lanuf
11	As Sidra	Port	Oil			As sidra
12	MarsalBurygah	Port	Industrial / Container &GC 1		•	Alburygah
13	Azzuwaytinah	Port	Oil			Azzuwaytinah
14	Benghazi	Port	Container &GC	•		Benghazi
15	Ras almengar	Terminal	Oil			Benghazi
16	Darnah	Port	Container &GC		•	Darnah
17	Tobruk	Port	Container &GC		•	Tobruk
18	Alharega	Port	Oil			Tobruk

Source: Derived from the General Planning Council Report (2005), accessed 2009

Figure 3.6 The Geographical Distribution of Libya's Major and Secondary Ports



Source: Ghashat et al (2010)

The main Libyan non-oil ports are classified as either major or secondary ports. However, the NPC has categorized Mars al-Burygah and Ras lanuf ports as secondary ports. These ports have been excluded from this analysis, as their main activities centre around the oil and petrochemical industry and, as can be seen in section 3.3.5, they handle a very small percentage of Libyan Trade. In addition, these two ports are the furthest from the main shipping lane. Figure 3.6 shows the distribution of the major and secondary ports along the Libyan coast.

3.3.2 A Description of Libya's Ports

This section introduces the operational characteristics of the secondary and then the major ports of the country.

3.3.2.1 The Secondary Ports

- ***Darnah***

Darnah is a small city with a low population density, and unremarkable economic activities (Abomadena, 2000). The total area of the port is 480,000 m^2, consisting of about 207,500 m^2 open storage area and about 4800 m^2 covered storage area. The drafts in the port range from 6m to 9m. Equipment that is available at the port is as given in table 3.3. The main activities of Darnah port are handling general cargo and containers and providing navigation services and chandlers. As can be seen from the same table; the port contains a number of quays of different lengths and drafts (SPC, 2009).

Table 3.3 Equipment and facilities available at Darnah Port

Unite	Number	Quays		
		Length	Draft	Type
Cranes	2			
Tugs	2			
Grain suction	3			
Trucks	4			
Forklifts	15			
Quays	5	949 m	9 m	General Cargo
Quays	2	200 m	9 m	Dry bulk
Quays	2	249 m	6 m	Services

Source: SPC (2009)

- ***Tubrok***

The port of Tubrok is situated in the east of Libya in Tubrok city. The port consists of two parts, a container and general cargo area and an oil-based cargo area which is called Alharega. Both of them are located in Tubrok bay (Abomadena, 2000). The size of the port is small with a total area of 1,000,000 m^2, including about 15,000 m^2 open storage area and about 3600 m^2 covered storage area. The draft of the port ranges between 4 m to 9 m and, as can be seen from table 3.4; the equipment that is available at the port is less comprehensive than that available at Darnah Port. The port mainly handles general cargo.

Table 3.4 Equipment and facilities available at Tubrok Port in 2007

Unite	Number	Quays		
		Length	Draft	Type
Cranes	1			
Tugs	2			
Grain suction	7			
Trucks	2			
Forklifts	10			
Quays	10	1375 m	6-9 m	General Cargo
Quays	3	307m	4-5 m	Services

Source: SPC (2009)

- ***Sirte***

Figure 3.6 indicates that the port of Sirte is situated almost at the midpoint of the country's coastline, about 460 km east of Tripoli. The old port of Sirte has been converted recently into a fishing port. Therefore, no cargo handling activities are recorded at the port. However, there is an ambitious plan to develop and expand the port. The aim of the plan is to provide the region of Sirte with an international port by establishing a container terminal, bulk (liquid and dry) terminal, ro-ro and cruise terminal (Mott MacDonald, 2009). Once development activities are concluded, the port will function as one of the country's principal ports (OBG, 2009).

- ***Zowara***

The port is located at the far west of the country on the coast of Zowara city, which is 100km west of Tripoli and 60 km from the Tunisian border. The port's area is 900,000 m^2, including 10,000 m^2 of open storage area. The port can handle vessels with a maximum draft of 4 meters. Table 3.5 provides a brief description of the equipment that is available at the port. The main activity of the port is fishing, but it also handles general cargo as well.

Table 3.5 Equipment and facilities available at Zowara Port

Unite	Number	Quays		
		Length	Draft	Type
Cranes	1			
Tugs	3			
Trucks	1			
Forklifts	10			
Quays	1	120 m	4 m	General Cargo
Quays	2	140m	3 m	Services

Source: SPC (2009)

3.3.2.2 The Major ports

- ***Benghazi***

The port is located in the country's second largest city, 1000km distant from the capital, Tripoli. The importance of Benghazi lies not only in the fact that it has the second largest percentage of the country's population, but also that it has a great variety of economic activities within the city and in its hinterland. The port mainly serves the eastern and south-eastern regions of the country. The port was used as a gateway to Chad by the World Food Programme in 2004. The port can be supported by the secondary ports of Tubrok and Darnah, located to its east. The port has a total area of 4.4 million m^2. This includes 468,920 m^2 of storage area, which includes only 24,420 m^2 of covered storage area, with the rest being in the open. The port is designed with an annual capacity of 3 million tonnes. Table 3.6 provides details of the port's equipment and facilities. The port handles different sorts of cargos, including general cargo, bulk cargo (dry and liquid) and containerised cargo.

It should be mentioned that there is no dedicated container handling facility. Moreover, as can be seen from table 6, the draft of the port constrains the port's ability to accommodate mega-container ships. However, this is generally the case in all Libyan ports and is one of the problems the sector faces (SPC, 2009; OBG 2009).

Table 3.6 the equipment and facilities that are available at Benghazi Port

Unite	Number	Quays		
		Length	Draft	Type
Cranes	3			
Pilot Tugs	1			
Towage Tugs	3			
Barges	2			
Grain suction	12			
Trucks	12			
Forklifts	53			
Quays	11	3009 m	5-12.5m	General Cargo
Quays	6	1316m	11m	Services
Quays	1	175 m	12.5 m	Liquid bulk

Source: SPC (2009)

- ***Misurata***

Misurata Port is located in the city of Misurata, which is the third most important city in the country due to the variety of economic activities that are conducted there. In addition, it is the location of an Iron Ore complex. More recently, the establishment of the Misurata free trade zone further enhanced the commercial importance of the city. The city is about 210 km from Tripoli, about 815 km from Benghazi and 100 km from Elkhoms. The port has a total area of 3.6 million m^2. There are about 290,000 m^2 of open storage area and 67,500 m^2 of covered area. The port is designed with a total capacity of 5.4 million tonnes per a year and equipped with a grain tower with storage capacity of 40,000 tonnes. Misurata Port is the only port in the country working 24 hours a day, (MFTZ, 2007)[6].

Table 3.7 Equipment available at Misurata Port

Unite	Number	Quays		
		Length	Draft	Type
Cranes	11			
Pilot Tugs	3			
Towage Tugs	5			
Barges	1			
Tugs for different purposes	4			
Grain suction	10			
Trucks	47			
Forklifts	56			
Quays	14	1920 m	11m	General Cargo
Quays	1	184m	11m	Dry & liquid bulk
Quays	1	180m	12 m	Liquid bulk
Quays	5	250m	5m	Services
Quays	4	736m	11m	Container*
Quays	2	400m	11m	Repairs
Quays	2	400m	11m	Ro-Ro

Source: Misurata Free Trade Zone (2008).

[6] Private discussions with the Misurata port manager in summer 2009

Table 3.7 shows the operating facilities at the port as of 2008. The port is the most modern port in the country (Oxford Business Group, 2009), gantry cranes were installed in the port to speed up container handling. In addition, a dredging operation was put in progress to deepen the access channels of the port to 18 meters. The port is the largest of the Libyan ports, and is a feature of the FTZ which manages and controls the port. As mentioned previously, the FTZ enhanced the port's situation due to the facilities and services that are available within the FTZ.

- ***Elkhoms***

Elkhoms is located between Misurata and Tripoli, standing about 120 km from Tripoli and 90 km from Misurata. The city's port was established at the end of the 1970s with a total area of 1.8 million m^2. The port recently operated with an annual capacity of 800,000 tonnes. Table 3.8 shows the facilities and equipment that are available at the port.

Despite the limited facilities available at the port, it is viewed as one of the country's major ports and plays an important role as an alternative to the port of Tripoli. The location of the port of Elkhoms helps it to compete with both Tripoli and Misurata, with all of them serving the same hinterland.

Table 3.8 Equipment and facilities available at Elkhoms Port

Unite	Number	Quays		
		Length	Draft	Type
Cranes	12			
Pilot Tug	1			
Towage Tug	2			
Barges	--			
Grain suction	--			
Trucks	--			
Forklift	14			
Quays	4	1405m	12m	General Cargo
Quays	2	275m	5-10m	Services

Source: S P C web (accessed, 2009)

- ***Tripoli***

The port is located in the capital of the country. The position of the port gives it its historical and economic importance and, hence, the port has long served a huge hinterland, with about 46% of the country's total population living within it (NIA, 2006).

Table 3.9 Equipment and facilities available at Tripoli Port

Unite	Number	Quays		
		Length	Draft	Type
Cranes	4			
Pilot Tugs	2			
Towage Tugs	8			
Barges	1			
Tugs for different purposes	4			
Grain suction	12			
Trucks	16			
Forklifts	87			
Quays	20	3461 m	10m	General Cargo
Quays	1	168m	12m	Dry bulk
Quays	1	197m	10 m	Liquid bulk
Quays	3	612m	5m	Services
Quays	1	364m	7.5m	Passenger
Quays	1	127m	12m	For floating dock

Source: SPC (2009)

The port's hinterland, as determined by the LNIA (Libyan National Information Agency), covers the area between the Libyan border with Tunisia and Elkhoms. This means the hinterland of Tripoli port overlaps with Elkhoms's and Zowara's hinterland (see Figure 3.6). Despite that, the port is still the main player in the whole hinterland, due to the facilities that are available there and its reputation as the main port for the country. In addition, the majority of the nation's exporters and importers are located in the capital.

Tripoli's port covers an area of 4 million m^2 which includes 29,640 m^2 covered storage area and 180,500 m^2 open storage area. The port was designed to handle about 4.5 million tonnes annually. In 2009, Tripoli's port is the only port of the country that contains a passenger terminal and passenger facilities. Table 3.9 provides a brief description of the facilities and the equipment that are available at the port

3.3.3 Operational strategy

All of the country's container and general cargo ports provide only basic services. Table 3.10 shows their main operational characteristics and the services provided and equipment available at each port. The current operational characteristics at Libya's ports are incompatible with the technical requirements of new ships and, most importantly, with the strategies of the shipping lines[7] (Ghashat, 2009; Ghashat et al, 2010). In addition, the ports in general are still underperforming in terms of utilising

[7] In term of the drafts that can be accommodated, the availability of modern handling equipment especially for container handling (Oxford Business Group, 2009).

capacity[8], responsiveness to customer demand and time efficiency. In addition, despite the sector's income, it is still supported by the government, especially in respect of major rehabilitation and investment activities[9] (Ghashat et al, 2010).

Table 3.10 Operational characteristics of Libyan ports

Port	Max water depth	total quay length with max depth	Container handling equipment	Services			
				Pilotage	Towage	IT, container tracking	Bunkering
Tobruk	9m	125m	X	√	√	X	√
Darnah	9m	333m	X	√	√	X	√
Benghazi	11m	778m	X	√	√	X	√
Alburaygah	9.2	200m	X	√	√	X	√
Ras lanuf	14m	250m	X	√	√	X	√
Sirte	under rehabilitation						
Misurata	11m	1100m	√	√	√	X	√
Elkhoms	12m	225m	X	√	√	X	√
Tripoli	10m	1251m	X	√	√	X	√
Zowara	4m	120	X	√	√	X	√

Sources: Socialist port company (2009), Misurata Free Trade Zone (2009), World port source http://www.worldportsource.com/ports/LBY.php and http://www.libyaonline.com/business/pages.php?cid=310

Note, all of the listed port characteristics relate to handling general cargo and containers. Security, customs clearance and port state control is available at all of the ports, in addition to medical services. Some ports contain covered storage spaces, while all the ports have an open storage area. No added value services are provided at any port.

It seems that the ports are operated on the basis of an efficiency strategy (cost leadership) as they provide only basic services. Neither differentiation, nor a focussed strategy has been adopted. Therefore, it could be said that the operational strategy of Libyan ports is efficiency but that this currently falls below the expectations of port users[10].

In term of dock workers, as mentioned several time throughout this research there is insufficient data about the port sector in Libya. The researcher tried to obtain a rough figure to identify the number of workers in the sector, which would then have helped with providing at least a general idea about dock workers; however, there was no response from the people that were approached. Dock workers at Libyan ports are mainly hired directly by the operator, SPC. The LMTPA hires its employees separately and currently has almost 700 employees spread across the Libyan ports and at the authority's headquarters. In both cases there is no clear guide regarding how

[8] Based on the standards of port performance determined by Arab Seaports Federation http://www.aspf.org.eg/documents/port.pdf, the acceptable capacity utilisation rate is 70% of total capacity, while the majority of Libyan ports fall below this percentage (the capacity utilisation rates for Libyan ports were provided roughly by the interviewee during the interview process conducted by the researcher during October 2009).

[9] Private discussion with Libyan ports officials.

[10] Private discussion with the representative of IRSIL, MISSINA and TARROS in Libya

employees/workers are hired. The SPC workers conduct operations related jobs, while LMTPA employees are more related to performing the duty of the port state control; surveying and so on.

3.3.4 The Throughput of the Ports

Table 3.11 indicates that the Libyan port sector has seen a rise in the number of containers handled since 2004. Libya's ports handled 282,684 containers in 2008, representing a steady increase from 135,467 containers in 2004. As stated by OBG (2009), the key driver of growth is the import activities. In 2008, the port of Tripoli had Libya's second largest container throughput of 84,246 TEUs, followed by the port of Benghazi port with a container throughput of 72,364 TEUs in that year. However, the port with the largest container throughput in the country was Misurata, which is managed and operated by the Misurata Free Trade Zone and which handled 99,096 TEUs during 2008.

In 2007, the port of Misurata handled 64,712 containers and was ranked first in Libya in terms of container handling. The port of Elkhoms is still one of the country's major ports, but is not a preferred choice amongst Libyan importers, exporters and the shipping lines serving the Libyan trade. Hence, Elkhoms has the lowest throughput of the country's major ports and, as can be seen from table 11, its throughput has actually decreased over the period from 2004 to 2008.

Table 3.11: Number of Containers handled at Libyan Ports in TEUs (2004-2008)

Port	2004	2005	2006	2007	2008
Tobruk	4389	5142	688	--	25
Darnah	00	00	00	--	13
Benghazi	38591	37197	52049	--	72364
Alburygah	2787	2869	2377	--	2016
Ras lanuf	655	314	374	--	107
Misurata	48404	64751	64637	64712	99096
Elkhoms	40053	37766	31060	--	24817
Tripoli	462	17332	41355	46482	84246
Zowara	126	00	00	--	00
Total	135467	165371	192540	221186	282684

Source: SPC (2009), NIA (2008) and MFTZ (2008).

In 2004, the port of Tripoli handled only 462 containers, while Elkhoms ranked second in terms of throughput with 40,053 units. This was due to a General People Committee resolution that aimed to organise the movement of containers to and from Libyan ports. The resolution stopped the handling of containers at the port of

Tripoli and diverted container handling activities to Elkhoms. The justification for this resolution was to reduce the congestion on Tripoli's roads and the pressure on the port itself. More recently, the resolution has not been enforced.

As can be seen from table 3.12, the port of Misurata is ranked number one in terms of handling dry bulk cargo thanks to the nearby location of a major iron ore complex. Besides dry bulk, the port handles the majority of the rest of the non-containerised cargo that is imported and exported, ahead of Tripoli and Benghazi. The quantity of the cargo that is mentioned in the table 3.12 represents the volume handled during 2008 at all Libya's ports.

Table 3.12 Cargoes handled at Libyan Ports in 000s tonnes as of 2008

Port	No. of vessels	General Cargo dis.	Bagged Cargo dis.	Dry Bulk dis.	General Cargo Lo.
Tobruk	71	67.946	7.215	46.808	00
Darnah	140	26.917	28.148	00	0.0143
Benghazi	512	1131.600	364.257	432.496	16.202
Al-Burygah	99	113.300	00	3.850	46.436
Ras lanuf	70	25.456	1.000	00	72.150
Misurata	959	1682.006	--	2000.0	832.463
Elkhoms	129	215.222	11.236	2.303	11.218
Tripoli	819	1120.282	275.015	1329.361	7.850
Zowara	35	35.200	1.500	10.900	8.880

Source: SPC (2009) and MFTZ (2008).

Misurata's port is still number one in terms of the vessels that visited the port in 2008 with 959 vessels, followed by Tripoli with 819 vessels and Benghazi with 512 vessels accommodated during that year. During 2006 and 2007 Misurata's port received 1040 and 1160 vessels respectively (MFTZ, 2008). The port of Elkhoms ranked fourth in terms of general cargo handled in the same year. The country's secondary ports handled a modest volume of cargo in 2008 again, as previously mentioned, with the import activities playing a major role in the volume of cargo handled at each port. As the secondary ports are characterised by small hinterlands and limited facilities, thus they handled a small percentage of the overall cargo and the number of vessels arriving.

A percentage of Libyan trade is still handled by the ports of neighbouring countries. As Ghashat (2009) pointed out, some shipping lines and tramp vessels tend to divert to other ports in order to reduce the costs that occur as a result of the low efficiency and bureaucratic procedures of Libyan ports. Thus, some Libyan importers prefer to

receive their shipments at neighbouring country ports rather than at Libyan ports[11] and then move it by truck to Libya. This has led to a decrease in Libyan port throughput. In spite of this, the four major ports of the country have seen an increase in the number of containers handled (OBG, 2009).

3.3.5 Governance Structure

3.3.5.1 Ownership and Administration

The ports infrastructure is owned by the central government, but is administered by a different entity. In 1970 there were two separate entities controlling the marine sector in general. One of them was the General Foundation for Ports and Lighthouses (GFPL) which was established under law number 82/1970. This entity was a statutory administrative organisation under the transportation ministry, responsible for all port functions.

The other entity was the General Foundation for Marine Transport, established by law number 86/1970. This entity was responsible for the activities of marine transport in general including planning, setting the tariff for transportation and enforcing the international agreements that Libya has signed. In 1975 this foundation was abolished by law number 33/1975 and the responsibility for marine transport activities was transferred to the General National Maritime Transport Company (GNMTco) which works under the supervision of the Maritime Affairs Office, which is controlled by the General People Committee for Transportation and Communication (TCGPC)[12].

In 1985, the Socialist Port Company (SPC) was established under law No. 21/1985. The company is a 100% government entity; a government-owned company (GOC) that takes the form of a corporation. The company became responsible for all kinds of activities and services provided by the ports it operates (Ghashat, 2009). The company represented the port authority for all Libyan commercial ports under the supervision of the General People's Committee for transportation and communication. It was responsible for providing the infrastructure and superstructure that was needed to operate the sector and conducts the stevedoring activities as well, based on the legal articles the company is responsible for:

[11] Private discussion with some Libyan Importers
[12] For further details regarding Libyan Marine Rules and regulations, see Harab (2006)

- Managing, operating and maintaining the ports and their facilities
- Pilotage and providing safe navigation, in addition to handling the cargo and storage of imports, exports and transit goods
- Collecting port dues and tariffs
- Coordinating with different entities that are involved in the ports in terms of security and organising their duties in relation to fire fighting, salvage and protecting the environment etc.
- Operate the tourism facilities at the ports
- Improve and develop the manner of operating and managing the sector in addition to enhancing the labour skills, and provide the ports with the required skilled labour[13]

1993 witnessed the establishment of the Libyan Maritime Transport and Ports Authority (LMTPA resolution No. 170/1993 of the General People Committee (Prime Ministry)) (see figure 3.7, for the LMTPA structure). The new entity was authorised to carry out administrative duties and activities including planning, providing infrastructure and the collection of port dues. In other words, the landlord and regulatory functions come under the control of the Libyan Marine Transport and Port Authority (LMTPA), whilst the operational activities at all the country's general cargo and container ports are managed by the Socialist Port Company (SPC).

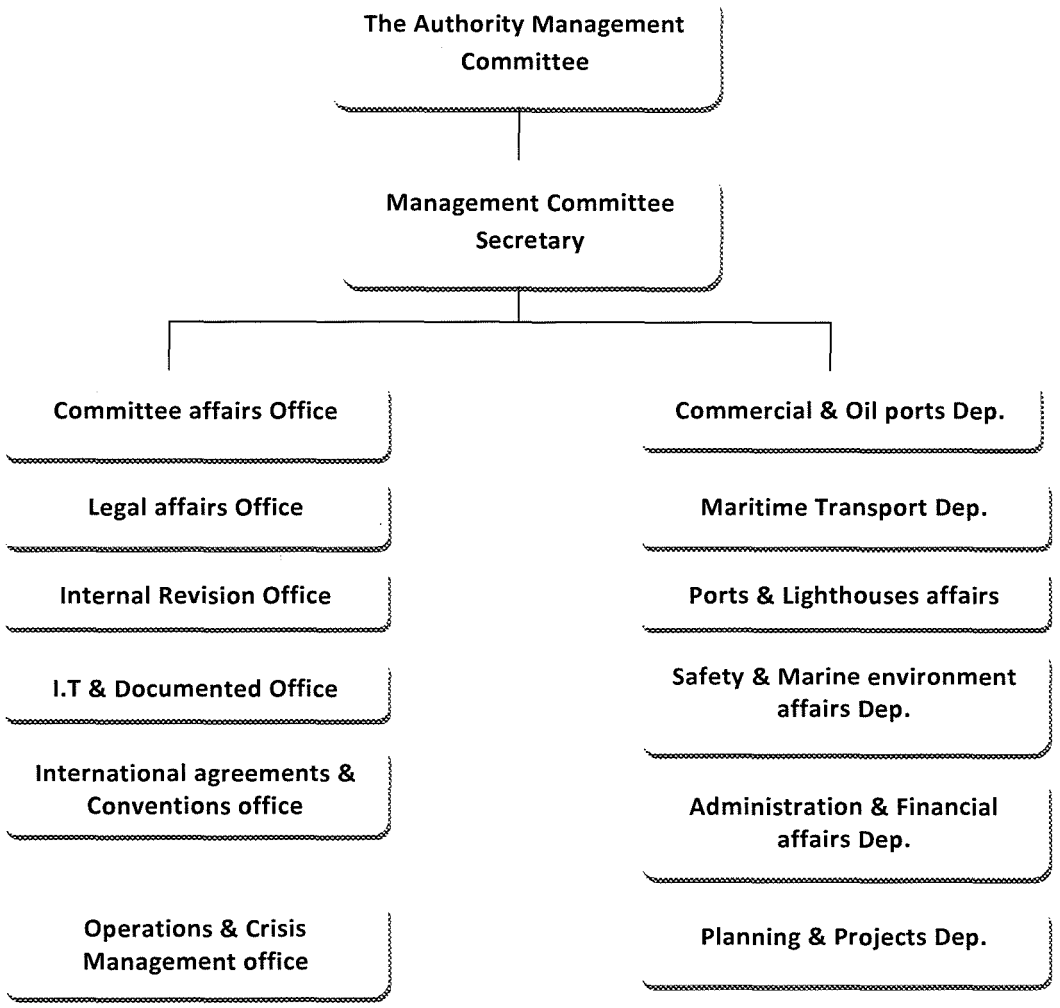
LMPTA functions as a department of the secretariat of transport and communications, though the resolution limited the role of the SPC in providing superstructure and operating and managing the ports. However, there was an overlap in the duties of the SPC and the LMTPA. Any decision which might be taken regarding the sector in general is still subject to central government approval. In other words, the Libyan port sector is highly centralised in all respects.

In 2006, the port of Misurata was transferred to the MFTZ (Misurata Free Trade Zone) under resolution No. 33/2006 of the General People Committee (Prime Ministry) and the new entity became responsible for all of the port's functions. In other words, the MFTZ became owner, manager and operator of the Port; it

[13] For further details visit the SPC website http://www.lpclibya.com/about.aspx

represents the port authority and is entirely autonomous. The MFTZ is a government-owned company (GOC), and expected to operate in a commercial manner.

Figure 3.7 Structure of the Libyan Maritime Transport and Port Authority



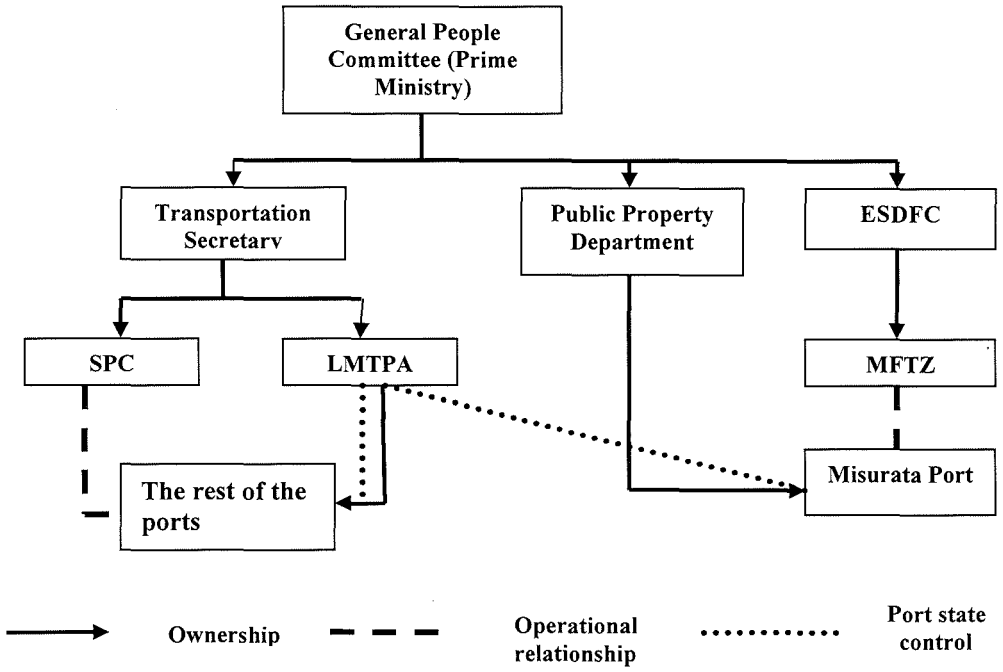
In the same year, the General People Committee (Prime Ministry) issued resolution No. 280/2006 regarding the appointment of a General Manager for all Libyan ports except for Misurata, authorising them to supervise most of the regulatory functions at the ports. However, the LMTPA is still underperforming in its role and there has been an overlap between the duties of the Authority and the SPC[14].

The year 2008 witnessed a great deal in terms of the reorganising of Libya's port governance hierarchy and the allocation of responsibilities between the entities involved in the sector (resolution 81/2008). The sector remains a state-owned enterprise and is under the supervision of the secretariat of transportation and is still

[14] Private discussion with LMTPA representative during the interviews that conducted by the research during October 2009.

a part of it, but the role of the Maritime Transport and Port Authority (MPTA) was activated and empowered.

Figure 3.8 The hierarchical structure of Libya's Ports as for 2010



In the case of the port of Misurata, more recently the ownership of the MFTZ was transferred to the Economic and Social Development Fund Company (ESDFC) by resolution number 72/2009 of the General People's Committee, while the Port of Misurata's assets are owned by the government via the Public Property Department (PPD). The PPD is authorised by the resolution to devise a contract regarding operating and investing in the port with the ESDFC or other investors advised by it. However, this resolution is still not enforced and the situation at Misurata port is still, as it was, controlled and operated by the MFTZ. Both the PPD and the ESDFC report directly to the General People Committee (see figure 3.8).

The different bodies currently involved in the port industry in Libya report to different administrative entities at the national level. Figure 3.8 shows the hierarchical structure of the sector as it stands at June 2011. The Marine Transport and Port Authority (MTPA) and the Socialist Port Company (SPC), both report to the Secretary of Transportation. These two bodies are directly responsible for all of the country's container and general cargo ports.

The port of Misurata is the only exception, as the port is operated by the MFTZ which is owned by the ESDFC and the ESDFC is owned by the General People

Committee (Prime Ministry), with port assets owned by the Public Prosperity Department. Therefore, the MFTZ reports directly to the General People Committee. Determination of the division of the ports' functions between different entities will be discussed in greater detail in section 3.3.5.2.

3.3.5.2 Operations and Management System

Prior to 2008, the SPC was the main organisation in the sector and acted as the owner of the sector having a tendency to contract out some of the sector's functions. For example, the SPC contracted out the stevedoring function to other companies such as the Germa Shipping Company.

As stated by Cass (1999), based on a port's ownership and operating structure, there are three types of port operation. Firstly, a 'Service port' where the port authority provides all services to the ships and cargo owners. Secondly, a 'Tool port' where the ownership, development and maintenance of the port infrastructure and superstructure are the responsibility of the port authority in addition to the operation of some port services, while the private sector is responsible for providing the rest of the services such as cargo handling. Finally, a 'Landlord port', where the public port authority is responsible for providing and maintaining infrastructure, while the private sector is responsible for the superstructure and the provision of all port services.

Recently, the situation at Libyan ports lies somewhere between 'Service' and 'Tool' port categories, as the role of the SPC is limited to operational functions, although not all operational functions are carried out by the company. Despite this, in some cases the company still tends to provide some of the equipment necessary for cargo handling purposes. Table 3.13 shows that some of the operator functions have been transferred into the hands of the LMTPA. Despite the activation of the LMTPA role, the involvement of national government still exists. This situation is representative of almost all Libyan commercial ports, except for the port of Misurata.

Table 3.13 Distribution of Port functions between the different entities in Libyan Ports

Governance	Regulatory Functions	Port Functions	
		Landlord	Operator
National Government LMTPA SPC	▪ Licensing, permitting ▪ Vessel traffic safety ▪ Customs and immigration ▪ Port monitoring ▪ Emergency services ▪ Protection of public interest on behalf of the community ▪ Determining port policy and environmental policies applicable	▪ Water side maintenance (e.g. dredging) ▪ Marketing of location, development strategies, planning ▪ Maintenance of port access ▪ Port security ▪ Land acquisition disposal	▪ Cargo and passenger handling ▪ Pilotage and towage ▪ Line handling ▪ Facilities security, maintenance, and repair ▪ Marketing of operations ▪ Waste disposal ▪ Land side and berth capital investment

As previously mentioned, the port of Misurata has been transferred to the MFTZ, with the new entity becoming responsible for all functions relating to the port (Regulator, Landlord and Operator functions), although, some functions are still in the hands of the national government – especially non-commercial functions. Each of these functions is provided by different entities, such as the customs service which is provided by the national customs department under the secretary of finance, etc.

Table 3.14 Responsibility for Port Functions in Misurata Port

Governance	Regulatory Functions	Port Functions	
		Landlord	Operator
National Government MFTZ	▪ Licensing, permitting ▪ Vessel traffic safety ▪ Customs and immigration ▪ Port monitoring ▪ Emergency services ▪ Protection of public interest on behalf of the community ▪ Determining applicable port policy and environmental policies	▪ Water side maintenance (e.g. dredging) ▪ Marketing of location, development strategies, planning ▪ Maintenance of port access ▪ Port security ▪ Land acquisition disposal	▪ Cargo and passenger handling ▪ Pilotage and towage ▪ Line handling ▪ Facilities security, maintenance, and repair ▪ Marketing of operations ▪ Waste disposal ▪ Land side and berth capital investment

(Please refer to table 3.14). However, 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 superstructure. Such actions illustrate the autonomy of the MFTZ, especially since its business is conducted without national approval. In addition, other activities are being conducted, including the deepening of the port access channel, buying handling equipment and building a new terminal in order to increase port capacity.

In the sector in general, there is no involvement of the private sector except for inland transportation where the trucks of private companies are used to move cargo to and from the ports. Also, some shipping agents own storage areas outside the ports, but such ownership is not common[15]. Other activities conducted by the private sector include forwarding and bunkering.

3.3.6 Objectives and policies

Through the government's general transport policy, it is aiming to maintain and enhance port infra- and superstructure with the goal of increasing the country's overall port capacity. The government is aware of the importance of equipping ports with the modern equipment needed to handle unitised cargo, in order to speed up the handling process. Thus, one of the priorities of the government is to provide the sector with such equipment. Providing storage areas inside the ports is also an important consideration (Transportation Secretary[16] and Annual Report of G.P.C and its Secretariats 2008).

Retaining existing customers and trying to encourage others to use the country's ports, as well as reducing congestion and shortening the time ships spend at ports (including bureaucratic time) are top priorities of the LMTPA (Libyan Marine Transport and Port Authority)[17]. From this perspective, Ghashat (2009) argued that it is important to allow the participation of the private sector in Libyan ports in order to facilitate their improved physical condition, via the introduction of new management skills and the enhancement of the quality of the dock labour force. This argument was based on the operational characteristics of the ports. However, as well see in section

[15] Section 3.6.2 is based on interviews and a survey conducted by the author during October 2009.
[16] Transport Secretary. Proposed policies for transportation and transport sector. http://www.ctt.gov.ly/ar/subcategory.php?id=6
[17] Private discussion with the head of LMTPA, October 2009

3.3.7, it is not only the operational characteristics that represent challenges for the sector.

The key future strategy of the Libyan government is the ambition to convert the country's major ports to hubs in the Mediterranean basin, competing with other ports in the region to attract transhipment cargoes, as well as serving the local trade. However, not all ports will be converted to this role since only Benghazi and Elkhoms have been selected. This strategy is not detailed very clearly in any official policy document. However, the port of Benghazi was selected to serve the landlocked African countries. The basis for this is a Memorandum of Understanding between Chad and Libya (August 8th 2009), for using the port of Benghazi for imports and exports to and from Chad.

3.3.7 Operational Environment

Since the lifting of the sanctions that had been imposed on Libya by the United Nations in the early 1990s, the economy of the country has witnessed remarkable growth (Otman and Karlberg, 2007; Ghashat, 2009). This growth has placed pressure on the port sector in general, as the volume of the country's external trade has increased and this has resulted in the need for efficient and highly productive ports.

A further change which has occurred in the country's business environment since 1997 is the government's efforts to reform its regulatory and institutional framework in preparation for the move towards a market economy. In addition, there have been considerable efforts devoted to engaging the country in the global economy. This has been aimed towards improving the efficiency and productivity of state owned enterprises (Otman and Karlberg, 2007).

The isolation of the country during the years when sanctions applied has led to a delay in development and improvement plans for almost all state owned enterprises. Libya's container and general cargo ports are no exception, as the ports are currently unable to cope with the remarkable developments that have occurred in the shipping industry in terms of vessel size and the technology of cargo handling. To summarise this, the current operational characteristics within Libya do not match the technical requirements of the new ships.

Other factors that influence the environment include the political situation, economic conditions and technological development. Salama and Flanagan (2005) and Ghashat (2009) stated that Libya is a stable country in terms of its political situation, the situation now is different , such differences resulted from the 2011 crisis, however, this is hopefully a temporary situation . Salama and Flanagan (2005) argue that the climatic conditions and political stability play a significant role in attracting foreign investors. Recently, the development of the relationship between Libya and other countries in the global community mean that much potential exists to enhance the country's position in the international market.

The Mediterranean basin is one of the most competitive regions in the world due to the fact that many ports are striving to attract a high proportion of transhipment to become hubs for the East – West and North – South trade. It is relatively difficult for these ports to act as a hub for the whole basin due to the large area and vast distance between hub ports and the intended ports. The Mediterranean basin is segmented into three distinct regions, namely the Western, Central and Eastern regions, (Zohil and Prijon, 1999). The basin handles about 22 million TEUs a year, and there are several important ports located in these regions working as hubs including; Algeciras, Valencia and Barcelona for the Western regions, Gioia Tauro, Marsaxlokk and Taranto in the central region and Piraeus, Izmir, Limassol, Damietta, Port Said and Alexandria in the east (Vassilopoulos, 2004). The Central ports of the Mediterranean are in competition with the Eastern ports.

Figure 3.9 the location of Libya's ports in relation to the nearest hubs

As can be seen from figure 3.9, Libya's ports are located in the central part of the basin. This means that they are located in the most competitive region of the basin. More specifically, it can be said that the country is located within a triangle of hub ports in Egypt, Malta/Italy and the Western basin ports. However, Libya depends mainly on feeder vessels to serve the country's trade, so the country's ports are not in competition with the rest of the region's ports for transhipment, though the sector does lose some of its share to neighbouring ports.

Gouvernal et al. (2005) stated that over the last decade the region has witnessed remarkable expansion and restructuring. More recently, many countries have been struggling to convert their ports into hubs, including for example Tunisia (an immediate neighbour to Libya) which reached the final stage of bidding to build a 5 million TEUs hub port at Enfida. Tangier port in Morocco is another more recent example, in addition to Algeria and Syria, the latter of which has concessioned one of its ports to global container terminal operators. Such tendencies towards innovation make the environment more dynamic and highly competitive.

The ambition of Libya to convert two of its principal ports into a hub for the region means that these ports will be opened up to competition with other ports in the region for transhipment trade. Such competition will make the external operational environment of the selected ports more dynamic and highly unstable. However, further actions are required in respect of the port operational characteristics and their governance structure in order to deal with such complex environmental issues and achieve national strategic goals.

3.4 Summary

This chapter has shown that there are eight container and general cargo ports lying along the coast of the country from east to west, half of them are principal ports and the rest are classified as secondary. Based on a survey conducted by the author in October 2009 which formed a part of this research, the sector in general is still underperforming in terms of capacity utilisation; all the country's ports combined handle a limited number of containers which does not exceed 300,000 TEU per year (as of 2008).

In spite of the changing climate of the country's business environment (institutional and operational) which impacts on the port sector directly and indirectly, it is true that the

primary effort is devoted to organising the hierarchy of the sector, and currently three different entities are involved in the Libyan container and general cargo ports industry. These three bodies are wholly-owned by the government. However, any major changes still need to be approved by the government, meaning that the sector still lacks autonomy and a clear policy.

Ghashat (2009) argued that it is important to allow the participation of the private sector in Libyan ports in order to facilitate their improved physical condition, via the introduction of new management skills and the enhancement of the quality of the dock labour force. This argument was based on the operational characteristics of the ports.

From the information presented in this chapter, the competitive environment and the new direction of government strategies and policies represent other challenges for the ports. In this respect, as discussed in chapter two, section 2.3.1, many researchers argue that the governance structure of ports should be altered in a way that will help them to survive in such an environment.

In the Libyan case, however, a more immediate question that arises relates to the selection of appropriate policies that would help achieve all of the government's future goals and objectives and help the ports to survive and develop in the ever changing environment. It is doubtful that only an upgrading of the physical aspects of ports and the adoption of new operational strategies will be enough. Instead, reconsidering the operational and management structure of the sector should be seen as the top priority and an effective means of achieving objectives. If changing the governance structure of Libyan ports is to provide the solution and to help expand trade , it is important to determine what is the ideal governance structure that balances stakeholder interests ?

Chapter Four

Research Methodology

4.1 Introduction

This chapter is dedicated to discussing research strategy and processes including data collection methods in general and those used for this research in particular. Alongside the questions developed in order to achieve the aims of this research, more than one source of data and research methods have been utilised, namely in-depth interviews, a stakeholder survey (classic survey) and Delphi experts survey (modified Delphi). Using more than one method in this way is referred to as the **triangulation** approach. The triangulation approach is applied to increase the validity and reliability of the research.

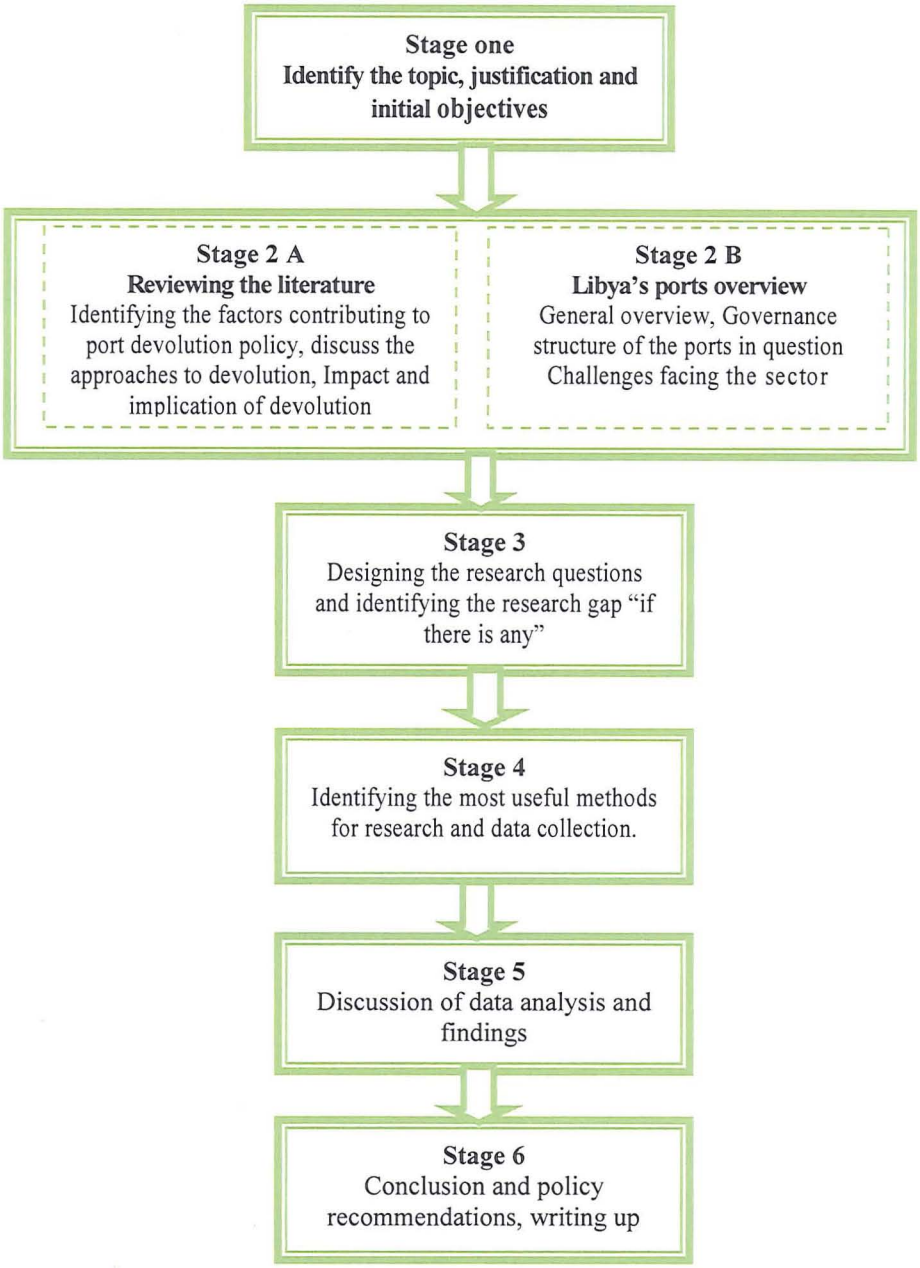
This chapter begins with a discussion of the research objectives and processes, alongside the research questions that need to be addressed in order to achieve the stated objectives. Then a broad picture of common research methodologies and strategies is presented. Data analysis techniques are mentioned briefly, as a precursor to the in-depth discussion in the data analysis and results chapters.

4.2 Research Process, Objectives and Questions

4.2.1 Research process and stages

When conducting a piece of research, Saunders et al (2009) state that there are certain common stages that the researcher should move through, and that the researcher will probably need to go through these stages more than once in order to reflect on the associated issues to refine his/her ideas. The number of stages varies, although they would be expected to include, (i) a plan and description of the topic of the research, (ii) a review of the related literature, (iii) designing the research, collecting the data and analysing it, (iv) writing up. The stages followed in this research are as described in figure 4.1.

Figure 4.1. Stages followed in this research



The topic of port devolution was selected as the subject of this research for several reasons. The foremost one is that in spite of the increase in the dynamism of the operational environment of Libyan ports, as discussed in chapter three, the ports are still public and highly centralised in terms of their management and operational structure, and do not interact with this dynamic environment. In addition, the sector has faced further challenges which affect the current situation and the changing strategies of the government. Secondly, the United Nations Conference on Trade and Development (UNCTAD, 2008) mentioned that Libya's ports have been targeted by the government for reform. However, from the Libyan viewpoint there has been no official policy document detailing such a policy. Although, Ghashat (2009) pointed out that the

operation functions of Libyan ports should be devolved to the private sector, his conclusion was based on the current physical condition of the ports, and did not discuss the different vectors affecting the governance structure of the ports (see chapter 2 for the factors contributing to port devolution), physical condition can be tackled by different means; Libya has the wealth to buy and install the technology (Salama and Flanagan, 2005), so the introduction of the private should not be the target/motivation of changing the governance structure of Libya's ports.

The identification of the area of research and the initial goals has already been formulated as the first stage. The second stage was to review the literature on port devolution including that which has been identified as privatisation or reform; ascertaining the reasons for the implementation of such a policy and the approaches and the impact and implications of the policy (chapter 2). This has been undertaken in conjunction with a review of the current situation of Libya's container and general cargo ports; this includes location, classification and operational characteristics of the ports and most importantly the governance structure of those ports under investigation (chapter 3). As can be seen from figure 4.1, the second stage is divided into stage 2A and stage 2B.

The third stage of the research involves designing the research questions and identifying any gap(s) in the literature, if there are any. Therefore, as at this point the research mainly focuses on Libya and the necessity to devolve the operational function of the container ports, the research questions at this stage are therefore developed so as to result in the achievement of the objectives of the research (refer to section 4.2.2).

The fourth stage of this research is allocated to determining the most appropriate research methods that will assist in achieving the goals and objectives of the research. It is during this stage that the data collection process takes place. This is followed by stage five when the analysis of the gathered data is undertaken alongside the discussion and interpretation of the findings.

The final stage of this research is the writing up, which includes developing the conclusion of this research and policy recommendations which might emerge. In addition, the contribution of this research to the field of port devolution in particular and port policy in general is highlighted.

4.2.2 Research objectives and questions

As mentioned previously (refer to chapters 1 and 2) the objectives of this research are to review the policy of port devolution in term of the concept, the factors behind the adaptation of such a policy and its approaches, in addition to a discussion of the impact and implications of port devolution. The research reviews the current situation of Libya's port industry in greater detail, whilst discussion of the challenges facing the sector is another aim of the research.

As a consequence of the above and based on study of the port devolution literature and an evaluation of the current situation regarding Libya's container ports, this work analyses the necessity of changing the governance structure of the ports in question, alongside a determination of an appropriate future governance scenario. Furthermore, this research investigates the impact of changing the governance structure of the ports in question on the government's objectives and on stakeholder interests. Finally, with respect to the Libyan case study, this research aims to identify success factors for altering the method for managing and operating the sector. For the purposes of this research, the following questions were formulated and need to be addressed:

> ***Question 1**: Is there any need for the implementation of a devolution policy in Libya's container and general cargo ports?*
>
> ***Question 2: What is the most effective approach for governing Libya's container ports in the future?***
>
> ***Question 3: What are the expected outcomes of the implementation of the devolution policy?***
>
> ***Question 4: What are the critical factors for the successful and effective implementation of the devolution approach?***

However, by answering the above questions, the research will either confirm or reject the finding of many research papers; such as Heaver (1995), Trujillo and Nombela (1999), World Bank (2001), Baltazar and Brooks (2001) and Heaver et al (2001) who have attributed the changes in port governance structure to changes in the operational environment of ports. In addition, the importance of the involvement of the private

sector in the container port industry will be assessed, as well as the extent of such involvement.

The research findings will prospectively further confirm or alternatively reject the conclusion of some researchers; such as Frankel (1992), Sherman (1995), UNCTAD (1995) and Humphreys (1999) who argue that the reduction of the government's roles in the ports will enhance efficiency, reduce the financial burden on the government's shoulders and allow the ports to operate in a commercial manner.

In order to successfully select a devolution policy, Brooks and Cullinane (2007c) argued that the selection should be linked to the attainment of objectives and goals; the immediate question that may arise is: what makes the implementation of such an approach successful? There is a gap in this subject area in the existing literature concerning port devolution, which will be bridged at the end of this research. In other words, this study aims to fill that gap in the existing literature.

4.3 Research methods

In conducting a research study, proper strategies should be carefully selected, as these play an important role in the research. The most common strategies are Survey, Experiment, Case Study, Archival and History (Saunders et al, 2009; Yin, 1989; Moor, 2006). Each of these is applicable to certain research goals and objectives:

- Experimentation is about conducting a test and monitoring the results and is derived from the method of scientific research. In scientific research the research is conducted in a laboratory, whilst in social research it is conducted in the real world.

- The case study is very useful when gaining a rich understanding and exploring an existing theory are the requirements. It may be either an exploratory or explanatory case study. The data collection techniques, which can be used when conducting a case study, include interviews, observation and documentary analysis. Such research could be based on a single case or multiple cases. A single case study is usually adopted when the case represents a critical case, extreme or unique case, while multiple cases are used when the findings from the first case are insufficient and a degree of generalisation is required. The case study could be a holistic case, which involves studying the organisation as a

whole, or an embedded case wherein the study focuses on an organisation's units (Saunders et al, 2009; Yin, 1989).

- Archival research involves using documents and administrative records as the main source of data. This strategy helps the researcher to answer questions, which focus on past events and changes over time, and is useful when the description of incidents or the prevalence of a phenomenon is required (Saunders et al, 2009; Bordens and Abbott, 2008).

- Survey is more suitable for conducting exploratory and descriptive research; investigating attitudes and predicting outcomes, and is the most common form of management and business research. The survey can be categorised into two main categories based on extensiveness; namely the "Census" and "Sample" survey. For the former the surveyor tends to contact the total population of the study while the latter chooses a representative sample selected from the total population. Bordens and Abbott (2008) stated that the survey is a highly visible and important research technique.

There are two types of data that can be collected when using one of these research strategies, namely, qualitative and quantitative data. As the main strategy used in this research is the survey, which is utilised to collect both qualitative and quantitative data, the following section discusses these types of data in depth.

4.4 Qualitative and Quantitative data

Qualitative and Quantitative data can be collected by a variety of methods and each one of them has its own characteristics. This research refers to the methods for collecting qualitative data as 'qualitative methods', while the methods commonly used for collecting quantitative data are described as 'quantitative methods'.

Denscombe (2003) classified case studies and interviews as qualitative methods, and argued that such methods help with gaining an in-depth understanding of the topic and allowing a conclusion to be drawn from fewer informants. Qualitative researchers believe that people's perceptions of the world constitute reality. Qualitative research is often open-ended and does not usually support any specific hypothesis. The results of this method are difficult to generalise, as the results are generated from different people

with varying knowledge and experience, and such results are based on opinions and understanding (Sarantakos, 2005).

Sarantakos (2005) and Saunders et al (2008) maintain that the results of quantitative research are based on analysing data statistically (to this end the data is usually collected in numeric form) and in this way the researcher builds up the research hypothesis based on an underpinning theory. Both qualitative and quantitative methods can be clearly distinguished from each other, as summarised in table 4.1.

Table 4.1. Features of Qualitative and Quantitative Methods

Qualitative	Quantitative
The aim is a complete, detailed description.	The aim is to classify features, count them, and construct statistical models in an attempt to explain what is observed.
Researchers may only know roughly in advance what they are looking for.	Researchers know clearly in advance what they are looking for.
Recommended during earlier phases of research projects.	Recommended during later phases of research projects.
The design emerges as the study unfolds.	All aspects of the study are carefully designed before data is collected.
Researcher is the data gathering instrument.	Researcher uses tools, such as questionnaires or equipment to collect numerical data.
Data is in the form of words, pictures or objects.	Data is in the form of numbers and statistics.
Subjective – individual interpretation of events is important ,e.g., uses participant observation, in-depth interviews etc.	Objective seeks precise measurement and analysis of target concepts, e.g. uses surveys, questionnaires etc.
Qualitative data is more 'rich', time consuming, and less able to be generalized.	Quantitative data is more efficient, able to test hypotheses, but may miss contextual detail.
Researchers tend to become subjectively engrossed in the subject matter.	Researchers tend to remain objectively separated from the subject matter.

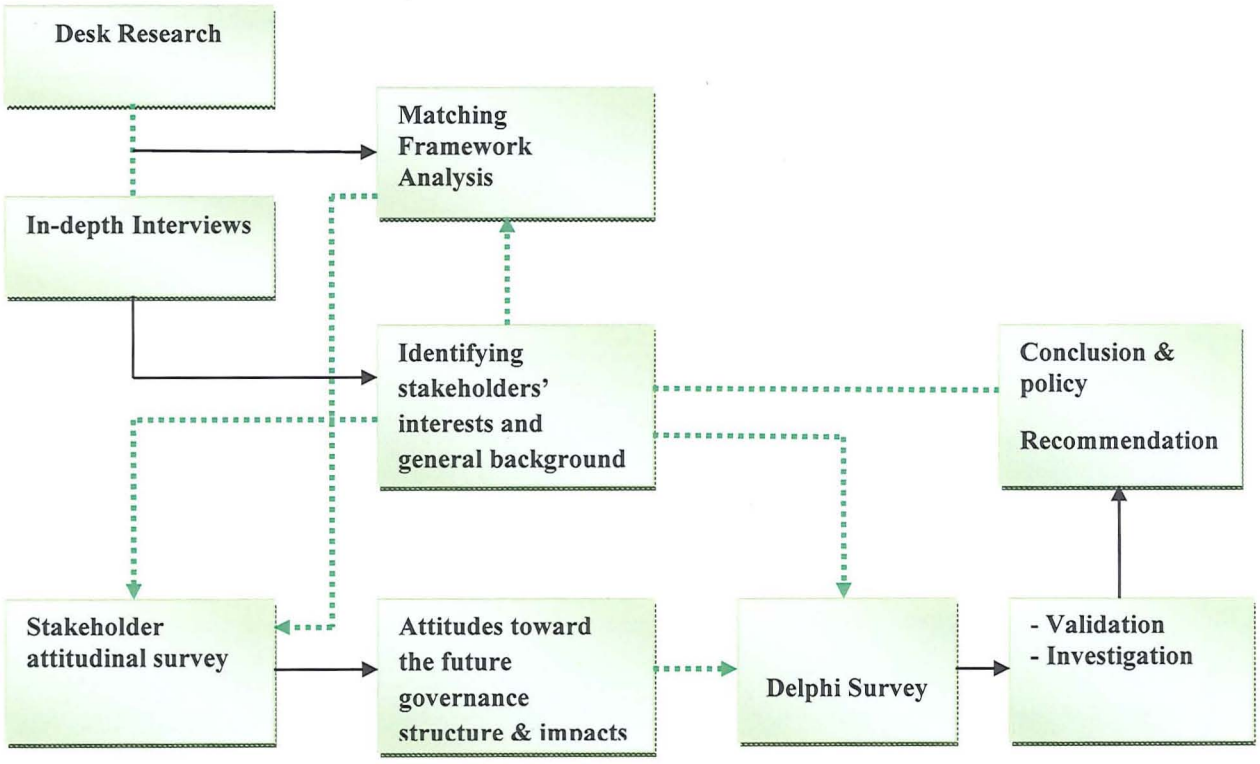
Source. Miles and Huberman (1994, p.40)

Campbell (1978) argued: "All research ultimately has a qualitative grounding", while Miles and Huberman (1994), stated that everything is either 1 or 0. This researcher is in agreement with such statements, as even quantitative research will ultimately need to be explained qualitatively, and qualitative research may be designed in a quantitative way in order to obtain the specific data required, to assure the clarity of the information and to facilitate the analytical process. In this research both of the data types have been utilised.

4.5 Methods in application

For the purposes of this research different research methods are utilised; namely, desk research (analysing the secondary data descriptively), in-depth interviews, a stakeholder survey (classical survey) and a Delphi expert survey. More than one source of data and research methods have been used in order to increase the validity and reliability of the research. Using more than one method in this way is referred to as a **triangulation** approach. Bryman, (2005) pointed out that social researchers are more confident about the findings of their research when they deploy more than one research method. In order to analyse the primary data that has been gathered, a variety of techniques were deployed. As shown in figure 4.2, the Matching Framework was used to analyse the qualitative data obtained from the interviews and other sources (a combination of primary and secondary data, from maps and documents). The Matching Framework was applied to analyse the necessity for a port devolution policy, and this assessment was then followed by the stakeholder attitudinal survey and finally the Delphi expert survey. The stakeholder survey and Delphi survey were analysed statistically using the SPSS 16 package. As discussed this research is built on both qualitative and quantitative approaches.

Figure 4.2. Research methods applied in this research



4.5.1. Rationale informing the methods applied.

The main purpose of this research is to predict the future operation and management structure of Libyan container and general cargo ports; in addition to describing the potential impact and implications of any proposed governance structure. It can be asserted that this research is most concerned with forecasting the future governance structure, its consequences and requirements.

In the case of forecasting studies, or as referred to by some researchers, future studies (Bell, 1997), there are different techniques that can be applied; such as simple moving average, regression analysis, cell-based modelling, etc., all of which can be classified as either extrapolative, exponential or explanatory methods (Makridakis et al., 1998; Sykes, 2009). However, all of these quantitative methods depend on the availability of historical data if they are to be performed successfully.

As can be seen from the above discussion, and particularly the introduction chapter and chapter three, the information regarding Libyan ports is very limited and almost nothing has been published, either globally or domestically. In addition there is some difficulty associated with obtaining information from the original sector data base due to a number of different factors, including the absence of a uniform database, and the hard records pertaining to the ports being either unavailable or difficult to access.

In other words historic data is scarce, which means that this research, particularly the parts related to Libyan ports need to begin at foundation level. On this basis, the researcher has utilised different sources of data, beginning with desk research utilising maps and government reports. Application of the interview method has helped considerably in shaping the groundwork for the research, techniques have been utilised during the research that are capable of acquiring in depth information and of achieving and understanding of the intentions and visions of different stakeholders in the Libyan port sector.

In this circumstance, to overcome the problem of the availability of historical data one or more Judgmental methods would be used (Bell, 1997; Makridakis et al 1998; Sykes, 2009). Judgmental methods include surveys; for example the Delphi method, scenario building and visioning. Other factors enhancing the usage of such techniques are the focus of this research on policy reform, future situations and forecasting; this is

especially important in a situation where, as mentioned above, historical data is sparse (Bell, 1997; Makridakis et al 1998; Sykes, 2009; Alder and Ziglio, 1996; Surowiecki, 2004). In this research situation, applying a Delphi and attitudinal survey offers the most convenient method by which to build a clear and reliable picture as to the best future governance structure, providing information as to the potential impact and requirement for successful devolution.

4.5.2. Desk Research

Moor (2006) stated that almost all good research begins with 'desk research'. Desk research involves reviewing the existing data and information that is related to the research topic. Moor (2006) further argued that literature review is the most common activity undertaken as desk research. For this research, desk research was mainly concentrated on reviewing the literature relating to port devolution, and reviewing the current situation within Libya's port industry. In order to draw a comprehensive and clear picture, statistics published by the SPC (mainly about the container handling at each port), the relevant resolutions issued by the government, and policy and legislative documents related to the country's port sector were reviewed, with specific reference to the sector's governance structure and government strategy. Furthermore, maps of the country and the region were used in order to explain the situation regarding the country's ports, with particular attention given to surrounding operational environment in the region where the ports operate.

4.5.3. In-depth interviews

In-depth unstructured interviews were used. Interviews can be conducted via telephone or face-to-face. The main features of the interviews include control over the responses, to reduce the number of refusals and allow the interviewer to decide about the best ways for gathering information from informants. In addition this will help the interviewer to collect more complex data (Moor, 2006). Furthermore, interview data can provide a fuller expression and help with questionnaire design (Saunders et al, 2008; Hall and Hall, 1996). However, the interviews in general are usually carried out only once per interviewee and in addition the interviews are generally not appropriate to structure diffuse information or provide consensus (Tieken et al, 2010). In terms of group discussion, the views of low-status members might be affected by the high-status members even when they hold a contradictory opinion.

However, despite the advantages of conducting interviews, it should be mentioned that the interview technique should not be used to assess the consequences of a program under investigation, or to draw a conclusion. Such disadvantages would not offset the potential value when using in-depth interviews at different stages of a given project or during the research process (planning, performance monitoring, and evaluation stages) (Longfield, 2004). This feature was considered when this technique was selected to serve the purposes of this research. In general an in-depth interview can be used successfully for the purposes listed below in table 4.2

Table 4.2 The usage of an in-depth interviews

Explore a relatively unknown behaviour.
Examine a sensitive study topic.
Obtain information from knowledgeable informants.
Learn the "how" and "why" behind behaviour.
Study complex behaviours and motivations.
Uncover local terms related to a topic.
Work with geographically dispersed informants.
Obtain information that might be influenced by peer pressure during FGDs.
Generate hypotheses for future research.
Develop language and survey content.
Generate new ideas for a program.
Improve project implementation.
Inform campaign/program development (pretesting).
Reveal images, language, concepts, and packaging that appeals to audiences (concept testing).
Clarify survey findings.

Source: Longfield, 2004

Interview process: certain processes need to be followed when conducting an in-depth interview; these are the same as the process involved in any other research, which includes planning, developing instruments, collecting data, analysing data, and then reporting findings (Boyce and Neale, 2006).

The planning phase involves the identification of the stakeholders who will be involved in the interviews, the information needed, and from whom it should be elicited. In addition it selects the most useful individuals from the group.

Instruments such as interviews succeed best when carefully prepared; this includes giving consideration to an introduction, including what should be said, the questions (based on the predefined theme of the interview), and any likely emergent themes which may be usefully discussed when raised. The method of recording the data needs to be considered at this stage. The data collection phase concerns the interview, which should be aimed at explaining the purpose of the interview and obtaining informed consent, summarising key data carefully and determining a way of verifying the given

information. Data can be recorded by different means including field notes, audiotape or videotape.

The next phase is the data analysis, which can be conducted using different approaches including, thematic analysis and content analysis. However, in general, the data obtained is usually analysed subjectively by organising the information based on the questions asked in the interviews or the theme, using boxes, matrices and grids. There is software that can be used to analyse the in-depth interview data, however, qualitative software packages do not generate definitive answers; they simply assist with data organization, enabling the researcher or research team to better interpret any study results (Longfield, 2004).

In-depth interview for this research- The in-depth interviews were conducted with key people in Libya's shipping and port industry sector, including employees of the LMTPA, SPC and MFTZ, in order to understand the focus of stakeholder attitudes in respect of the Libyan port situation.

The general themes discussed during the interviews are discussed in detail in chapter five section 5.5.1, and the main purpose of the interview was to obtain new information about s specific topic and to investigate the views of certain people in relation to that topic. The general themes were derived from the literature relating to port devolution (refer to chapter 2), and the selected themes covered entire aspects associated with changing the governance structure at the ports; starting with the motivation behind enhancing the situation and the condition at a given port, considering devolution and alternative policies for achieving such goals, and ending with emphasis on the alteration of the governance structure at Libyan ports and the acceptability of such an intention.

The aim was to establish the interviewees' interests, and discover if there is a real desire to enhance the situation of Libya's container ports in relation to the market and to enhance their technical performance in order to face contemporary challenges (the dynamism of the environment and the new direction of the government strategies).

Furthermore, the in-depth interviews was utilised to indicate the best way(s) to achieve such a goal, this will assist the researcher in identifying any common and individual interests that need to be met and fulfilled. The interview was vitally important as it helped the researcher to identify the interests of the key stakeholders'. Then, following

the suggestion by Brooks (2007), these interests will be used hereafter as a measure of the devolution programme's performance. The derived information helped the researcher considerably in constructing the stakeholder's survey.

From the methods for data recording discussed above, it was decided in this research to take field notes (refer to Appendix I *A, B* and *C*). This was a result of different factors, which include the fact that this method is useful when attempting to capture nonverbal information and is appropriate when the participants are not comfortable with the interview being recorded using video or audio taping(Mack et al, 2005). The participants asked the researcher not to record the interviews and they suggested taking notes instead.

4.5.4. Stakeholders' survey

The questionnaire can take the form of a self-completion questionnaire or a formal interview (structured). A self-completion questionnaire is one of the main techniques used in this research to investigate stakeholder perspectives of Libya's container and general cargo ports. This technique is characterised by the low cost of data collection and analysis. It can be used to survey large numbers of respondents at different geographical locations, interviewer bias can be avoided, and it can increase respondent's willingness to complete the questionnaire as anonymity can be secured. Additionally it is useful for collecting data on non-contentious and straightforward topics (Moser and Kalton, 1985; Oppenheim, 1992; Moor, 2006; Bordens and Abbott, 2008).

The drawback of this technique is that it prevents the exploration of complex issues and cannot acquire information of great depth. The response rate is invariably low even when the questionnaire is distributed by hand and providing further explanation on questions or the correction of misunderstandings is impossible (Oppenheim, 1992; Moor, 2006).

Questionnaire surveys can be dispatched to participants either by post, hand, fax or internet (internet-based survey), with the latter becoming more popular as it is more economical in time and cost and easier to administer than other forms of dispatching and it has the advantage of allowing for an easy self-completion questionnaire. Burns and Burns (2008) argue that this way of distributing questionnaires has some

disadvantages, which can include data storage, ethical issues and resubmission by the same individual, though general invitations can potentially lead to biased samples.

An internet-based survey was employed in this study because it has the advantage of being a self-completion questionnaire in addition to its own features, which include highly motivating voluntary participation. This allows the researcher the opportunity for continuous data collection. Further reasons for selecting this method are that it can reach the participants at their workplace, regardless of their location and without interruption of their schedules. In addition, the delivery medium of the questionnaire is secure.

For this research, the **Survey Monkey** web-based tool was used. The drawbacks of an internet-based survey were overcome by sending the survey to each participant individually. From the facilities available on the web, each participant was allowed to submit the questionnaire only once and then the data was stored by regularly saving it in a different location.

4.5.4.1.Population

This research has been designed to elicit and measure attitudes and opinions of Libya's ports' stakeholders in respect of the current situation and potential future governance structure. Stakeholders have been identified as those (a person, group, organisation or system) who influence or can be affected by an organization's actions, policy, plan or objectives (Freeman, 1984). Surveying stakeholders is vitally important as it leads to obtaining valid and reliable findings (Brandon, 1998; Cousins and Earl, 1992; Sanders, 1994). In addition, Brooks (2007) on the basis of other work, stated that the satisfaction of stakeholders is an important measure in program performance evaluation. For Libya's ports, and in this research, we have concentred on those impacts that can be affected by the sector management style. Thus, the stakeholders are the LMTPA, SPC, MFZT and Shipping Companies (SCs) (dealing with a port's customers). In addition, some companies are working only as consultants (independent consultant IC).

The Libyan Maritime Transport and Port Authority (LMTPA) represents the government in terms of port ownership, working to protect public interests, planning strategic goals and objectives and evaluating the sector in respect of its performance and areas of development. This entity is concerned with enhancing the performance of the ports and achieving an international standard, changing the function of the ports from

being just a node for exchanging cargo for the local market, to ports competing with the rest of the of region's ports for transhipment.

The Socialist Port Company (SPC) is another main player in Libya's container and general cargo ports. As it is the only operator working at Libya's principal and secondary ports, any changes in the governance structure will certainly affect it directly. This company is responsible for the vast majority of the workforce since the labour at container ports is usually hired and employed directly by this company.

Applying a policy of devolution to Libya's ports will release the sector from monopoly and allow different entities to participate in operational tasks and this will inevitably cause the SPC to lose some of its business. This is not just an assumption, as it has already happened when the port of Misurata transferred to the Misurata Free Trade Zone Company.

The Misurata Free Trade Zone (MFTZ) is the entity controlling all the port functions of the port of Misurata. Since there is no competition even in operational tasks, it is a "monopolistic marketplace". The survey targeted this entity as the dominant one in the country's principal port to see how an alternative way of managing and operating the port would impact the company directly in either a positive or a negative way.

Activities such as freight forwarding, ship agency, customs clearance and cargo handling are usually conducted by companies called **shipping companies** or **Marine services companies**. For the purposes of this research these companies are generically referred to as shipping companies. These companies were selected for the purposes of this research as they are closely involved in the daily operations of the ports in question. They can provide a real indication about the performance of the ports and the area needing to be improved as they have close dealings with the shipping lines serving the Libyan ports and the shippers. Thus, they have a lot of experience of customer satisfaction at Libyan ports.

A survey can be categorised into two main categories based on how extensive it is, these are namely the "Census" and the "Sample" survey. For the former the surveyor intends to contact the total population of the study, while for the latter a representative sample will be selected from the total population.

On the basis of the sample selection process, the sample could be non-probability or judgmental sampling or, alternatively probability or representative sampling. The former includes quota sampling, snowball, self-selection, purposive and convenience sampling; these are types of sampling that are used when the population is widely dispersed and cannot be clustered or where a sampling frame is unavailable. Probability sampling includes simple random sampling, systematic, stratified and multi-stage cluster sampling. Probability sampling gives the opportunity in each case to select from the population, with the probability of being selected equal in each case.

For the purposes of this research the survey employed is a census survey. The data was collected from the entire population, with no sampling technique deployed. Even dispatching the survey to the entire population of Libyan port stakeholders results in quite small sample, due to the size and the structure of the Libyan market; the LMTPA is one entity, the SPC is one entity and the MFTZ is one entity. In this respect Henry (1990) argued that for a population of less than 50, it is important to collect data from the entire group. As the number of stakeholders is limited the researcher sent more than one copy of the questionnaire to the management of these entities. The survey was also sent to all of the 103 shipping companies operating in the Libyan marketplace.

4.5.4.2.Questionnaire theme, structure and design

The survey begins with seeking an indication of the satisfaction of the stakeholders about the technical performance at the ports. Stakeholders were asked to indicate on a Likert scale (from 1= totally unsatisfied to 5= totally satisfied) to what extent they are satisfied with the current performance of the Libyan port/ports that they have dealings with. They then identified the most crucial areas for performance. Items judged to play an important role in the performance of any given port were listed and included; a port's infra- and superstructure, competition, autonomy, the governance structure, dock labour quality and diversity of port services. The stakeholders were then asked to indicate on a Likert scale how important each of these items were for enhancing performance (from 1= not important to 5 = critically important). All of these items were listed to test the spectrum of stakeholder interests.

To achieve an understanding of a given governance model, it is necessary to know how specific activities or services of enterprises are provided (Brooks and Cullinane, 2007a). For the ports, the governance structure can be considered as an allocation of the

responsibility for providing port functions between different entities. However, the pre-survey process (informal discussion) revealed that not all of the port functions identified by Baird can be transferred, especially into the hands of the private sector; i.e. there are transferable and non-transferable functions which derived from the in-depth interviews.

Therefore, to predict any future governance structure, the stakeholders were asked to indicate how the transferable functions should be provided /conducted in order to enhance the performance of the ports. Six possible entities were listed in the questionnaire including the Central Port Authority (CPA), a public port authority at the port level (PA), a Corporatized Entity (CoE), a Concession arrangement (CoA) such as build-operate-transfer, a Joint Venture between private and public sector (JV) and, finally, the Private Sector alone.

Finally, beyond tying the governance structure to the objectives explicitly, we tend to examine the impact of what the stakeholders regarded as the best governance structure for Libyan ports according to the spectrum of different stakeholder interests that elicited from the interviews, with the situation of stakeholder interests representing the devolution programme performance measurement. The stakeholders were asked to evaluate the future situation of the elements listed in the questionnaire with 1 = will increase significantly to 5 = will decrease significantly

Panneerselvam (2004) pointed out that the definition of the research topic and related objectives are essential issues when designing and structuring questionnaires because the questionnaire depends on these issues. He further argues that the researcher should be clear about what he/she wants to measure in order to assure the clarity of the research. This survey identified the research topic, which relates to the necessity or otherwise of applying devolution policy to Libyan ports and the future implications of doing so.

A well-designed and structured survey will help minimise the drawbacks that are discussed above. For this purpose Ross et al (2002) suggested that the three components of the questionnaire must be designed and structured in a way that leads to greatest benefit. These components are the covering letter (since this is a web survey, the covering letter was written in the email sent to the participants), instructions and then the questions. The covering letter should contain an explanation of the survey's purposes, show the importance of the survey and motivate the respondent to respond

quickly and truthfully. In addition, it should assure the privacy of the respondents (anonymity and confidentially). In this research simple words are used in the introduction to describe the research study and the sponsor, the entity supervising the research and the purposes of the research. The emphasis is placed on the anonymity and confidentiality of responses. To whom, when and where it should be returned are mentioned clearly in the letter.

In terms of designing the questions for the questionnaire, there are several types of question that can be used for a questionnaire survey, including closed and open questions. Closed questions are easy for respondents to answer as they allow them to choose between limited answers (often called multiple-choice questionnaire), and are easy for the surveyor to analyse. Open questions allow respondents to express their answers based on their own words, but are difficult and time consuming to analyse, and also require that respondents are willing to provide such answers (Moor, 2006; Ross et al, 2002).

Thus, closed questions were used in the survey designed within this research (refer to Appendix II) to help achieve greater reliability and to make it easier for coding as this type of questionnaire provides the participants with a limited number of alternative answers to choose from. A five point Likert scale response was deployed as the survey sought to obtain the opinions and attitudes of the stakeholders towards the future governance structure and its potential impact on Libya's container ports.

Burns and Burns (2008) argued that the introduction should include the instructions for the completion of the survey and the estimated time for completion. The researcher must also communicate up-front with the participants about why they should participate and Burns and Burns (2008) further suggest that the questionnaire be kept simple and short. Therefore, the stakeholders were communicated with prior to being sent the survey and instructions on how to complete it were provided in both the introduction and in the questions.

A part of the survey aims to provide definitions for some of the terminology used in the questionnaire in order to minimise any misunderstanding of the survey questions. In addition, as the stakeholders are based in Libya, the survey was sent in two languages, Arabic and English (see Appendix II). The appropriate sequence is important as it helps respondents to have a better understanding (Panneerselvam, 2004). The sequences will

help stakeholders to answer the questions smoothly. Panneerselvam (2004) identified four types of questions that should be considered. These include personal details, introductory questions, simple questions to build opinion, and focused questions relating to objectives Thus, the survey started with general information and then moved on to obtaining stakeholder opinions about performance, and the areas that must be improved to enhance performance and achieve the government's future objectives. The stakeholders are asked about who should provide the different functions of the ports; their answer will provide an indication to the preferred governance structure for the sector. The survey then asked the stakeholders to anticipate the potential impact of their preferred scenario. The questions were designed to be listed in smooth and logical sequences (refer to appendix II).

4.5.4.3.Pilot Study and data collection

Administering the questionnaire to a limited number of potential respondents and to others familiar with the topic of the survey and its purposes helps with identifying and correcting design flaws, enhancing reliability and the content validity of the questionnaire, in addition to assuring the better understanding of the questions (Parasraman, 1991; Panneerselvam, 2004; Saunders, 2008).

Following the development of the questionnaire in December 2009, the researcher discussed it with his supervisors; they are well known experts in this area of research and their final comments were obtained. Further, the researcher discussed the structure of the survey with other academic staff who are experts in research methodology. The questionnaire was then sent to five well known individuals in the Libyan industry; the only suggestion provided by these Libyan experts related to translating the questions into Arabic in order to avoid misunderstandings, thus, the researcher sent out the final version of the questionnaire was distributed in two languages (Arabic and English).

The final version of the questionnaire was sent to the stakeholders at the end of January 2010. The survey was sent to each stakeholder individually on the same day, and the deadline for completion of the survey was the end of February 2010, giving a period of five weeks to complete it. During that period, reminders were sent to the participants by email every week, with copies of the survey attached to each email in order to secure the effectiveness of the reminder (Moore, 2006) and by phone every two weeks in order

to encourage them to complete the questionnaire on time and answer any questions they may have had.

4.5.5. Delphi experts' survey

4.5.5.1.Background

The Delphi technique was originally used for military purposes during the 1950s by the U.S.A. Air Force. The study was based on a panel of experts, and its objective was to obtain the most reliable consensus of expert opinions (Dalkey and Helmer, 1963; Linstone and Turoff, 1975). However, since 1964, a huge number of Delphi research studies within the civil sector have been published, covering long-range planning in different disciplines including education, international affairs, transportation, leisure activities and so on (McCampbell and Stewart, 1992); use of the technique has spread worldwide.

The technique typically consists of a series of questionnaires and a number of rounds; in each round a pre-selected panel of experts is asked to provide their opinion or make judgments on a specific subject matter. At the second and subsequent rounds these initial answers are fed back to the panel, in order for the experts to reassess their answers in light of the other panel members' answers. However, during the 1960s different approaches to Delphi were introduced, including the Policy, Real-Time and Modified Delphi. All three of these approaches have characteristics in common with the Typical Delphi technique; however, they are distinguished by the structure of the survey, method of distributing the survey and its main purposes.

With the main characteristics of the technique in mind, a **Typical** Delphi was introduced for forecasting purposes and to provide a consensus elicited from an open-ended questionnaire, while in the **Modified** Delphi the survey is commonly structured with pre-defined items. A **Real-time** Delphi is about using the survey electronically (web-based survey) either in the Typical or Modified form; in this approach the participants are allowed to log on several times within a predefined time frame to review and reassess answers in light of the other participants' responses (Turoff and Hiltz, 1995). A **Policy** Delphi is more about employing a group of "advocates and referees" to present all the options and supporting evidence for a given issue, and "generates the strongest possible opposing views on the potential resolutions of a major

policy issue." It is less about the use of experts to generate a policy decision (Linstone and Turoff, 1975). It can be conducted either in Typical or Modified form and utilising web technology or a survey distributed in traditional ways (papers via post, fax or by hand).

4.5.5.2.Delphi characteristics and features

The characteristics: the technique has unique characteristics that make it more effective than other survey techniques; these features include *anonymity, iteration, controlled feedback and statistical aggregation of group response*. Such features eliminate the drawbacks of other survey techniques and combine the advantages of different survey approaches.

Surveying experts: the most important feature of the technique is that the Delphi does not survey a random sample, but employs experts in the area of research.

Anonymity is achieved by using the self-completion questionnaire; such an approach will help the participants to express their opinions and judgements privately and without any influence or pressure from other participants (Goodman, 1987). Goodman (1987) and Jeffery et al (1995) pointed out that each opinion given by the experts is of equal importance. Furthermore, they argued that subject bias is eliminated as the experts' identity remains unknown, encouraging them to provide true opinions.

Iteration; as the Delphi technique consists of a series of questionnaires (rounds), thus, the participants are given an opportunity to re-asses their opinion and judgment anonymously. The questionnaires are repeatedly sent until a consensus or answer stability is achieved (Beretta, 1996 and Green et al, 1999).

Controlled feedback occurs between iteration and each member of the group of participants is informed of the answers provided by the others whilst protecting anonymity. The feedback helps in achieving a consensus of opinion and/or judgment (McKenna, 1994)

Statistical group response is based on medians and upper/lower quartile or means and standard deviations of the aggregated response of individuals for each round. Such procedures helped the researcher to summarise the responses based on descriptive statistical analysis, and then recollect the views repeatedly until a balance of answers is

achieved or there are no further changes in the consensus of the group (Linstone and Turoff, 1975; Rowe, Wright and Bogler, 1991; Loo, 2002)

The Features: the characteristics discussed above distinguish the Delphi technique from other methods (e.g. group discussion and in-depth interview). As the technique structures the group communication process, it helps to eliminate the influence of high ranking people over lower ones. As discussed above the Delphi technique can be used in different areas in order to develop policies and for the planning and testing of hypotheses (Lee, 2002). The effectiveness of the technique is further enhanced by the fact that the Delphi can be used to collect qualitative and quantitative data or both types of data in combination. Therefore, it allows the researcher to make subjective judgments as well as objective ones (Skulmoski et al, 2007). In addition, for forecasting purposes the Delphi is more reliable, especially when there is limited data available. Economically, the technique is cheaper in terms of cost compared with other techniques. For example, the classic survey. It is also less time-consuming and enables samples in different geographical locations to be reached (Turoff, 1975).

4.5.5.3.Delphi technique pitfalls

The technique has been criticised by many researchers, and many of them have cast doubt on its reliability (reliability being defined as the credibility and reputability of the results) of the Delphi forecasting method; e.g. Walker and Selfe (1996). Williams and Webb (1994) and Woundenberg (1991) questioned the reliability and accuracy of the results of this forecasting method. Webler et al (1991) were concerned about the panellists' commitment to the technique process and development, although other researchers (e.g. Kastein et al 1993; Ono and Wedemeyer, 1994) stated in their study that the Delphi outcomes were reliable. Goodman (1987) criticised the validity (validity being the accuracy of the survey measurement) of the technique (especially the face validity which is more about the appropriateness of the measurements utilised; he attributed such pitfalls to the lack of influence of the researcher at the survey stages). Broadly speaking, Goodman's argument can itself be criticised, as the Delphi technique is flexible and the researcher can adjust and modify the later rounds based on the pilot survey and experts' comments. However, he further argued that the content validity cannot be ensured (content validity refers to the extent to which a measure represents all facets of a paradigm under study). Such criticism may have arisen as a result of one or more combinations of the pitfalls summarised by Tapio (2002).

Tapio (2002) summarised the pitfalls and their sources indicated in the literature and classified them into eight categories. The pitfalls include **Biased selection of the experts:** in order to avoid the problem of reliability of the panellists, which may occur when the experts are from the same discipline and therefore colleagues, he selected for his study experts from different disciplines and backgrounds (academics and practitioners) (further discussion on the selection of ideal experts are presented in the next section). **Anonymity** is seen as a reason for the lack of commitment; Tapio (2002) therefore suggested asking the experts to act as a representative of their organisation. **Disagreements:** in spite of reaching a consensus during the Delphi survey, some of the experts were not in agreement with the rest of the panellists; thus, he suggested that, especially for policy issues, an alternative scenario should be considered which would not aim for a consensus. This point had previously been mentioned by Linstone and Turoff (1975) (please refer to the preceding section). Furthermore, he stated that the **ambiguity of the survey questions** represents another problem concerning the reliability and validity of the Delphi method; in the first round of his study he used a structured questionnaire to overcome such a pitfall, and he followed the framework of Brockhoff (1975) (please refer to the forthcoming section). In addition, he identified the pitfall of the **oversimplified structured inquiry,** which can be avoided by leaving room for new ideas, and the lack of **feedback and summary reports,** which can also be overcome by providing a report, as demonstrated in this research.

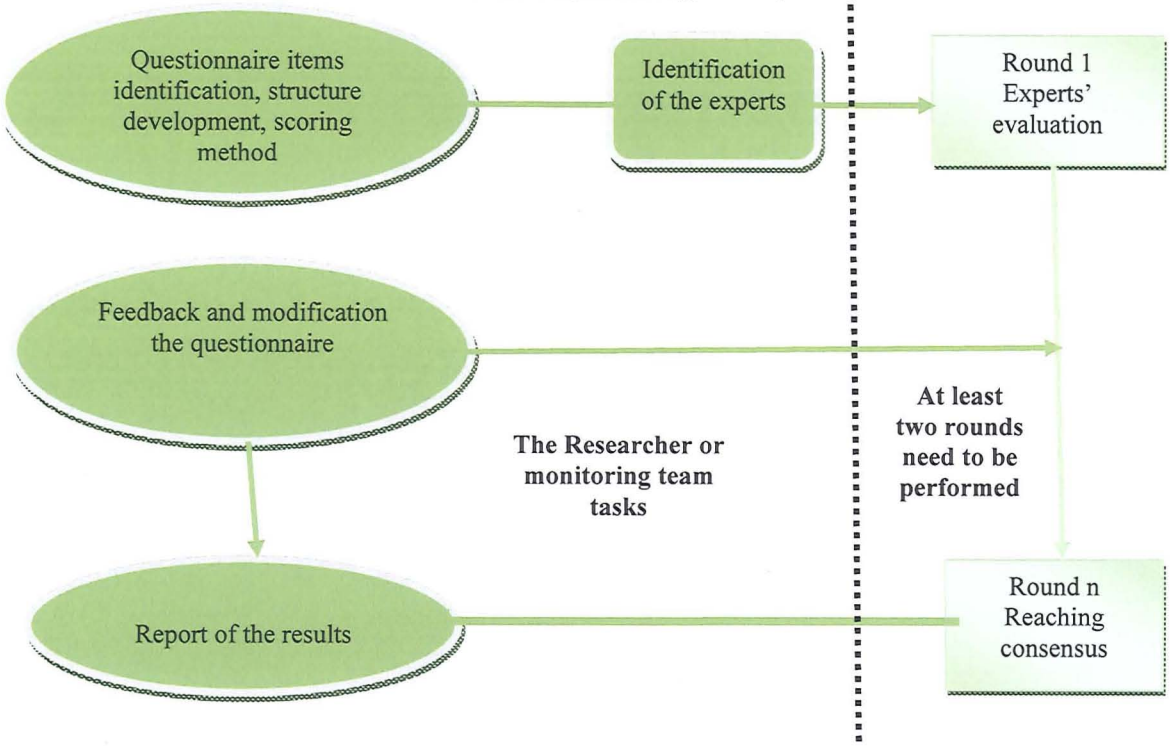
Based on others' work, Tapio (2002) has further stated that the **arguments** have not had a central role, while the ideal posited by the Delphi is that the best argument should win: such a statement is, however, rather incomplete or invalid as, regardless of the structure being utilised, the technique is very likely to showcase the views of experts at two ends of the spectrum of argument. The lack of **theoretical** understanding of the methodological procedure, and theoretical framing would lead to the assumption that such a statement is true; this can be considered as an advantage, as it further enhances the flexibility of the technique.

4.5.5.4.Delphi process and design

The typical Delphi survey process is shown in figure 4.3, and starts with the designing of the survey and identification of the experts' panel. The following rounds then provide feedback on the previous ones. This section endeavoured to discuss the ideal process

and structure of the Delphi survey that would help in achieving reliable and acceptable outcomes as well as eliminating the pitfalls of the technique, as discussed above.

Figure 4.3 General Process of the Delphi survey, developed from the literature



Questionnaire development: The questionnaire items can be derived from different sources. Martino (1983) pointed out that the first round of the classical Delphi is unstructured, in order to allow individual experts to express their views and opinions on the problem area, and then a structured questionnaire is produced by the monitoring team, based on the experts' comments, which is subsequently addressed to the panellists during the next rounds.

Moreover, Brockhoff (1975) stated that round one is commonly structured to make the application simpler for the monitoring team and panellist. The items for the structured first round are usually derived from the literature on the subject under investigation, or based on the information gathered from another survey. Oranga and Nordberg (1993), in their study of the generating of information on health services, built their first round Delphi on the information obtained from a household survey. In terms of scoring, the Likert scale is the common scoring method used with the Delphi survey (Thangaratinam and Redman, 2005). However, the information gathered via the scoring may be insufficient to base a conclusion; thus, clear in-depth results are more desirable.

Selection of experts: as mentioned above, the most important element of the technique involves the expert panel. Green et al (1999) suggested that the first stage in the Delphi process is the selection of the expert panel; the two main aspects which need to be considered at this stage are the qualifications of the experts and the panel size. In terms of the experts' qualifications, McKenna (1994) defined the experts as a group of informed individuals and specialists in their field, Goodman (1987) regarded the experts as those who have knowledge about a specific subject. However, there are no globally recognised criteria for the selection of the panel of experts. In order to obtain reliable responses, the respondents should be impartial, and Delbecq et al (1975) pointed out that heterogeneous groups, with varying personalities and different perspectives on the subject under investigation, produce high quality and highly acceptable outcomes (as will be shown in chapter six, the entirety of the above discussion was considered when selecting the panellists for this research). As regards the panel size, there is no specific number of panel members required; Delbecq et al (1975) suggested that the number of panellists depended on the scope of the problem and resources available, including time and money. Powell (2003) and Thangaratinam and Redman (2005) pointed out that the Delphi method does not require the experts to be representative for statistical purposes; indeed, the quality of the panellists is deemed more important than the number. Linstone (1978) suggested that the proper minimum panel size is seven, Thangaratinam and Redman (2005) stated that the panel size can range from four up to thousands.

Number of rounds: The number of Delphi rounds varies from one research study to another. Brockhoff (1975) stated that the optimal outcomes of the Delphi are gathered in the third round. However, the minimum number of rounds required for the Delphi is two (Thangaratinam and Redman, 2005), although, some researchers, for example Kuo and Yu (1999) and many others have concluded the Delphi in the first round. Such an action does not allow the participants to evaluate their responses, which means that the technique's main characteristic is eliminated. As discussed above, the researcher (monitoring team) provides the panellists with feedback on the responses from the previous rounds in order to help them reassess and evaluate their answers in light of the other experts' answers (refer to figure 4.4). The rounds are analysed and redistributed, which allows for the rapid collection of expert views. Such a process motivates the panellists to active involvement in the improvement of the process, which leads to an acceptance of the findings (McKenna, 1994). The process is usually stopped upon reaching a pre-defined 'stop criterion' (e.g. number of rounds, achievement of

consensus or stability of results), and the determination of the results usually takes place after this final round, based on the mean or median of the answers.

Consensus and data analysis: the typical Delphi survey aims to elicit a consensus on a predefined issue(s), and one of the challenges facing the technique is the interpretation of the consensus. Across the existing literature different concepts of a consensus can be found. The definition of a consensus is the general agreement of the participants regardless of whether they were unanimously for or against the subject. Williams and Webb (1994) and other researchers supported this definition, with differences in the percentage of the agreement level, while others have defined a consensus as the stability of the answers. Thangaratinam and Redman (2005) stated that to seek a consensus is not always the best strategy, as the process tends to force a consensus.

However, in order to avoid the forcing of a consensus, other research studies (e.g. Shrout and Fleiss, 1979; Graham et al, 2003; John, 2010; Palter, 2010) have all tended to estimate the homogeneity or consistency of experts' opinions and views by using Cronbach's alpha. Such an approach can help in reaching a consistent answer, but this is achieved without indication of the degree of agreement on a final rating scale. Such a technique was selected for the purposes of this research as it allows us to observe the consistency of the panellists, which reflects internal consistency for each item. Furthermore, Cronbach's alpha as a measure for consensus will assist in identifying the opposing viewpoint, and the process of the Delphi can then be stopped before 100 % agreement is reached. (The approach is discussed in detail in chapter seven).

4.5.5.5. Delphi technique in this research

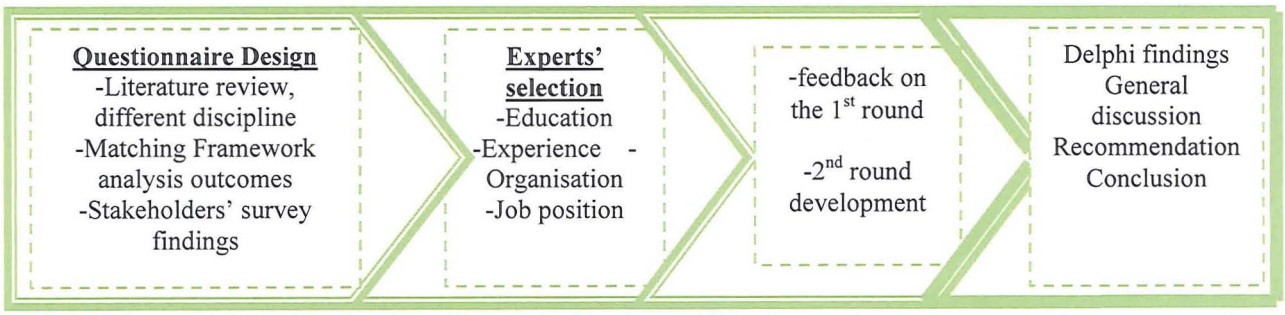
The Delphi technique was used across different area to assess a variety of issues (such as Health care and Education policy),in the transport sector in general one study was conducted using Delphi survey. The research was entitled "Road freight privatisation in Egypt, a comparative analysis with Great Britain and Hungary" (Abdel-Fattah, 1997) and focused on privatisation whilst the process was being undergone. Thus the research analysed the problems facing privatisation in the early stages, as well as its impact on the road freight industry, in addition to the treatment of external costs that arose under privatisation. Subsequently, the research aimed to investigate and analyse the structure of the road freight industry, its costs, and how the privatisation of the industry was approached under three different regulatory systems (the UK, Egypt, and Hungary). The

researcher justified the usage of a Delphi survey due to the fact that there was no empirical data available regarding the Egyptian road haulage industry.

In this research the technique was developed for two purposes: **Firstly**, in order to validate the findings from the previously discussed methods used in this research. **Secondly**, to investigate the experts' opinions regarding what can make the implementation of the devolution policy successful.

In order to assure the effectiveness of the technique, the stages were constructed based on the literature and the findings of previous research methods and analyses applied in this research. Furthermore, the researcher reviewed literature from other industries, in order to derive or investigate the factors and/or processes that played an important role in the successful changing of the governance structure. Nevertheless, the structure of the first round of the Delphi survey in this research was a hybrid, in the sense that it contained structured closed questions (to obtain the maximum benefit from the technique, refer to sub-section 5.4.4 of section 5.4), and open questions, which aimed to investigate any further success factors. Then the selection of the panellists took place: at this stage the researcher identified the most reliable experts, developed his own criteria (refer to chapter seven), and followed the suggestion of Delbecq et al (1975) by selecting a heterogeneous group, which was larger than the minimum size suggested by Linstone (1978). The process and stages of the Delphi survey of this research are shown in figure 4.4:

Figure 4.4 The Delphi Process and Stages for this Research



In terms of the analysis, the researcher has considered the consensus to be the homogeneity or consistency of experts' opinions, as this better describes the mission of the Delphi method and helps to avoid the forcing of a consensus. In addition, it allows the consideration of the opposing view. Thus, the answers given by the experts (opinions) were represented by their scores for each questions' items, which were analysed statistically using the mean value and standard deviation of their scores.

4.6. Research ethics

An 'ethic' is a moral principle or a code of conduct which governs what people do. It is concerned with the way people act or behave. The term 'ethics' usually refers to moral principles, and guiding conduct, shared by a group or even a profession (Wellington, 2000).

Ethics is not just something that should be considered at the beginning of a research project / prior to fieldwork. Wellington, 2000, pointed out that ethical concerns should be at the forefront of any research project and should continue to be so through to the write-up and dissemination stages.

In general there are a number of codes and guidelines that have been developed and need to be followed when conducting research. For business and social research, Burns and Burns (2008) pointed out that there are common ethical issues that have been developed to protect research participants, and manage the rights and responsibilities of researcher, sponsors and society in general.

These issues include societal rights, participants' rights, participants' responsibility, sponsors'. rights and responsibility. The researcher should comply with the ethical concerns described under each issue. Societal rights define that researchers are obligated to be objective (unbiased) in their research, maintain scientific rigor, report results, and that society should be informed about important results, regardless of their nature.

Participants' rights include voluntary participation; sufficient details about the study should be given to every participant to help them to take the right decision about their participation. Participants should be safe and unharmed; which is related to the right to anonymity and freedom from undue stress. In addition they should be fully informed, not just about the nature of the research, but also of any possible risks or potential benefits. Full assurance of confidentiality and the privacy of the participants mean the researcher should assure that he/she fully complies with such terms.

When participants agree to participate, in an honest and conscientious frame of mind, they should follow the research instructions and stick the time arranged for the research.

In this research, as can be seen in the empirical analysis chapters, the researcher observed the major ethical issues stated above, which is an obvious process. The

purpose of the research was made clear, the participants were also asked in advance if they were willing to participate or not. In addition, anonymity was considered on the basis of the participants' requirements. A scientific process for the research was followed and the results reported, published and sent out to those interested and requested in advance.

4.7. Summary

An overview of the research process and objectives took place in this chapter, alongside a brief explanation of the research methods used in different areas of business and management research.

The research methods used for the purposes of this research were introduced in detail. These included the survey, which consisted of the interview, the classic survey which targeted the sector stakeholders. This chapter has discussed the questionnaire survey in detail. The Delphi experts' survey is another technique that has been utilised for the purposes of this research, but this chapter only provides a general discussion of this method. The Delphi process and stages will be discussed in detail in chapter seven. In addition, the analytical techniques used for collecting data were mentioned briefly in this chapter.

Interviews and reviewing of the relevant documents were both used by the researcher to build up an overview of Libya's container ports (chapter three), the information collected via the interviews (alongside maps of the country and other qualitative data sources e.g. maps) is used for the Matching Framework analysis in chapter five (where the matching framework is discussed in depth), and this information assists in preparing a classic questionnaire survey.

The classic questionnaire survey was deployed in this research in order to investigate the sector's stakeholders' perspectives in respect of the implementation of the policy of port devolution and its potential impact and implications. The Delphi survey was dispatched to the industry experts in order to enhance the findings of the matching framework analysis and questionnaire survey alongside the investigation of the critical factors for success of the port devolution policy.

Chapter Five

Matching Framework Analysis and Stakeholders' General Perceptions

5.1 Introduction

The current governance structure of Libya's ports was reviewed in chapter three. This examined the challenges facing the sector, which included the new direction of government strategies, the increasing dynamism of a port's operational environment and the current physical conditions of the ports in question. This chapter analyses the aforementioned challenges and governance structure in accordance with the matching framework proposed by Baltazar and Brooks (2001), which focuses on identifying an appropriate fit between these variables in order to enhance the performance of ports (refer to chapter 2 section 2.3.1.1), and then suggests a potential future fit for Libyan ports.

This chapter begins with a brief presentation of the ports (as organisations) in terms of variable structure and characteristics; namely the operational environment, operational strategies and structure. In addition it will identify useful indicators for measuring the outcomes of the alignment of these variables. Indicators of policy performance and its shortcomings will also be briefly summarised.

Key aspects of how the three variables apply to Libyan ports (structure, strategy and environment) are indicated in section 5.3. Section 5.4 endeavours to present a matching framework analysis utilising the qualitative data presented in chapter three and summarised in section four of this chapter. The data was derived mostly from official reports and maps and other sources. Section 5.5 is dedicated to explaining the interview process, including the interview sample, the theme and the topics investigated. On the basis of the discussion, which will be illustrated with selected samples from interviews held with the key port stakeholders, section five is devoted to explaining the areas of importance for the selection of the most suitable governance model for the future of

Libya's ports, with a focus on the interests of the stakeholders. The summary of the chapter forms section 5.6, in combination with a justification of further research steps.

5.2 Port variables

The matching framework proposed by Baltazar and Brooks (2001) is constructed based on the operational environment, operational strategy and structure of any given port.

- The operational environment consists of the continually changing competitive marketplace within a global economy. The environment is subject to a set of complex influences which include economic, government, socio-cultural, international, industry, raw materials, human resources, financial resources, marketing and technology. At the present time the port sector needs to respond to the dynamism of the operational environment, which has resulted from the ongoing technological development in the shipping industry, globalisation and increased trade. In addition, the wave of new management philosophy, which is regarded in this research as a mega environment, involves other factors that contribute to this dynamism, including changes in government attitudes and the local economic conditions which are regarded as operating at the macro level. These factors refer to the dynamism of the port's operational environment. They are among other elements (refer chapter 2, section 2.3.2) that were behind changes to the port governance structure via the implementation of the devolution policy.

- Operational Strategy: two types of strategy can be adapted by any given organisation, cost leadership and differentiation, Porter (1980, 1985). Cost leadership strategy, which is an efficiency oriented strategy, that in relation to ports can be considered as providing the basic services at the ports (e.g. cargo handling). The degree of efficiency would be determined by time efficiency factors, i.e. waiting time for berth, bureaucratic time, loading-unloading time, and cargo dwell time, etc.. Product differentiation is also an effectiveness-oriented strategy. The effectiveness strategy revolves around responding to customer demands. In other words, customer satisfaction is at the core of such strategies (something more than efficiency; providing added-value services, treatment of the customer, the quality of the services provided, etc.)

- Structure: two category structures exist; (i) mechanistic structure (a formalized, centralized structure), where in the port sector all the port functions operate at the central public level; (ii) organic structure (decentralised, flexible), where this structure evolves in tandem with the devolution of one or more of the port functions to either the public or the private sector.

Based on the work of others', De Langen (2007a) suggested that performance is measured by the production of these three variables and the organisation's capabilities. Organisation capabilities: from the strategic management perspective the concept of an organisation's capabilities is vague (Collis, 1994; Schryogg and Kliesch-Eberl, 2007), with no single definition of such a concept provided. However, generally, capabilities are constructed from concrete factors (e.g. financial assets, technology and/or manpower) and abstract factors (e.g. processes across the organisation; customer relationships, product development and ways of problem solving etc.)

The elements describing capabilities have already been discussed to be the factors that impact and/or play an important role in the degree of stability of the operational environment. In addition, particularly the concrete factors relating to those capabilities are seen as another driver for the changes to the governance structure of ports (refer to chapter 2 section 2.3.2). In this research a port's capabilities are regarded as referring to the physical condition of the ports, financial resources, dock labour (mainly the quality), and stakeholder satisfaction (instead of customer relationship) since this covers a wide spectrum of port-related entities. These factors are considered as relating to the micro level operational environment (concerning the sector, not an individual port).

The matching framework discussed in chapter 2 section 2.3.1.1, suggested that the performance of an organisation can be assessed by the outcome of the fit between these three variables. Throughout the literature on port devolution, there is no unified set of indicators for measuring the performance of a devolution programme (either the success or achievement of the mission behind such policy). This can be explained by the fact that each country has its own agenda behind the implementation of such policy (refer to section 2.3.3 chapter 2). However, there are certain indicators that are widely addressed so could be considered typical. These include efficiency, the financial impact, the throughput and the competitiveness of the ports after devolution. Brooks and Cullinane (2007c) argued that the selection of a program's performance indicators must fit the targeted strategic objectives. However, such a suggestion would be considered ideal if

the strategic objective could fulfil the interests of those bodies related to the ports (all stakeholders).

5.3 Libya's port variables: summary overview

The key elements of Libya's port variables, as discussed in chapter three, are presented in this section before applying the matching framework analysis in order to analyse the current situation in the sector and its ability to face contemporary challenges. In addition, we will summarise the future trend in policy related to the port industry of Libya to avoid placing extra burdens on the ports.

- **Operational environment.**

Libya's ports are facing increasing pressure from the operational environment (refer to chapter three section 3.3.6 and 3.3.7). At the **mega** level, Libya is a participant on the global stage, so will certainly be effected by the high level of dynamism in the surrounding environment which has resulted from:

- Globalisation of international economy and trade (refer to section 2.3.1 chapter 2 and section 3.3.7 chapter 3)

- Ongoing technological developments and changes to the strategies of the port and shipping industry (refer to section 2.3.1 and 2.3.2 chapter 2 and sections 3.3.2; 3.3.3; 3.3.6 and 3.3.7 of chapter 3)

- Increased competition between ports (refer to section 3.3.7 chapter 3)

- The changing role of ports, shifting from solely interfaces between sea and land into components in a chain, carrying out multiple activities (refer to section 2.3.1and 2.3.3 chapter 2)

- There is a spreading wave of changes in port governance structure worldwide.(refer to chapter 2)

As discussed in chapter 3, section 3.3.7, the location of the country means Libya is in the central and most competitive part of the Mediterranean basin. The country is located in the triangle of existing hub ports with Egypt, Malta, Italy and the Western basin ports. The current situation at the **macro** level (Libya's economy and business

environment) is that there is an added burden on the ports of Libya, due to a number of factors:

- At the beginning of the 1990s, sanctions were imposed by the United Nations, leading to a delay in development plans, with no exemption for the port sector (refer to section 3.3.7 chapter 3)

- 1999 marked the suspension of sanctions imposed by the United Nations; (refer to section 3.3.2 and 3.3.7 chapter 3)

- Libya's economy has witnessed remarkable growth with a corresponding increase in external trade; (refer to section 3.3.2 and 3.3.7 chapter 3)

- A more liberalised economic policy, involving moving towards a market economy, has been adopted; (refer to section 3.3.2 and 3.3.7 chapter 3)

- Since the end of the 1990s, the government has made efforts to reform its regulatory and institutional framework; (refer to section 3.3.2 and 3.3.7 chapter 3)

- A privatisation policy has been followed since the end of the 1990s. (refer to section 3.3.2 and 3.3.7 chapter 3)

At the **micro** level, the sector has been affected by isolation. It became unable to keep pace with ongoing technological development or respond to the speed of economic growth and increased trade. In addition, a policy related directly to the macro level and have a direct influence upon the micro level (refer to chapter three section 3.3.6), that would enhance the dynamism of the operational environment of Libya's ports is:

- Converting the country's major ports to hubs in the Mediterranean basin; (refer to section 3.3.6 and 3.3.7 chapter 3)

- Serving the trade of landlocked African countries via the port of Benghazi; (refer to section 3.3.6 and 3.3.7 chapter 3)

- The government is aiming to maintain and enhance the ports' infra- and superstructure and increase the country's overall port capacity; (refer to section 3.3.6 and 3.3.7 chapter 3)

- Retaining existing customers and trying to encourage others to use the country's ports. (refer to section 3.3.6 and 3.3.7 chapter 3)

- **Operational strategy**

Currently, the country's ports only serve feeder vessels due to draft restrictions which constrain the ports' ability to accommodate mega-container ships. Additionally, there is no dedicated container handling facility, meaning therefore that ports are currently unable to cope with ongoing developments that have occurred in the shipping industry. However, this has generally been the case at Libyan ports and is one of the problems the sector faces (SPC, 2009; OBG 2009). All of the country's container ports provide only basic services. The country's port sector displays low efficiency, low productivity and is highly bureaucratic[18] (Ghashat, 2009; Ghashat et al 2010). To summarise, the current operational strategy at Libya's ports is compatible with neither an efficiency-oriented strategy (in general the operational strategy can be described as efficiency oriented but under-performing), nor an effectiveness-oriented strategy for more details (refer to 3.3.3 chapter 3).

- **Structure**

The current governance structure of Libya's ports was detailed in section 3.3.5 of chapter 3 alongside the recent developments in organising the sector; the main points were presented as follows;

- Libya's ports are a public entity that have long been controlled at a highly centralised level;

- 1985 – the establishment of the SPC, which became responsible for managing all port functions;

- 1993 – the LMTPA was founded and authorised to carry out administrative duties and activities; including planning, providing infrastructure and the collection of royalty fees. The new entity is a department of the secretariat of transportation and communications;

[18] As discussed in chapter 3 section 3.3.3

- 2006 – the port of Misurata (one of the country's major ports) was transferred to MFTZ (operator);

- 2008 – the role of LMTPA was activated and empowered, which meant that the port governance hierarchy and the allocation of responsibilities between the entities involved in the sector became more organised;

- 2009 – Marked the transfer of ownership of the assets of the port of Misurata to ESDFC, while the operational function was still in the hands of MFTZ.

Overall, in spite of these steps for organising the sector, Libya's ports are public and highly centralised, with both the landlord and regulatory functions of Libya's container ports currently administered and controlled by a national port authority, while the operational function is the responsibility of government-owned companies, SPC and MFTZ.

5.4 Matching Framework analysis

As discussed in Chapter two section 2.3.1.1, the starting point for the analysis is the environment. Therefore, an analysis of the environment within which the ports of Libya have operated at three different points in time will be investigated. The matching framework is applied to determine the effects of the changing environment on the operational strategy and operational management structure of the port. The Libyan Port sector environment has changed over the course of the last 20 years. This resulted from different factors which included those that affected the global port and shipping industries as a whole, and the alteration of government strategies that effect Libya in particular. Baltazar and Brooks (2001) classify the environment as potentially exhibiting 'low uncertainty' and 'high uncertainty', while Sanchez and Wilmsmeier (2007) use 'more' 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 case, corresponding to the changes in the operational environment in the period under study.

As can be seen from table 5.1, the three configurations are developed for Libya, equating to each of the time periods under scrutiny. **The first configuration** of the Libyan ports' case covered the period before the 1990s. Despite the fact that Libya was not under the sanctions of the United Nations, the port sector provided only basic

services (e.g. pilotage, cargo handling) with a lack of equipment required for handling containerised cargo. In addition, ports in general were not in competition for cargo with the rest of the region's ports and did not interact with the external environment. That period of time witnessed the establishment of the SPC (in 1985). Even though the sector remained publicly-owned and highly centralised, with all of the port's functions controlled by the company and with the company reporting to the General People's Committee of Transport and Mobility. In 1992, the situation became worse, as the sector was isolated from the external world and did not respond to the external environment, due to the general situation of the country being under United Nations sanctions. During this period, development plans for the ports were stopped and, due to the fact that the government had reduced general expenditure, 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, which resulted from a shortage in equipment and bureaucratic procedures. Subsequently, a portion of Libyan trade was being served by the ports of neighbouring countries and then moved to Libya by land transport; such a situation led to an extra cost which was felt by the end users (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, the environment was stable, as nothing was affected within the port and there was no interaction with the external environment, and no policy was designed to deal with such a situation. Therefore, it can be argued that the sector was essentially a closed system.

The second configuration relates to the time since 1999. Sanctions were lifted and the country sought 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, coupled with an increase in the country's external trade, even though, container volumes in aggregate for all ports were still not very impressive. Since external trade is very much dependent on the port sector, pressure has been placed upon Libya's port sector. The sector faces challenges from continuously increasing trade volumes and container throughput. Modernisation of the sector is being seriously considered to help the sector cope with the developments that are occurring in the market and accommodating the increasing volume of cargo

throughput. Such changes to the environment surrounding the ports made the operational environment uncertain (more dynamic).

Table 5.1 Analysing the situation of Libya's ports via applying the matching framework configuration

The Characteristics	Before 1990s	1999 - 2009	the future
Environment	stable; the sector did not interact with the external environment (closed system)	uncertain; opened to the external environment, responding very slowly and starting to compete for local cargo	more uncertain; the government tend to open the ports to inter-port competition, and entering new market; working as a hub and gateway
Operational Strategy	Efficiency; provide basic services but underperform	Efficiency improved but still below the international standard , and the customers are not satisfied	should be effectiveness in order to attract transhipment, but the efficiency needs to be further improved
Operational Structure	Mechanistic; highly centralised and not organised	Mechanistic; still highly centralised but more organised	Nothing decided, but organic structure is the ideal for highly uncertain environment and effectiveness oriented strategy. Organic structure, achieved via the implementation of the devolution policy

In terms of the port operational structure, changes have already happened. These include re-organising the sector through activation of the port authority role, and limiting the role of the SPC to controlling the operational activities of the ports. The most important change which happened in this era (1999-2009) was the establishment of the Misurata free trade zone, when Misurata port fell totally under the control of the new entity, leading to inter-port competition; so for the first time there existed competition between Libyan ports. The operational function of Misurata port was transferred to MFTZ, while the ownership of the assets transferred into the hands of ESDFC. The transfer took place horizontally at a highly centralised level, shifting from an entity reporting to central government to another entity reporting to the same body. The structure is still mechanistic and centralised (inflexible), which is not appropriate for dealing with environmental dynamism (Glisson and Martin 1980; Aiken et al. 1980; Covin and Slevin 1989; Baltazar and Brooks, 2007).

The operational strategy seems to be efficiency-oriented, but nothing was improved or developed (refer to chapter 3 section 3.3.3). Ports provide only the basic services, although they remain characterised by low efficiency, poor productivity and extensive bureaucracy[19]. In addition, the focus on only local cargo was continued, despite its low

[19] As stated in Chapter 3 Section 3.3.3, Libyan ports are falling behind the operations standard determined by the Arab Seaport Federation. http://www.aspf.org.eg/documents/port.pdf

success. The mechanistic and centralised structure also inhibited the much-needed improvement of port infra- and superstructure, as well as prevented the greater involvement of the private sector[20]. Consequently, Libya has been unable to create a configuration that results in a successful fit. One result is that port development has fallen behind and been unable to claim a significant role in the region's port system, due to the sector's lack of competitiveness. This stands in significant contrast to the development occurring in other ports in the region (refer to Chapter 3 section 3.3.7), especially to those benefitting from the change to their governance structure and operational strategy.

The third configuration covers the future of Libyan ports. The environment can be described as "more uncertain" in comparison to the previous period, due to the fact that Libya aims to convert one of the country's principle ports to a hub competing for transhipment traffic with the rest of the region's ports, and as mentioned clearly in the memorandum of understanding that has been signed between the Libyan and Chad governments, the Benghazi port was selected to serve the trade of Chad and other landlocked countries (refer to section 3.3.1 of chapter 3). The immediate question that arises here is: What makes these ports attractive?

An effectiveness oriented strategy is of high relevance for maintaining and developing a role in the transhipment market as it requires high customer satisfaction. Following the matching framework theory, a "more uncertain" environment, together with an effectiveness strategy requires an organic structure. However, international experience such as in Malaysia, the UK and many others (refer to chapter 2 section 2.7) has revealed that there are a variety of approaches by which an organic structure can be achieved via the implementation of devolution policy.

The question that remains is: what is the right "fit" for the case of Libya that can help develop the country from an "underdog" in the regional port system to a competitive player? With a given environment, the questions centre on the "right" structure and strategy to successfully work towards the ambitions 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

[20] The current rules and regulations did not allow the private sector to participate in port activity, in addition the market is monopolistic in nature as only governmental organisations (LMTPA, SPC and MFTZ) are controlling and carrying out port functions.

sclerosis can be observed in its structure. Nevertheless, the government has recognised that it needs to change its operational strategy[21].

5.5 Stakeholders' General Perceptions

5.5.1 Interviews process

As discussed in chapter four, section 4.5.3, the first phase of the interview process is the planning phase. the interview sample was identified as mentioned in chapter four section 4.5.3 and selected in a manner that assured representativeness of the spectrum of the Libyan ports' stakeholders; including LMTPA, SPC and MFTZ, in addition to a number of shipping company managers. In particular those who are recognised as experts in the field of shipping and the port industry were consulted. The author contacted fifteen people, only twelve of them responded expressing their willingness to be interviewed.

Table 5.2 shows the interviewees' areas of experience, work, and position, in addition to the main topics discussed during the interviews, in response to their request some interviewee are listed in the table as anonymous. The interviews were carried out by the researcher in October 2009. The duration of the interviews ranged between forty five minutes and one and a half hours.

The general themes listed in table 5.2 were predefined as discussed in chapter 4 section 4.5.3; however, the section that covers the classification of the port's function as either transferrable or non-transferrable functions is emergent during the interview (refer to appendix I *A*).

The interviews took the form of an open discussion, although when the discussion focused on the issue of governance structure, and on the basis of the emergent issue (transferability of the port's functions), the table showing port's functions, which was developed by Baird (2000), was used to determine the potential transferability of the port's functions (refer to Appendix I). This helps to facilitate and enhance the discussion of the port functions component, by presenting a strategy to help direct the researcher and the interviewee to discuss these functions clearly. However, in general,

[21] Private discussion with Libyan ports officials at the interviews stage

as stated in chapter four section 4.5.3, the aim was to compose a complete picture of the sector in general.

Table 5.2 Interviewees panel and topics discussed

Interviewee	Profile	The Nature of the Sector	Predefined Theme
Anonymous	Over 30 years experience in the field of Maritime Transport and port Industry, working at the managerial level	Governmental; regulator; Maritime transport	Discussion of the ports operational environment (Chapter 3 section 3.3.7 and summarised in section 5.3 of this chapter) The necessity of development of Libyan ports in general (physical, management and administration structure and labour skills) and the operation strategy to cope with surrounding operational environment and any new government objective(s). Discussion of the existing governance structure (Chapter 3 Section 3.3.3 summarised in this chapter section 5.4) and its deficit. Quantify the interests and objective of the stakeholders, and the best way to help to achieve them. The acceptability of the alteration of the ports governance structure. This discussion started with LMTPA. **An emergent theme:** The potential of transfer some function over others, see section 5.5.3 table 5.4 of this chapter. Such a suggestion was further confirmed by the rest of the interviewees excepting the SPC representative.
Eng. Omar Jawashi	Manager of Ports Affairs & Lighthouse Management at LPMTA	Governmental; regulator; Maritime Transport	
Mr. Husni Bey Husni	Over 35 years experience in the Shipping and logistic industry, the chair of Bey Sons Group	Private; shipping and logistics	
Capt. Ammar Alhayali	Over 30 years experience in maritime transport, he had held a position at managerial level in the government companies, and is currently working with the private sector	Private; shipping and logistics	
Anonymous	40 years in the Marine Industry, shipping, port and education. Currently private consultant	Private; consultation, Training, shipping, port and logistics	
Capt. Yousef Daza	Over 20 years experience, worked as a ship master, currently working as a general manager of a shipping and logistic company	Private; Shipping	
Mr. Abdelmonem Azzgalee	40 years experience, had worked with the government; shipping and port. currently consultant and educator	Private; consultation and training	
Anonymous	Managerial level at one of the country ports	Governmental port operator	
Anonymous	Managerial level at one of the country level	Governmental port operator	
Eng. Omar Abdulmajeed	Manager of the administration and service department of Elkhoms port	Governmental regulator at the port level	
Mr. Ezzarouk	Operational manger of Misurata port	Governmental operator MFTZ	
Eng. Naji Ballouze	35 years experience in the field of Maritime Transport and management	Governmental port operator	

Therefore, the focus was on assessing the current and future potential situations affecting the ports' variables, thus, the common theme discussed included the

- Operational environment of the sector considering the situation in the region

- Current governance structure and the future strategic objectives of the sector, so as to determine whether there is a real desire to develop the sector,

- Assessing the views of those people who are in charge of the sector in respect to changing the governance structure of the ports. The information gathered from the interviews was used to analyse the current situation at Libya's container ports and general cargo ports (refer to chapter three sections 3.3.5, 3.3.6 and 3.3.7), and subsequently, used with the Matching Framework.

- Identification and quantification of the interests and objectives of the stakeholders, and the best means to achieve such objectives

- The acceptability of the alteration of the ports governance structure in general was considered as predefined theme

However, the potential value of transferring some functions over others (see section 5.5.5.3 table 5.4 of this chapter) would be considered as an emergent item, this was discussed by the LMTPA representative who stated that:

> *"Introduction [of] the private sector to Libyan ports is likely, but we would not copy the experience of the UK, and the introduction of private capital is not the primary objective, we would not privatise the ports fully, we are able to provide some port's function and the situation in Libya is different from other countries, in term of financial capability, cultural aspects and political willingness"*

On this basis, the table showing port's functions, which was developed by Baird 2000, was used to find out the potential transferability of the port's functions. In general there were major questions asked of the interviewee covering the relevant theme (refer to Appendix I).The interview began with the LMTPA representatives; the LMTPA owns and regulates the sector. They can provide the clearest information regarding the direction of the government's port development policy; the view of the LMTPA representative was then discussed with the rest of panel in order to place emphasis upon common goals.

Due to the fact that the answers from the interviewees evolved from a shared belief (e.g. the operators almost have the same point of view in respect to changing the governance

structure of the ports, and share the same interests), only a selection of samples from the notes of the interviews conducted with each group were presented in Appendix I.

When analysing the information gathered via the interview process, this research follows Longfield's framework (2004), which states that data can be analysed subjectively by organising it based on the questions asked in the interviews or the themes, using boxes, matrices and grids. The information was summarised in tables (refer to table 5.3 section 5.5.2 and table 5.4 section 5.5.3 of this chapter).

5.5.2 Interests and objectives

In general, from the viewpoint of the representative sample of stakeholders which was investigated via the pre-survey process (in-depth-interviews), it can be said that there is a real desire to enhance the situation of the container ports in the market and improve their technical performance in order to face contemporary challenges (the dynamism of the environment and the new direction of government strategies). This desire is a common interest amongst the key stakeholders, and there is a significant emergent body of opinion and lobbying [22](LMTPA and Shipping companies) which suggests that Libya should change its governance structure in order to achieve its future goals. Indeed; the majority of the interviewees, particularly the shipping company representatives, stated that allowing the private sector to participate in the operational tasks of ports has become a necessity, rather than an option.

The view of the LMTPA was mentioned in the previous section, from the shipping companies' point of view; the main concerns can be summarised as the following:

> *"Enhancing the technical performance of the ports, providing reasonable costs for our client; however we are not insisting upon specific means for doing so. Although, we see the introduction of the private sector in the ports, particularly in the operation's tasks, becoming a necessity rather than an option."*

In contrast to the remainder of the stakeholders such as LMTPA which represents the government as both owner and regulator of the sector and the shipping companies,

[22] Except for the representative of the SPC, the interviewees were in favour of changing the governance structure of Libyan ports and giving more margins to the private sector.

which reflect the opinion of a spectrum of the port users and customers, the operators were against changes to the port governance structure.

> *"Our priority is to enhance the situation at the ports in general and their technical performance in particular, however, is not necessary that the changes to the governance structure represent the main choice for enhancing the situation at the ports, rather we should focus on different aspects, like the ports' infrastructure, equipment and dock worker skills."*

However, they argued that the alteration of the current governance structure would come at the cost of dock labour, and they suggested that the situation at the ports could be enhanced by other means (e.g. rehabilitation of the infra- and superstructure, etc.).

> *"The introduction of the private sector to the ports, most likely will impact the labourers negatively, particularly in terms of their numbers, and this will create another problem for the government."*

Therefore, investigating port stakeholder perspectives is necessary for securing the effectiveness of the selected structure. Through such investigations, a balance between interests may be achieved (not necessarily ultimate satisfaction, but optimal contentment, would be accepted as a measure of the policy's success in the form of the selected model).

Not only enhancing the technical performance and the situation of the ports in the global market is a concern of the stakeholders. Rather, the main concern is that the selection of the proper model for the future governance structure should be made whilst balancing the interests of the different stakeholders mentioned in table 5.4. This finding confirms the suggestion by Brooks (2007) that it is worth noting that these interests include the objectives of the government (as represented by LMTPA).

> *"The stated objectives is important for the majority of the stakeholders, and we believe these represent their interests, therefore, while we considering the allowance of the private sector to participate in the ports, these objectives should always be in mind"*

Such statement was further confirmed by the rest of the stakeholders interviewed. The interests and objectives of the stakeholders are summarised in table 5.3, alongside the preferred means for achieving these interests.

Table 5.3 Libya's key port stakeholders and their interests and objectives

Stakeholder	Interests and Objectives	Means and Remarks
LMTPA	- Enhancing technical performance, - Reducing expenditure, - Increasing throughput, - Increasing the national income, - Expanding the role of the ports, - Converting one or more of the country's ports into a hub, - Allowing competition within and between the country's ports, - Reducing the fright rate - Protecting dock labour	- Alteration of the governance structure as a top priority with a serious consideration of the Libyan capabilities, features and national interests - Enhancing dock labour skills and changing the operational strategies would form the second stage, and could be formulated as a condition that needs to be addressed by newcomers.
SPC	- The same as the objective of LMTPA	- Not in favour of competition. Objectives can be achieved by any means except changing the governance structure from a "monopolistic marketplace". The justification is that the changing the governance structure will negatively affect the labour force.
MFTZ	- The same as the objective of LMTPA and SPC	- Not in favour of the competition. Objectives can be achieved by any means except changing the governance structure from a "monopolistic marketplace", with the same justification of the SPC.
SCs	- Enhancing technical performance is the top priority - Reducing the freight rate, port dues and cargo handling charges.	- Regardless of the means for doing this, however, changing the governance structure is preferred and regarded as a priority not an option.

Source : derived from the pre-survey (informal discussion with representative sample from the stakeholders) conducted by the author during October 2009.

5.5.3 Organic structure: model selection

As discussed above, the matching framework analysis revealed that, for the future, the adoption of an organic structure would appear to be the best choice for Libya's port sector (at least at selected ports) (refer to the application of the Matching framework, section 5.4 of this chapter). However, as discussed in chapter 2 section 2.3.1.1 there are different types of organic structure that can be achieved via the implementation of devolution policy, and their impact varies, with not all of them likely to lead to the desired outcomes or similar results. These types range from simply decentralising the port functions to a lower tier of government and ending at privatising the entire port functions.

The selection of the appropriate model of governance structure is subject to different criteria including the objectives being sought (Brooks and Cullinane, 2007) and

stakeholder satisfaction (Brooks, 2007). Brooks (2007) was in line with Daft (1992) who argued that the organisation is an instrument for accomplishing tasks which benefit everyone. In addition, the objectives would be considered within the boundaries of stakeholder interests, and when these interests are fulfilled the satisfaction of the stakeholders will also very likely be achieved; that is to say, that the interests of the stakeholders would be regarded as the objectives of the devolution policy.

Interestingly, in the case of Libya, the picture drawn from the in-depth interviews has shortened the distance from the selection of the most suitable governance structure. It can now be argued that the existing governance structure has failed to meet stakeholder expectations, and is no longer the preferred option (refer to section 5.5.1 of this chapter).

Conversely, the interviewees were not in favour of the fully private model either; they were against privatising all port functions. However, the interviewees were generally in favour of the partial involvement of the private sector in the ports of Libya, although they did not specifically suggest what functions need to be devolved into the hands of the private sector. However, the key interviewees suggested that the ports functions and items, as explained by Baird (2000), were further classified into transferable and non-transferable items (table 5.4), based on the suggestion of Sherman (1995). Such classification has helped in shortening the distance from the reallocation of port functions between the private and public sector. Sherman (1995) suggested that prior to introducing the private sector into the ports, the allocation of the responsibility and accountability of the public and private sector for conducting/holding tasks needs to be clearly stated.

The transferable functions are constructed from the operational functions and some items of the regulatory/landlord functions, while the non-transferable items were derived from the regulatory and landlord functions that were considered as needing to be in the hands of the government. Non-transferable items include those strongly related to national sovereignty and the public interest. However, even parts of the transferable function might be retained in the hands of the government (mainly the port infrastructure) due to the fact that Libya is not in need of new sources of capital to enhance the port sector.

Table 5.4 The transferability of port functions, based on the in-depth interviews

Function Transferability	Regulatory Functions	Port Functions	
		Landlord	Operator
Transferable	▪ Vessel traffic safety ▪ Port monitoring	▪ Waterside maintenance (e.g. dredging) ▪ Maintenance of port access ▪ Marketing of location, development strategies, planning	▪ Cargo and passenger handling ▪ Pilotage and towage ▪ Line handling ▪ Facilities security, maintenance, and repair ▪ Marketing of operations ▪ Waste disposal
Non-transferable	▪ Licensing, permitting ▪ Customs and immigration ▪ Emergency services ▪ Protection of public interest on behalf of the community ▪ Determining applicable port policy and environmental policies	▪ Port security ▪ Land acquisition disposal	▪ Land side and berth capital investment

The classification was based on the view of the LMTPA representative and further confirmed by the remainder of the interviewee

However, several of the interviewees argued that it is not necessary to transfer some of the transferable items (such as port infrastructure) into the hands of the private sector. Their justification was based on the country's capabilities (mainly the financial capability). While others have a different viewpoint, in that they regard the country in general and the ports sector in particular, when they state that there is a need to look beyond providing such items. The maintenance, and operational aspects of such items need to be seriously considered, as Metawa (1987) and Salama and Flanagan (2005) have stated. Libya has the potential to buy the technology from advanced countries, as it has the money to pay for it, but it is not possible to keep the technology as efficient as it should be. Even though such items are still transferable, transferring them (especially for a limited timescale regulated by leases) would not affect national sovereignty, and the cost of rehabilitation of such items (infrastructure; quays, channels and deepening) would be placed on the shoulders of the newcomer instead of on the government budget.

5.6 Summary

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 analysed the situation at Libyan ports. This was done in terms of the mega, macro and micro environment, in order to understand the current and future forces that are impacting and will impact the port sector, and then to provide policy suggestions for the future of Libya's container ports industry and its operational and management structure in light of changing government strategy and objectives.

Libya aims to rehabilitate and modernise its port sector, serve the whole country's trade and develop its ports as hubs in the Mediterranean region. By applying the matching framework over different timescales, this chapter has shown that Libya did not respond to uncertainty by either changing the operational strategy, or by developing the governance structure of the sector. Libya needs to do something, not just to address the dynamism of the environment, but also to stop the leakage of local trade to neighbouring country ports. An interesting outcome of the analysis of the Libyan port sector is that the ports were virtually closed during their first configuration (as defined within the matching framework analysis), whilst in the second configuration they became semi-open as they began to interact within their different operating environments. During the current third configuration, the situation would ideally be fully open, interacting with the surrounding environment. However, this will be subject to the organic structure which is in the process of being chosen.

The dilemma of the matching framework is that the framework does not simply provide a guide for the selection of an appropriate governance structure, as from the literature on port governance and devolution discussed in chapter two, a number of possible decentralised structures exist (e.g. organic structures). However, in the case of Libyan ports, the signal obtained from such analysis is that the current governance structure will not work anymore, which has already been confirmed by the information gathered implicitly from key people in the industry. As corporatisation (without private sector involvement) forms the current operational and management structure, therefore, any proposed future governance structure needs to move beyond this.

Interestingly, this chapter has revealed that the port functions can be further classified into transferable and non-transferable items, which may lead to the conclusion that the

future governance structure will not fall neatly into the categories proposed in the widely-accepted port privatisation matrix (Baird, 1995; 1997; World Bank, undated). This will be further confirmed or rejected via the stakeholder survey.

For the purposes of determining the future governance structure, only the transferable items will be used for selection of the most suitable model in the next chapter. The examination will take place on the basis of a complete analysis of all stakeholders' attitudes, whilst their interests will be used as a measurement of the effectiveness of the selected model – i.e. the impact of the selected governance model on the spectrum of interests will be used to measure the potential performance of the devolution programme.

Chapter Six

Stakeholder Survey Analysis

6.1 Introduction

As established in chapter four, the current governance structure of Libya's container ports represents one of the major challenges facing the sector. The necessity of changing the governance structure was analysed in chapter five by applying a matching framework. To extend the analysis, stakeholders were asked in a questionnaire survey to indicate the importance of improving the administrative and management system of the ports in question, in order to determine whether they are in line with the outcomes of the matching framework or not. Then, more specifically, the stakeholders were asked to state their perceptions regarding the best future provider of different port functions for enhancing performance and achieving government objectives. Stakeholders were further asked to anticipate the possible outcomes for the future governance structure of the ports.

This chapter presents the results from analysis of the data gathered from the questionnaire survey that was submitted to the stakeholders of Libya's container and general cargo ports. The chapter begins by outlining information about the survey, which includes a discussion of the response rate, a description of the nature of different stakeholders, the job titles of the respondents, in addition to identifying the ports where the stakeholders work or with which they have dealings.

An overall analysis of the survey results is used to investigate the degree of stakeholder satisfaction about the current performance of the ports they work at, or are involved with. The analysis then moves on to determine the areas or functions of the ports that need to be developed, improved or enhanced in order to further improve overall performance and help in achieving the government's strategic objectives.

6.2 Analysis of General Information

6.2.1 The Response Rate and the Nature of Respondents

An identical questionnaire (refer to appendix II) was distributed to the major stakeholders in Libya's ports, namely;

- Those who are influenced directly by the situation and condition of the ports, and
- Those who might be involved in or have an impact on any decision taken regarding the country's ports.

The stakeholders surveyed include: the Libyan Maritime Transport and Port Authority (LMTPA), the Socialist Port Company (SPC), the Misurata Free Trade Zone (MFTZ), Shipping Companies and independent Consultants. The response rates of the stakeholders are presented in Table 6.1.

Table 6.1 Number of questionnaires distributed and response rate of the stakeholders

Stakeholders	Total population	No of Questionnaire distributed	No of Responses	Useable	Response Rate%	percentage of the total responses	Total response	Total Response Rate %
LMTPA	One entity	7	5	5	71	10.2%	49	39.2
SPC	One entity	7	1	1	14.3	2%		
MFTZ	One entity	3	1	1	33.3	2%		
Shipping Companies	103 companies	103	37	37	36	75.6%		
Independent Consultant	5	5	5	5	100	10.2%		

The sample presented in table 6.1, represented a wide range of individuals from the stakeholders spectrum, with potentially different view from each other. Thus, analysing them as one group would lead to biased outcomes, especially with regards to the fact that the number in each group is different. The average value of the statistics from one or more of the samples is different from the value of the population. To put it simply, the value from sample group is wrong.

To investigate whether there is a difference between groups; a One Way ANOVA test was applied to investigate any differences between groups. This technique is commonly

used to test whether there are statistically significant differences between two or more independent groups. These grouping are arranged according to levels of independent variables. Indicating bias will help the researcher in dealing with it, the foremost method for doing so is to analyse each single group individually, and investigate perceptions in respect to the issues being examined.

By running the One Way ANOVA test, we found that no statistically significant difference between the groups' responses (refer to Appendix IV), which means that there is no bias. This means that the average value of the statistics from each group is not different from the value relating to the population, this was the case for each single variable.

Saunders et al (2009) suggested that an acceptable response rate for a questionnaire survey is over 50%. However, Fellows and Liu (1997) pointed out that a useable response rate of between 25-35% is a very good response rate upon which to form a conclusion from the results. In this survey, all the questionnaires which were returned are useable and the response rate exceeded 35% from all groups surveyed, except for the SPC where one questionnaire out of seven was returned representing a 14.3% response rate (representing 2% of the total), and the MFTZ, where one questionnaire out of three was completed representing a response rate of 33.3% (2% of the total). LMTPA is the entity responsible for the regulatory and landlord functions of Libya's ports. Seven copies of the questionnaire were sent to them, of which three were sent to the head-quarters and four to their representatives located within Libya's Major ports. Five out of seven were returned to the researcher representing 71% of the total sent to the LMTPA (10.2% of the total). The questionnaire was sent to departments that are considered to have the most influence on decisions. The representatives of the authority at the country's major ports were targeted by the survey because they are more closely related to the daily operation of the ports and are, therefore, more aware of the condition and circumstances of the ports they supervise.

Based on the list supplied by the Libyan Shipping Chamber there are 103 shipping companies in Libya. These companies are experienced in day-to-day port operations, as they deal with the port directly and represent different parties, including both the shipping lines and shippers. The response rate achieved is considered representative, as a large share of the Libyan market is dominated by just a few companies (these companies were telephoned several times to ensure that their response was secured). In

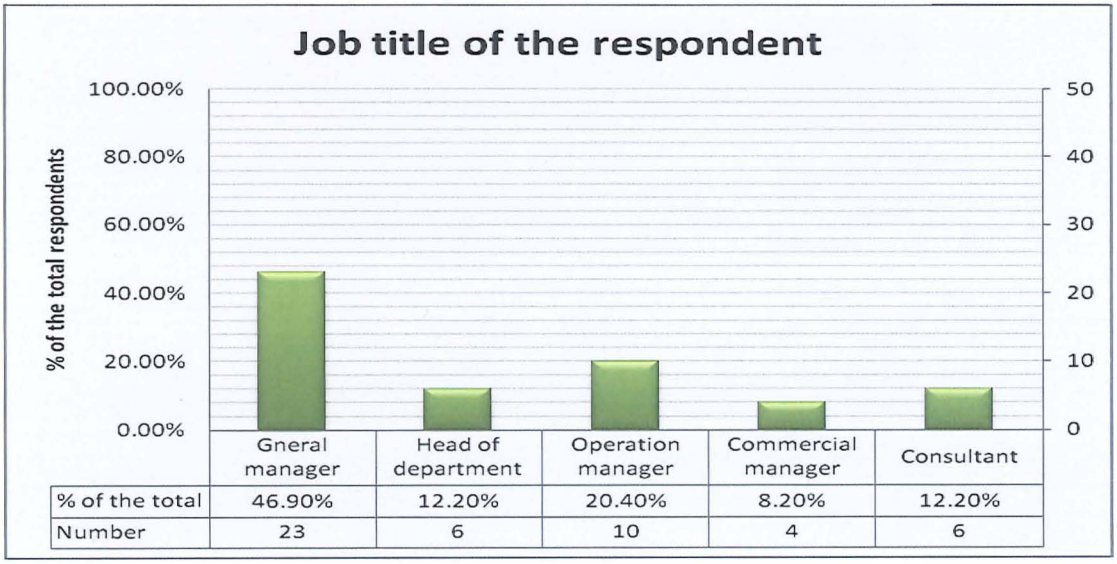
addition, many of Libya's leading shipping and port experts are in charge at some of these companies and they were contacted directly to encourage them to participate in the survey.

Most Libyan shipping and port experts run their own businesses, in particular shipping companies, and some of them still work with the government, specifically with the LMTPA. However, there are very few who work as independent consultants and so the list obtained included only five independent consultants. The questionnaire was sent to all of them and 100% of these were completed (representing 10.2% of the total response). The consultants are considered appropriate stakeholders as they have practical knowledge and experience, each having spent most of their career working in the field of Libya's port and shipping industry.

6.2.2 The Job Title of respondents

In general, the questionnaires were completed by people at managerial level. This included general manager of the selected entities, heads of departments, operations manager and commercial managers. At one of the shipping companies the questionnaire was completed by a consultant for the company; who was already one of the company's employees. Independent consultants have categorised their job title either as chairman of the consultation firm or as a general manager.

Figure 6.1 Respondent's job titles



In Figure 6.1 and Table 6.2 their job title is listed as 'consultant'. Some of the respondents identified their job titles as department heads, without identifying the nature of the department. The researcher tends to classify the representatives of the port authority at the ports as heads of department.

From Figure 6.1, it is apparent that 46.9% of the stakeholder respondents held the position of general manager in their organisations. The figure shows that 20.4% worked as operations managers and for 8.2% the positions given are commercial managers. These two job titles are mostly limited to the shipping companies (see Table 6.2).

Table 6.2 Respondent Job Title per stakeholders

			Respondent Job Title				
			General Manager	Head of Department	Operation Manager	Commercial Manager	Consultant
Stakeholder	LMTPA	Count	0	5	0	0	0
		%	.0%	10.2%	.0%	.0%	.0%
	SPC	Count	0	1	0	0	0
		%	.0%	2.0%	.0%	.0%	.0%
	MFTZ	Count	0	0	0	1	0
		%	.0%	.0%	.0%	2.0%	.0%
	Shipping Company	Count	23	0	10	3	1
		%	46.9%	.0%	20.4%	6.1%	2.0%
	Independent consultant	Count	0	0	0	0	5
		%	.0%	.0%	.0%	.0%	10.2%
	Total	Count	23	6	10	4	6
		%	46.9%	12.2%	20.4%	8.2%	12.2%

The consultants represent 12.2% of the total respondent stakeholders. There is one shipping company respondent identified as a consultant and the remainder are independent consultants. 12.2% of the total respondents were head of a department.

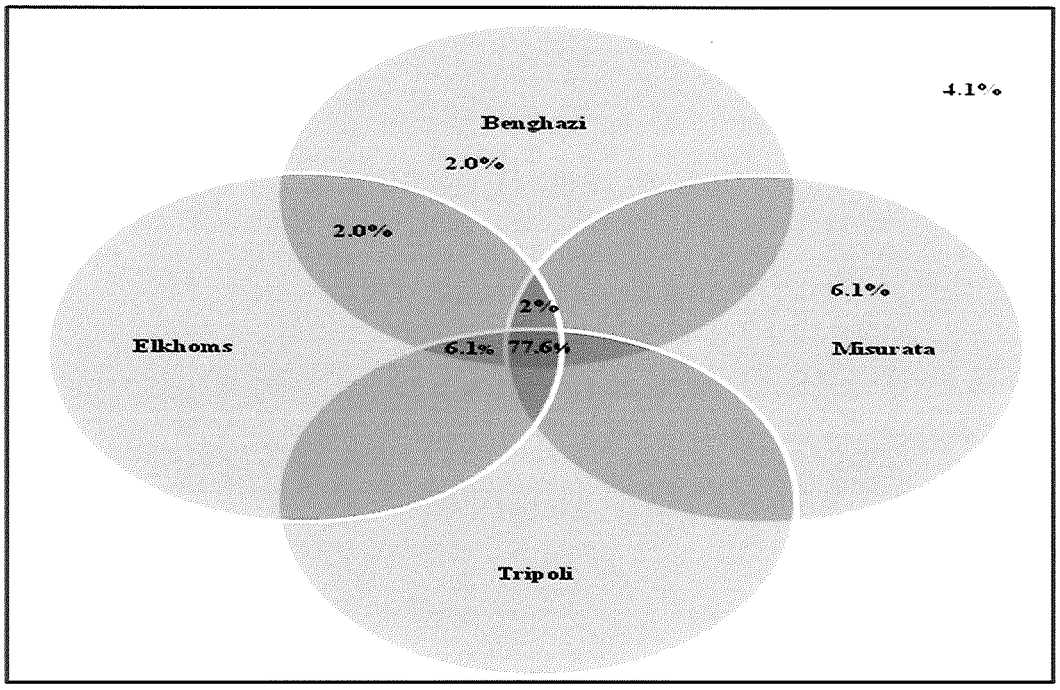
The answers provided by the respondents can be considered as reliable as the majority of the respondents were at managerial level and some of them were considered to be consultants. This means that not only do they have valuable experience, but are also more closely linked to the market and may have an impact on decision making processes.

6.2.3 Ports where Respondents Work

This question involved multiple responses as the stakeholders may work or deal with either all, or some, of the country's major ports. As can be seen from Figure 6.2, 38 respondents (77.6%) use or have activities at all the 4 major ports while 2 (4.1%) don't use any of the major ports (the independent consultants). Three respondents (6.1%) used Benghazi, Elkhoms and Tripoli. One respondent (2.0%) uses Benghazi and Elkhoms. Three respondents (6.1%) used only Misurata. One respondent uses Benghazi only. One respondent uses Benghazi, Misurata and Elkhoms.

The answers provided by respondents from the MFTZ are representative of the situation at the port of Misurata as it is the entity responsible for all of the port's functions; whilst the other ports are under the responsibility of the LMTPA and operated by the SPC. The shipping companies and the independent consultants conduct business with almost all the country's ports. Thus, their answers can be generalised to relate to all Libyan ports.

Figure 6.2. The percentage of the respondents at the country's major ports



Generally, these percentages can be considered to be excellent as they exceed 50% for each of the country's major ports. This is regarded as a representative rate as these four major ports combined handle over 75 percent of the country's trade. In addition, the general situation at the country's ports is considered to be much better than it is at secondary ones , therefore, the results from the analysis of the stakeholder survey have the potential to be generalisable to all the country's ports, including its secondary ports. In other words, any measures suggested to enhance the situation at the major ports, are certinaly applicable to the secondary ports as well.

6.3 Overall Analysis of the Results

The current performance of the ports is analysed in this section, based on the level of stakeholder satisfaction, in addition to the areas reported to be problematic at the ports. On the basis of stakeholder opinion and views of a possible future structure, it is to be hoped that this will lead to an enhancement in the performance of the sector and help in achieving government objectives for the future development of the sector as considered

in chapter 4. In the final part of this section, the potential outcomes relating to the suggested revised operational and management structure will be analysed.

6.3.1 Rationale for overall analysis

All the groups were treated as one group in the analysis process due to different factors including that:

- The foremost factor is that (as discussed in section 6.2.1 of this chapter) there is no statistically signifcant difference between the groups responses, and this was assessed by applying one way ANOVA test (refer to Appendix IV)

- The purposes of this survey was to find out the overall perception of all the stakeholders, not focusing on the differeces between the perceptions of different stakeholder groups. Such an approach has been followed by many researchers across different disciplines.

6.3.2 Performance of the Ports

The first part of the stakeholder questionnaire enquired as to the level of overall port performance and sought to identify the efficiency, effectiveness and productivity of the ports. **Efficiency** is related to time efficiency; waiting time for berths, bureaucratic time, loading-unloading time, and cargo dwell time, etc. **Effectiveness** is related to the level of satisfaction of port customers; something beyond efficiency (providing added-value services, treatment of the customer, the quality of the services provided etc.).

Table 6.3 Stakeholder satisfaction with port performance

Code	Items	% of responses	Mean	Std. Deviation
1	totally satisfied	6.1%	4.24	1.19
2	somewhat satisfied	8.2%		
3	Nature	00.0		
4	somewhat unsatisfied	26.5		
5	totally unsatisfied	59.2		

Productivity is represented by aspects such as the cargo handling rate per hour/crane, the percentage utilisation of port capacity and the utilisation rate of port assets etc. However, question 3.1 in part 3 (appendix II) of the survey asked the stakeholders to indicate to what extent they are satisfied with the current overall performance of the

Libyan ports they deal with, without asking about each individual component of performance.

From the results in table 6.3, it appears that Libya's port stakeholders were not satisfied with the current performance of the ports, with a mean response rate of 4.23 and a mode of 5, where '5' indicates that the stakeholders were totally unsatisfied with the performance, whilst '4' means that the stakeholders were somewhat unsatisfied. The vast majority of the response lay between 4 and 5, representing 85.7% out of the total responses. Therefore, it can be said that the stakeholders were not satisfied with the current performance of the ports in question.

As the vast majority of stakeholders are unsatisfied with the current level of performance, this implies that the ports are suffering from problems which need to be identified and resolved in order to enhance the overall performance of the country's ports.

6.3.3 Functions or Areas that need to be improved, developed or enhanced

The Oxford Business Group (2008) pointed out that the infrastructure of Libya's port sector is underdeveloped and suffering from a lack of superstructure (e.g. cranes, IT systems etc) that is required for handling containers. It is not only the physical condition of a given port that can hamper performance. There are also many other factors, such as the autonomy of the sector and the administration and management system of the ports that can exert a negative influence. In addition, effective management is required and a highly qualified labour force.

Therefore, question 3.2 of the survey asked stakeholders to indicate the importance of improving and developing different port functions/areas in order to achieve government objectives. These functions/areas included: the infra- and superstructure of the ports, enhancing the autonomy of the sector, improving the administration and management systems in the sector, improving labour and management skills and, finally, providing added-value services. In addition, as the market structure for port services in Libya is monopolistic, stakeholders were asked to indicate how important it would be to allow competition in the operational tasks.

From the results in table 6.4, which shows how the stakeholders answered each item, it can be seen that the majority of the stakeholders indicated that all areas and functions of

the port sector need to be improved in order to enhance the overall performance and to help in achieving the government's strategic goals. The vast majority of the stakeholders (89.9%) reported that the development of port infrastructure is very important with a further 8.2% indicating that infrastructure development is important. In sum, 98.1% of respondents indicated the importance of upgrading the port infrastructure, while only 2% had an opposing view.

Table 6.4 Stakeholders responses for each item of question 3.2

Areas / Functions	response rate	Not Important at all	Not Important	Neutral	Important	Very Important	Total
Develop Infrastructure	Count	1	0	0.0	4	44	49
	%	2.0	0.0	0.0	8.2	89.8	100
Develop Superstructure	Count	0	0	1	6	42	49
	%	0.0	0.0	2.0	12.2	85.7	100
Allow Competition in the Operation tasks	Count	0	2	1	6	40	49
	%	0.0	4.1	2.0	12.2	81.6	100
Enhance the Autonomy	Count	2	2	2	5	38	49
	%	4.1	4.1	4.1	10.2	77.6	100
Improve Admin. & Manag. System	Count	0	0	1	2	46	49
	%	0.0	0.0	2.0	4.1	93.9	100
Enhance Labour & Manag. Skills	Count	0	0	0	5	44	49
	%	0.0	0.0	0.0	10.2	89.8	100
Provide added-value services	Count	0	0	6	15	28	49
	%	0.0	0.0	12.2	30.6	57.1	100

Almost all the stakeholders indicated that the superstructure also needed to be developed, with 85.7% reporting that superstructure development is very important and a further 12.2% viewing it as important. Only 2% are neutral regarding this issue.

93.8% of total respondents indicated that allowing competition in the operational tasks is either important or very important, whilst only 2% of the total considered that competition is not important or unimportant. 4.1% of the total respondents reported that competition in operational tasks is not an important consideration at all. However, it is evident that allowing competition in the ports sector is important to the vast majority of respondents.

The majority of respondents point to the importance of the autonomy of the port sector, with 87.8% of the total answering that autonomy is important or very important, and with only 12.3% indicating that this issue is neutral, not important, or not important at all.

An overwhelming 98% of respondents indicated that improving the administration and management system of Libya's container ports is either very important or important for

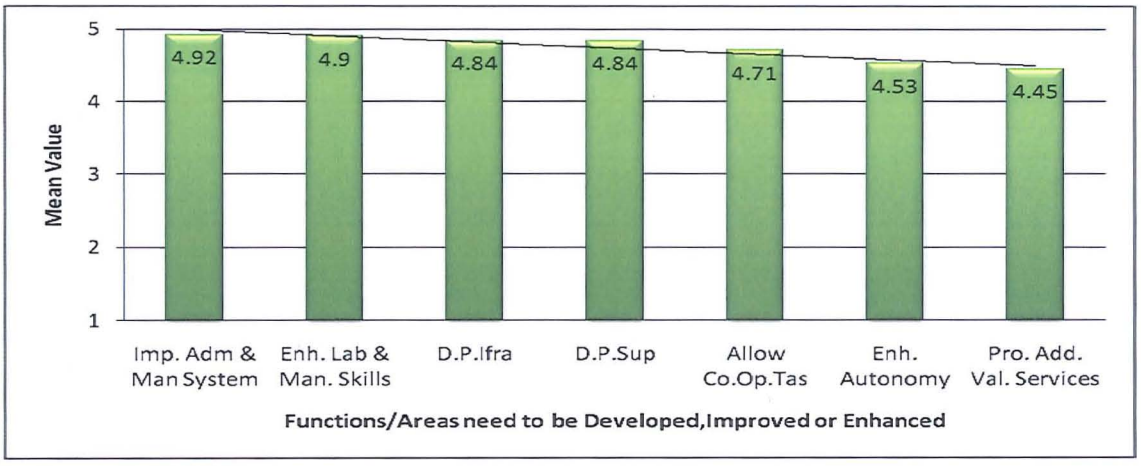
future performance and achieving government objectives. All respondents indicated that enhancing labour and management skills is very important or important.

87.7% of the respondents reported that providing added-value services is either important or very important for enhancing the performance of Libya's ports, while only 12% of respondents were neutral about this.

As can be seen from figure 6.3 the mean of the responses is high (over 4.5) for all of the functions and areas investigated, indicating that most of these areas / functions are considered very important for enhancing the performance of Libya's container ports, and for fulfilling government strategy. In the other words, the current situation within all of these areas and functions represents, according to respondents, a problem for Libya's container ports.

The prioritisation of the listed factors for enhancing performance and helping the government to achieve its goals is depicted in Figure 6.3. Improving the administration and management system of Libya's container ports has the highest mean value of 4.92 and thus is ranked first in terms of the priority of action required to enhance performance and achieve objectives. The provision of added-value services is ranked lowest at seventh (albeit this is still important in the minds of respondents) as it has the lowest mean value of 4.45 amongst all the other factors that have an impact on the overall performance of the country's container ports.

Figure 6.3 Priorities: the importance of each function / area



6.3.4 Devolution Policy and Selecting an Approach

In chapter five the results of the matching framework analysis suggested that the operational and management structure of Libya's container ports should be changed in order to fulfil the strategic objectives of the government. The results of the second question of this survey, discussed in the previous section, have likewise suggested that improving the administration and management system of the ports is the top priority for enhancing their performance and achieving government objectives.

The implementation of a devolution policy for ports is seen as leading to enhanced port performance, providing a solution to many port problems and contributing to the achievement of national strategic objectives. However, there are different approaches to devolution and each one of them has its own characteristics and each leads to different outcomes.

Question 3.3 in part 3 of the survey asked stakeholders to indicate how a port's functions should be provided/conducted in order to enhance the current situation and help achieve government objectives. The functions listed in this question are those affecting port performances in general. These include the port's infra- and superstructure, stevedoring/cargo handling, services to vessels, regulation and safety, planning and monitoring performance and determining who should be responsible for setting port dues and stevedoring charges. Six possible entities providing, conducting or having responsibility for port functions were listed in the question. These include the national Port Authority (in the case of Libya, this is the Libyan Maritime Transport & Port Authority – LMTPA), a public port authority at the port level (PA), a corporatized Entity, a concession arrangement (such as build-operate-transfer – BOT), a joint venture between private and public sector (JV) and finally the private sector acting alone. It is important to bear in mind that all Libyan container ports are currently managed and operated by a corporatized entity; this includes primarily the Socialist Port Company (SPC) who run a number of ports and the Misurata Free Trade Zone Company (MFTZ) in the Port of Misurata, both of whom conduct almost all the port's functions.

For the future governance structure, table 6.5 shows that the stakeholders did not select one entity for each function and for some functions the percentage of responses were close to each other which means a different scenario may exist. However, the results indicated that the main component of the operating functions of Libya's container ports

should be devolved to another entity. In other words, the current situation is no longer preferred (i.e. corporatisation has not met the expectations of the stakeholders').

Table 6.5 Stakeholders response regarding who should provide the different port functions in percentage

Areas / Functions	response rate	CPA	PA(Port level)	CoE	CoA (e.g. BOT)	JV	PS	total
Port Infrastructure	Count	27	6	2	6	6	2	49
	%	55.1	12.1	4.1	12.2	12.2	4.1	100
Port Superstructure	Count	1	10	3	19	11	5	49
	%	2.0	20.4	6.1	38.8	22.4	10.2	100
Stevedoring / Cargo handling	Count	1	1	4	18	10	15	49
	%	2.0	2.0	8.2	36.7	20.4	30.6	100
Services to vessels and traffic safety	Count	13	0	6	15	4	11	49
	%	26.5	0.0	12.2	30.6	8.2	22.4	100
Regulation and safety	Count	14	20	5	0	5	5	49
	%	28.6	40.8	10.2	0.0	10.2	10.2	100
Planning and monitoring performance	Count	23	13	6	0	4	3	49
	%	46.6	26.5	12.2	0.0	8.2	6.1	100
Ports dues & stevedoring charges	Count	17	7	1	14	8	2	49
	%	34.7	14.3	2.0	28.6	16.3	4.1	100

From table 6.5, based on stakeholder responses, three activities should be provided or sponsored by the central port authority (LMTPA): namely, the provision of port infrastructure, planning and monitoring the performance of the port, and the setting of port dues and stevedoring charges. The stakeholders view is that the responsibility for enforcement of safety standards and applying regulations should be decentralised to the port authority at the port level. Three activities should be provided via a concession arrangement: namely, the provision of port superstructure, stevedoring/cargo handling, and services provided to vessels. The suggested scenario can be summarised as shown in table 6.6.

Table 6.6 The preferable scenario for Libya's port governance in the future

The Responsibilities of Libya's Maritime Transport and Port Authority	**The Responsibilities of the Port Authority at the Port Level**	**Functions Provided Via Concession arrangement BOT[23]**
- Provide Ports Infrastructure - Planning and Monitoring Performance - Controlling Port Dues and Stevedoring Charges	- Enforcing and implementing the safety standards and regulations	- Provide Ports Superstructure - Stevedoring and cargo handling - Provide services to vessels

Source: first preference from survey

[23] It is known that the BOT relates to the provision of infrastructure, however, in this research the stakeholders suggested that the infrastructure needs to be provided by LMTPA; while they suggest that the port superstructure should provided via BOT.

Table 6.7. The second possible scenario for Libya's port governance in the future

The Responsibilities of Libya's Maritime Transport and Port Authority	Functions Provided Via Concession arrangement
- Provide Ports' Infrastructure - Planning and Monitoring Performance - Enforcing and implementing the safety standards and regulations - Controlling Port Dues	- Provide Ports' Superstructure - Stevedoring and cargo handling - Provide services to the vessels - Stevedoring Charges

Source : first preference with modification from literature

The dilemma for this scenario relates to the setting of charges. Notteboom (2007b) argued that in many cases the operator has the freedom to set charges, whilst the port authority receives the concession fees. Logically, the proposed scenario might be changed slightly by moving the responsibility for setting charges to the service provider. Thus, the scenario will be as presented in Table 6.7.

Based on the answers from table 6.5, another scenario could exist and this is as shown in Table 6.8. Taking into account that the majority of stakeholders (67.2%) suggested that port infrastructure should be provided either by the national port authority or by the port authority at the port level, this scenario was the second most popular preference selected by stakeholders.

From Table 6.8, it is suggested that only the cargo handling/stevedoring function is to be devolved to the private sector and, based on these responses, the port superstructure and control of charges should be provided jointly between the private and public sector. In this scenario, other port functions remain in the hands of the central port authority.

Table 6.8. The third possible scenario for Libya's port governance in the future

The Responsibilities of Libya's Maritime Transport and Port Authority	Functions Provided by Private Sector alone	Jointly Between Libya's maritime transport, Port Authority and the Private Sector
- Provide Ports Infrastructure - Planning and Monitoring Performance - Enforcing and implementing the safety standards and regulations - Provide services to vessels	- Stevedoring and cargo handling	- Controlling Port Dues and Stevedoring Charges - Provide Ports Superstructure

Source: second preference from survey

From the three different scenarios that have resulted from the overall analysis of the stakeholder survey it can be concluded that the operations function of the port should be devolved to the private sector. One aspect of the landlord function should be provided by the private sector, namely the provision of port superstructure; this corresponds with the findings of Baird (2002) that port superstructure within the majority of major seaports worldwide is today the responsibility of private terminal operators.

In general, based on the stakeholders' views, the most acceptable and effective approach to managing and operating the ports is by a concession arrangement. However, based on the comments provided by some of the stakeholders, two types of concession arrangement could be adopted: BOT (Build – Operate – Transfer) for new container terminals (if the government decided to do so), and; the ROT (Rehabilitate-Operate-Transfer) which should be adopted when the aims are to modernise and rehabilitate any of the ports or terminals in question.

6.3.5 The Possible Impact of Devolution

Stakeholders were asked to express their perceptions of the possible impact of their preferred scenario for managing and operating Libya's ports. (Question 3.4 of part 3 of the stakeholder survey). The overall analysis of the question indicated that the operating functions of Libya's container ports should be devolved to another entity, in a move away from the current situation; therefore, this section analyses the possible impact of a devolution policy on the different port activities/functions affected.

These aspects include the performance of the ports (efficiency, effectiveness and productivity), in addition to cost issues which include the port dues, stevedoring charges and freight rates. Respondents were asked to indicate the possible impact, in their view, of the preferred scenario on labour conditions (number of employees and wages), competitiveness (inter- and intra-port), and sector throughput.

6.3.5.1 Port technical performance

As discussed in section 6.3.1, performance encompasses three aspects; namely efficiency, effectiveness and productivity and for this question stakeholders were asked to indicate the possible impact of their preferred scenario on each segment individually. Respondents expect the overall performance of the ports will be improved following the implementation of changes to the method of managing and operating the ports. Efficiency will increase significantly, according to a mean response of 1.57. Effectiveness will increase, according to a mean response of 1.59. Changing the governance structure will also have a positive impact on productivity, with a mean response of 1.57.

This is not a surprising finding, as many researchers (e.g. Baird, 2000; Cullinane, Song and Gray, 2002; Tongzon and Heng, 2005) have all found that operational efficiency

can be enhanced through at least some participation of the private sector in ports, even to some extent, and not necessarily through full privatisation.

Table 6.9 Stakeholders' perspectives regarding the impact of devolution on the technical performance

Items	Response Rate	1 Will increase significantly	2 Will increase	3 No Impact	4 Will decrease	5 Will decrease significantly	Total	Mean value
Efficiency	count	25	22	1	0	1	49	1.57
	%	51.0	44.9	2.0	0.0	2.0	100	
Effectiveness	count	23	25	0	0	0	49	1.59
	%	46.9	51.0	0.0	0.0	0.0	100	
Productivity	count	26	21	0	1	1	49	1.57
	%	53.1	42.9	0.0	2.0	2.0	100	

6.3.5.2 User Costs

The survey asked the stakeholders to indicate the possible impact of changing the management and operational structure of the ports on the three categories of port user costs, namely - port dues, stevedoring/cargo handling charges and the freight rate. This question was asked in order to investigate the potential benefit that will be felt by the users (carriers) as it is hypothesised, and ports will be more attractive when port costs for operating vessels is low. Ghashat (2009) pointed out that shipping lines and tramp vessels charge higher freight cargo rates than the average available on the market. Thus, this question assesses whether devolution will impact the freight rate or not, and if so in which direction.

Only 4.1% of respondents expected that **port dues** would decrease significantly as a result of changing the management and operating structure of the ports, with 57.1% stating it will decrease. 16.3% of respondents expected that the dues would not be impacted by such changes. 32.4% of respondents hold the opposite view with respect to changing port dues; they stated that the ports' dues will either increase or increase significantly.

Stevedoring / cargo handling charges are expected to decrease as stated by 63.3% of the respondents. However, 24.5% indicated that there will be no impact as a result of changing the governance structure on the stevedoring / cargo handling charges. 12.2% of respondents held the opposite opinion, the latter suggesting that such charges will either increase or significantly increase (which means that changing management and the operational structure of the ports is expected to have a negative impact on charges). The majority of the respondents (79.6%) stated that the **freight rate** will either decrease or will decrease significantly. Moreover, 10.2%, 8.2% and 2% respectively reported that

devolution will have no impact on the freight rate, or that the freight rate will increase or increase significantly.

In spite of the fact that the majority of respondents voted in favour of the positive impact of devolution on user costs, some of the respondents held a different view.

Table 6.10 Stakeholder perspectives regarding the impact of devolution on ports' user costs

Items	Response rate	1 Will increase significantly	2 Will increase	3 No Impact	4 Will decrease	5 Will decrease significantly	Total	Mean value
Ports' dues	count	3	8	8	28	2	49	3.37
	%	6.1	16.3	16.3	57.1	4.1	100	
Stevedoring charges	count	1	5	12	29	2	49	3.53
	%	2.1	10.2	24.5	59.2	4.1	100	
Freight rate	count	1	4	5	31	8	49	3.84
	%	2	8.2	10.2	63.3	16.3	100	

By taking into account the mean of the answers, one can conclude that the costs are expected to decrease in general; from table 6.10 port dues are anticipated to decrease as a result of changing the port governance, with a mean response rate of 3.37. The mean for stevedoring/cargo handling charges was 3.53. Freight rates are also expected to decrease, with the highest response mean of 3.84.

These results are in line with those put forward by Kent and Hochstein (1998) and Hoffmann (2001). Both of these studies found that the costs for port users were generally reduced as a result of the adaptation to port operating concession arrangements; this contributed to a reduction in user costs due to a decrease in cargo handling charges. The same conclusion was reached by Halling (1996) who pointed out that, after reforming the port of Tauranga, stevedoring charges were reduced by 50%.

6.3.5.3 Labour conditions

An interview was conducted by the author in October 2009, with key people from the Libyan port industry and some representatives of the port labour force (in October 2009). This revealed the main concern of the people interviewed to be the situation of dock workers following changes to the structure of the port operations and management structure. The dock workers are worried about job security and their potential income after devolution. Therefore, question 3.4 in part 3 of the survey intended to investigate the potential impact of port devolution on the labour force numbers and wages.

From Table 6.11, based on 53% of respondent opinions, the number of dock workers is expected to increase after port reform/devolution, with 8.2% answering that the number will increase significantly. 20.4% expected that there would be no impact on labourer

numbers after devolution (in total 81.7% argued that there will be either no impact or that the number will increase). 18.4% of respondents suggested that the number will decrease, but not significantly.

The answer provided by the respondents regarding the wage situation after devolution is clearer than the answer given in respect of the number of dock workers. 89.8% of respondents indicated that the wages for port labourers will either increase (the majority of answers) or will increase significantly.

Only 2% of the total respondents expected that wages will decrease (but not significantly) and 8.2% of the respondents anticipated that there will be no impact on wages after devolution.

Table 6.11 Stakeholders' predictions for the impact of devolution on dock worker

Items	Response rate	1 Will increase significantly	2 Will increase	3 No Impact	4 Will decrease	5 Will decrease significantly	Total	Mean value
Labour numbers	count	4	26	10	9	0	49	2.49
	%	8.2	53.1	20.4	18.4	0.0	100	
Labour wages	count	6	38	4	1	0	49	2.0
	%	12.2	77.6	8.2	2	0.0	100	

From table 6.11, it is clear that the respondents anticipate that wages will increase, with a mean value of 2. In terms of the number of labourers, the respondents indicated that numbers will also increase with a mean response of 2.49.

Taking into account international experience, there is no definite answer regarding the number of employees after the implementation of devolution policy. In Australia, for example, the reform programme resulted in a smaller workforce. In Argentina, labour numbers were reduced as a result of the implementation of the devolution policy; namely a concession arrangement (Estache and Carbajo, 1996). In other cases, Mexico for instance, the number of employees almost doubled as a result of the increased activities at its ports following the reform process (Estache et al., 2002).

No clear and definitive justification was provided regarding how far and why the respondents anticipated that the number of dock workers would increase. Such a finding surprised the researcher. However, the respondents considered the inclusion of the jobs that would be created as a result of changing the function of the country's ports as port related jobs. Especially that the government's future objectives include increasing sector throughput and converting two of the country's ports into a hub and a gateway, such new functions of the sector may be expected to lead to increased cargo handling at

the ports, increased vessel frequency, improved hinterland distribution and an increased need for logistics and added-value services, which all require a workforce. Thus, an increase in the number of labourers has the potential to reinforce and confirm respondent expectations.

6.3.5.4 Competitiveness

The potential impact of a changing operational and management structure on port competitiveness was assessed through question 3.4 in part 3. The question asked stakeholders to express their opinion with respect to the future competition of Libya's ports.

Table 6.12 Stakeholders' perspectives on the impact of devolution on port competitiveness

Items	Response rate	1 Will increase significantly	2 Will increase	3 No Impact	4 Will decrease	5 Will decrease significantly	Total	Mean value
Competition within a port	count	7	39	3	0	0	49	1.92
	%	14.3	79.6	6.1	0.0	0.0	100	
Competition among the country's ports	count	6	42	0	0	1	49	1.94
	%	12.2	85.7	0.0	0.0	2.0	100	
Ports' international competitiveness	count	13	32	3	0	1	49	1.86
	%	26.5	65.3	6.1	0.0	2.0	100	

Three types of competition were listed in the question, namely: competition within a port, competition amongst the country's ports, and the ports' international competitiveness. From table 6.12, 93.9% of the respondents anticipated that the competition within one port will increase or will increase significantly as a result of the implementation of the devolution policy. Only 6.1% expected that there will be no impact as a result of devolution on competition within the ports.

This is in line with the case of Colombia, where the competition within one port increased as a result of allowing more than one operator to participate in the stevedoring function, with such competition having an influence on reducing the port's costs (Gaviria, 1998). Also, in the case of the Port of Buenos Aires in Argentina, when the port was divided into terminals and each terminal offered as a separate concession, such action played an important role in enhancing productivity and in cost reduction (Estache and Carbajo, 1996).

For competition among Libya's ports, 97.9% of the total respondents anticipated that the competition will increase or increase significantly. 91.8% of the respondents anticipated that the international competitiveness of the country's ports will increase. In spite of the majority indicating that international competitiveness will increase, 6.1% of

respondents anticipated that there will be no impact of devolution on competitiveness whilst a very small minority, 2%, stated that competitiveness will instead decrease.

6.3.5.5 Sector Throughput

Stakeholders were asked to express their opinion in respect of the impact of devolution policy on port throughput in the future. From international experience, with reference to Malaysia, the container flow in the country's ports was increased as a result of changing the operational and management structure of the sector, irrespective of the volume of the country's trade.

Table 6.13 Stakeholders' perspectives on the impact of devolution on port throughput

Items	Response rate	1	2	3	4	5	Total	Mean value
		Will increase significantly	Will increase	No Impact	Will decrease	Will decrease significantly		
Throughput	count	26	20	1	2	0	49	1.57
	%	53.1	40.8	2.0	4.1	0.0	100	

For instance, at Port Kelang over 50% (over 2.5 million TEUs) of the containers handled at the port between 2005 and 2008 were transhipment traffic. In 2002 the Port of Tanjung Pelapas (PTP) handled 3m TEUs in transhipment cargo, rising to nearly 6.0m TEU in 2009. Another example is Gioia Tauro, which is a specialised transhipment port and located in a small town in southern Italy. It handled over 3m TEUs in 2007, a high volume of container traffic that can be attributed to the concession arrangements awarded to shipping companies and terminal operator.

Therefore, it is not surprising to see from table 6.13 that 93.9% of total respondents anticipate that sector throughput will either increase or increase significantly. This could be attributed to an expectation of either enhanced performance of the sector or a reduction in costs; these two elements will encourage shippers to export and import their goods via Libya's ports instead of through the ports of neighbouring countries. Another benefit is that the government may oblige concessionaires to handle a certain number of containers which will definitely be more than the current level (which currently does not exceed 300,000 TEUs at any of the country's ports). The success of the country in converting Elkhoms port to a hub in the Mediterranean region and the port of Benghazi as a gateway will be expected to lead to an increased number of the containers at these two ports.

6.3.5.6 Government subsidy

Another potential benefit from the implementation of devolution policy is the impact on the government budget. For instance, as announced, the U.K government privatised ports primarily to reduce the financial burden on its shoulders. In Latin American countries, attracting alternative sources of investment to help modernise and expand the port system and increase trade were the major objectives behind the implementation of a devolution approach. Libya's ports need to be similarly rehabilitated and developed to cope with the technological developments occurring in the shipping industry, and to exploit new trade development opportunities.

Table 6.14 Stakeholders' perspectives on the impact of devolution on government subsidy

Items	Response rate	1	2	3	4	5	Total	Mean value
		Will increase significantly	Will increase	No Impact	Will decrease	Will decrease significantly		
Government subsidy	count	1	7	9	21	11	49	3.69
	%	2.0	14.3	18.4	42.9	22.4	100	

As with other industries in the country, the sector has long been supported by the government, especially in relation to major construction projects. From table 6.14, 65.3% of respondents anticipate that government subsidies will either decrease or significantly decrease after port devolution/reform. This answer might be provided on the basis that the preferred scenario for the future governance structure is the concession arrangement, under which the concessionaire will be responsible for providing port superstructure. In addition, the new operator will be responsible for paying wages to dock workers.

However, 34.7% of the respondents indicated that government subsidies will not be affected or will increase or increase significantly. The overall results in table 6.14 suggest that government subsidies will most probably decrease, with a mean value of 3.69.

6.3.5.7 The sector contribution to the national income

Survey responses suggest that further benefit can be gained from the preferred approach of implementing a devolution policy in terms of the sector's contribution to national income. From table 6.15, the respondents anticipated that the contribution of the sector to national income will increase, with a mean response of 1.88.

International experience with reference to Malaysia, Philippines, Thailand and Latin America suggests that concession arrangements can lead to increased investment in the

port and increased government revenue (Agustin, 1998; Cass, 1999; Hoffmann, 2001). The source of this revenue is the concession fees imposed by the country. Libya would gain the same benefit by adopting a similar approach. This usually achieved via the condition of a concession that investments are made by the firm awarded the concession. So the state can set out what it wants and the winning bidder in a tender is required to provide it, including perhaps target traffic volumes.

Table 6.15 Stakeholders' perspectives on the impact of devolution on national income

Items	Response rate	1 Will increase significantly	2 Will increase	3 No Impact	4 Will decrease	5 Will decrease significantly	Total	Mean value
National Income	count	15	29	2	2	1	49	1.88
	%	30.6	59.2	4.1	4.1	2.0	100	

6.3.6 The most effective scenario

From the above analysis it can be concluded that the implementation of the devolution policy at Libya's container ports is expected to lead to superior outcomes, as stated in the overall stakeholder perceptions shown in table 6.16.

Table 6.16. Overall stakeholder perceptions regarding the impact of devolution policy

Items under assessment	N	Minimum	Maximum	Mean	Std. Deviation
Port Efficiency	49	1	5	1.57	0.736
Port Effectiveness	49	1	5	1.59	0.705
Port Productivity	49	1	5	1.57	0.791
Labour Numbers	49	1	5	2.49	0.893
Labour Wages	49	1	5	2.00	0.540
Competition within a port	49	1	5	1.92	0.449
Competition among the country's ports	49	1	5	1.94	0.556
Ports' International competitiveness	49	1	5	1.86	0.707
Ports' Throughput	49	1	5	1.57	0.736
Sector contribution to national income	49	1	5	1.88	0.832
Port Dues	49	1	5	3.37*	1.014
Stevedoring/Cargo handling charges	49	1	5	3.53*	0.819
Freight Rate	49	1	5	3.84*	0.874
Government Subsidiary	49	1	5	3.69*	1.045

* High Mean Value for the last four performance indicators in the table is likely to create a positive impact as a result of devolution, unlike the rest of the performance indicators wherein the small Mean Value indicates the positive impact of devolution

1= Will increase significantly, 2=Will increase, 3=Neutral, 4=Will decrease , 5=Will decrease significantly

However, the immediate question arises: is the preferred scenario (refer to section 3-3) likely to help in improving all of the listed items, including technical performance?

The one-Way ANOVA test has been used to examine whether there are significant differences between the different entities opinions in terms of their impact on the overall objectives, and then investigate the most effective scenario for governing container ports in the future (which will be the preferred one or not).

From the ANOVA analysis the effect of different entities providing port infrastructure on the first ten issues examined was found to be not significant; overall the F statistic for all the items ranged between 0.226 and 1.53 and the P value for all the items > 0.05 so that such an effect may occur by chance.

Table 6.17. Responsibility for providing ports' infrastructure

Items under assessment	Possible infrastructure provider						*F*	*P*
	CPA	PA (port level)	CoE	CoA (e.g. BOT)	JV	PS		
Port Efficiency	1.67	1.50	1.50	1.33	1.50	1.50	.226	.949
Port Effectiveness	1.67	1.50	1.50	1.33	1.67	1.50	.249	.938
Port Productivity	1.63	1.50	1.50	1.17	1.83	1.50	.464	.801
Labour Numbers	2.41	2.17	3.00	2.33	3.00	3.00	.883	.501
Labour Wages	2.00	1.83	2.00	2.00	2.17	2.00	.210	.957
Competition within a port	1.93	1.83	2.00	1.83	2.00	2.00	.140	.982
Competition among the country's ports	2.04	1.83	2.00	1.83	1.67	2.00	.526	.756
Ports' International competitiveness	1.85	2.17	2.00	1.50	1.83	2.00	.543	.742
Ports' Throughput	1.52	1.33	2.50	1.67	1.67	1.50	.818	.543
Sector contribution to national income	1.81	2.33	1.50	1.50	1.83	3.00	1.53	.201
Mean Grand Average for the first 10 items	**1.85**	**1.80**	**1.95**	**1.65**	**1.92**	**2.00**		
Port Dues	3.89	2.67	3.00	2.83	2.33	3.50	5.25	.001
Stevedoring/Cargo handling charges	3.81	2.67	3.50	3.17	3.67	3.00	2.91	.024
Freight Rate	4.11	3.00	3.00	3.67	4.00	3.50	2.473	.047
Government Subsidiary	3.85	3.17	4.50	3.67	3.50	3.00	.874	.507
Mean Grand Average for the last four items	**3.92**	**2.88**	**3.50**	**3.34**	**3.38**	**3.25**		

From table 6.17, the best improvement can be seen on port dues, stevedoring charges and freight rates if **Port Infrastructure** is provided by the **central port authority** because it has the highest average mean value of 3.92 and the ANOVA test shows that there was a significant difference regarding the effect of each provider with an F value lying in the range between 2.473 and 5.25 and a P value < 0.05 for all three of the items. Providing **Port Superstructure** via a **joint venture** between the private and public sector should produce the best performance overall. This shows the lowest mean grand average of 1.62 for the first ten items, and one of the highest mean grand averages of 3.7 for the rest of the items.

Table 6.18. Responsibility for providing ports' superstructure

Items under assessment	Possible Superstructure provider						*F*	*P*
	CPA	PA (port level)	CoE	CoA (e.g. BOT)	JV	PS		
Port Efficiency	5.00	1.50	1.67	1.58	1.18	1.80	9.676	.000
Port Effectiveness	5.00	1.60	1.33	1.58	1.27	1.80	10.594	.000
Port Productivities	5.00	1.80	1.33	1.47	1.27	1.60	7.146	.000
Labour Numbers	4.00	2.30	2.67	2.42	2.27	3.20	1.558	.192
Labour Wages	4.00	1.90	2.00	2.00	1.91	2.00	3.674	.007
Competition within a port	3.00	1.90	2.00	1.95	1.64	2.20	2.966	.022
Competition among the country's ports	5.00	1.80	2.00	1.89	1.91	1.80	16.391	.000
Ports' International competitiveness	5.00	2.10	2.00	1.53	1.73	2.20	10.837	.000
Ports' Throughput	4.00	1.50	2.00	1.42	1.45	1.80	3.384	.012
Sector contribution to national income	2.00	1.70	2.67	1.74	1.55	3.00	3.743	.007
Mean Grand Average for the first 10 items	**4.2**	**1.81**	**1.97**	**1.76**	**1.62**	**2.14**		
Port Dues	4.00	3.10	3.00	3.58	3.45	3.00	.582	.714
Stevedoring/Cargo handling charges	4.00	3.30	3.33	3.63	3.55	3.60	.301	.910
Freight Rate	5.00	3.40	3.33	3.95	4.09	3.80	1.348	.263
Government Subsidiary	2.00	3.80	4.33	3.84	3.45	3.40	3.743	.403
Mean Grand Average for the last four items	**3.7**	**3.4**	**3.5**	**3.7**	**3.7**	**3.45**		

As can be seen from table 6.18, the ANOVA test shows that the impact of providing port superstructure via a JV was significantly different from the effect of other providers, especially for technical performance, general competitiveness, national income, labour wages and throughput with an F value in the range between 3.384 and 16.391 and a P value of < 0.05 for all of the items mentioned.

Table 6.19 Responsibility for providing stevedoring and cargo handling services

Items under assessment	Possible Stevedoring Provider						*F*	*P*
	CPA	PA(port level)	CoE	CoA(e.g. BOT)	JV	PS		
Port efficiency	5.00	1.60	1.25	1.72	1.50	1.00	10.250	.000
Port effectiveness	5.00	1.50	1.75	1.56	1.50	1.00	9.338	.000
Port productivity	5.00	1.50	2.25	1.50	1.50	1.00	8.505	.000
Labour number	4.00	2.40	3.25	2.39	3.00	1.00	1.955	.105
Labour wages	4.00	2.30	2.00	1.94	2.00	1.00	7.573	.000
Competition within a port	3.00	1.90	2.00	2.00	2.00	1.00	2.796	.000
Competition among the country's ports	5.00	2.00	2.00	1.89	2.00	1.00	20.956	.028
Ports' international competitiveness	5.00	2.00	1.75	1.61	2.00	1.00	8.656	.000
Ports' throughput	4.00	2.00	2.00	1.33	1.50	1.00	5.983	.000
Sector contribution to national income	2.00	1.70	2.00	2.06	3.00	1.00	1.53	.776
Mean grand Average for the first 10 items	**4.2**	**1.89**	**2.03**	**1.80**	**2.00**	**1.00**		
Port dues	4.00	1.00	3.00	3.61	3.00	3.50	2.015	.096
Stevedoring / cargo handling charges	4.00	1.00	2.75	3.78	3.50	3.00	4.011	.004
Freight rate	5.00	1.00	3.25	4.11	3.80	3.50	4.266	.007
Government subsidy	2.00	1.00	4.00	3.78	3.30	3.00	3.216	.015
Mean Grand Average for the last four items	**3.75**	**1.00**	**3.25**	**3.8**	**3.4**	**3.25**		

If the **Private Sector** is in charge of **Stevedoring / Cargo handling**; as in table 6.19, most of the government objectives will be positively impacted; impressive improvement will be seen in technical performance, competitiveness, national income, throughput and labour wages, with the lowest grand average of 1.00. The effect of the private sector was not due to chance as the ANOVA test shows an F value ranged between 2.796 and 20.956 and P value for almost all items is < 0.05.

Table 6.20 Responsibility for vessel services and traffic safety

Items under assessment	Possible Stevedoring Provider					*F*	*P*
	CPA	CoE	CoA(e.g. BOT)	JV	PS		
Port efficiency	1.36	2.17	1.60	1.25	1.54	1.457	.232
Port effectiveness	1.45	2.33	1.53	1.50	1.46	2.094	.098
Port productivity	1.36	2.17	1.47	2.00	1.46	1.527	.211
Labour number	2.36	3.33	2.27	3.00	2.31	2.321	.072
Labour wages	1.96	2.33	1.93	2.50	1.85	1.976	.115
Competition within a port	1.73	2.33	1.93	2.00	1.85	2.071	.101
Competition among the country's ports	1.82	2.50	1.87	2.00	1.85	1.974	.115
Ports' international competitiveness	1.82	2.33	1.53	2.00	2.00	1.752	.156
Ports' throughput	1.55	2.17	1.33	2.00	1.46	1.927	.123
Sector contribution to national income	1.82	2.00	1.80	1.80	2.00	.161	.957
Mean grand Average for the first 10 items	**1.72**	**2.4**	**1.73**	**2.00**	**1.78**		
Port dues	3.73	2.67	3.23	3.50	3.36	1.313	.280
Stevedoring / cargo handling charges	3.73	3.50	3.38	3.50	3.45	.340	.849
Freight rate	3.93	3.67	3.77	3.75	3.91	.140	.967
Government subsidy	3.73	3.83	3.92	3.00	3.55	.666	.619
Mean Grand Average for the last four items	**3.78**	**3.42**	**3.58**	**3.44**	**3.57**		

If **Services to Vessels** were handled by different entities the perceived changes to port performance, according to stakeholders, for each of the items is shown in table 6.20. The greatest improvement would be seen on all items if the services are provided by the **Central port Authority,** which has the lowest average mean value of 1.72 for the first ten items and 3.78 for the last four items. However, according to the ANOVA test such differences in the impact of different entities are not statistically significant.

Table 6.21. Responsibility for implementation of regulation and safety

Items under assessment	Possible responsible for regulation and safety					*F*	*P*
	CPA	PA (port level)	CoE	JV	PS		
Port Efficiency	1.21	1.55	2.40	2.00	1.40	3.513	.014
Port Effectiveness	1.21	1.60	2.40	1.80	1.80	2.407	.064
Port Productivity	1.21	1.50	2.20	1.80	2.00	2.223	.082
Labour Numbers	2.29	2.60	2.20	2.20	3.20	1.353	.266
Labour Wages	1.79	1.95	2.20	2.40	2.20	1.720	.163
Competition within a port	1.71	1.95	2.00	2.40	1.80	2.630	.047
Competition among the country's ports	1.86	1.95	2.40	2.00	1.60	1.475	.226
Ports' International competitiveness	1.64	1.75	2.60	2.20	1.80	2.357	.068
Ports' Throughput	1.57	1.35	2.20	1.80	1.60	1.556	.203
Sector contribution to national income	1.57	2.15	1.40	1.80	2.20	1.715	.164
Mean Grand Average for the first 10 items	**1.61**	**1.84**	**2.2**	**2.04**	**1.96**		
Port Dues	3.50	3.45	3.60	3.00	2.80	.696	.599
Stevedoring/Cargo handling charges	3.57	3.35	4.00	4.00	3.20	1.309	.281
Freight Rate	4.07	3.65	4.20	3.60	3.80	.775	.547
Government Subsidiary	3.64	3.85	4.20	3.00	3.40	1.069	.383
Mean Grand Average for the last four items	**3.70**	**3.58**	**4.00**	**3.40**	**3.30**		

From table 6.21, if the responsibility for enforcing the implementation of regulations and safety standards was to remain in the hands of the **Central Port Authority,** the stakeholder would be likely to perceive an improvement in all the items listed in the table. **CPA** has the lowest average mean value of 1.61 for the first ten items and the highest for the rest. The difference in the effect of CPA on other entities is statistically significant (for port efficiency and competition within the port

Table 6.22. Responsibility for Planning and monitoring performance

Items under assessment	Possible responsible for Planning and monitoring performance					*F*	*P*
	CPA	PA (port level)	CoE	JV	PS		
Port Efficiency	1.43	1.54	2.17	1.25	2.00	1.730	.160
Port Effectiveness	1.43	1.54	2.17	1.75	1.67	1.407	.247
Port Productivity	1.43	1.31	2.17	2.25	1.67	2.376	.066
Labour Numbers	2.22	2.54	3.50	2.75	2.00	3.312	.019
Labour Wages	1.78	1.92	2.83	2.00	2.33	7.474	.000
Competition within a port	1.78	1.92	2.33	2.00	2.00	2.025	.107
Competition among the country's ports	1.91	1.77	2.50	2.00	1.67	2.250	.079
Ports' International competitiveness	1.78	1.69	2.50	1.75	2.00	1.612	.188
Ports' Throughput	1.48	1.54	2.17	1.25	1.67	1.317	.279
Sector contribution to national income	1.74	2.08	2.00	1.75	2.00	.397	.810
Mean Grand Average for the first 10 items	**1.7**	**1.79**	**2.34**	**1.88**	**1.90**		
Port Dues	3.65	3.08	3.83	3.50	1.33	5.644	.001
Stevedoring/Cargo handling charges	3.74	3.23	3.50	3.50	3.33	.844	.505
Freight Rate	4.00	3.46	3.17	3.75	3.67	1.056	.390
Government Subsidiary	3.87	3.77	3.17	4.25	2.33	2.355	.068
Mean Grand Average for the last four items	**3.82**	**3.39**	**3.42**	**3.75**	**2.67**		

If the **planning and monitoring performance** function were conducted by **CPA**, the best improvement would be seen across all the items. From table 6.22, the CPA is shown to have the lowest grand average mean value of 1.7 for the first ten items and a highest average mean value for the rest of the items. The ANOVA test shows that the F value for almost all the items is higher than 1. However, the effect of CPA is not always statistically significant.

Table 6.23. Responsibility for Port Dues and Stevedoring Charges

Items under assessment	Possible responsible for Port Dues & Stevedoring						*F*	*P*
	CPA	PA (port level)	CoE	CoA (e.g. BOT)	JV	PS		
Port Efficiency	1.59	1.25	3.00	1.71	1.43	1.50	1.255	.301
Port Effectiveness	1.65	1.38	2.00	1.71	1.29	2.00	.700	.627
Port Productivity	1.53	1.63	2.00	1.64	1.29	2.00	.373	.864
Labour Numbers	2.76	2.50	2.00	2.57	1.86	2.00	1.264	.297
Labour Wages	2.06	2.13	2.00	2.00	1.71	2.00	.490	.782
Competition within a port	1.94	1.75	3.00	2.00	1.71	2.00	1.971	.102
Competition among the country's ports	2.06	1.88	2.00	1.93	1.71	2.00	.360	.853
Ports' International competitiveness	2.06	1.75	3.00	1.50	1.86	2.50	2.095	.084
Ports' Throughput	1.88	1.25	2.00	1.29	1.71	1.50	1.540	.198
Sector contribution to national income	2.18	1.50	3.00	1.93	1.29	2.00	2.064	.089
Mean Grand Average for the first 10 items	**1.97**	**1.7**	**2.4**	**1.83**	**1.59**	**1.95**		
Port Dues	3.18	3.29	1.00	3.50	3.86	2.50	2.544	.042
Stevedoring/Cargo handling charges	3.41	3.43	5.00	3.50	3.79	2.50	1.77	.138
Freight Rate	3.65	3.57	4.00	4.25	4.07	3.00	1.254	.301
Government Subsidiary	3.41	3.86	3.00	4.00	4.00	2.50	1.311	.277
Mean Grand Average for the last four items	**3.41**	**3.53**	**3.25**	**3.82**	**3.93**	**2.63**		

From the above analysis, and based on the grand average mean value, F ratio and P value of some items (especially technical performance; efficiency, effectiveness and productivity) it can be seen that the most effective scenario for the future governance of Libya's container ports is that given in the third scenario developed in section 6.3.3. When only the stevedoring / cargo handling function needs to be devolved and handled by the private sector, the port's superstructure, dues and stevedoring charges can be provided and controlled jointly by the private and public sector. Meanwhile, the remaining responsibility for handling the rest of the port's functions remains in the hands of the national central port authority.

6.4 Summary of Findings

The chapter has investigated the stakeholder satisfaction (or otherwise) with the current performance of Libya's container ports, and examined their opinions in respect of the port's areas/functions in need of development. Moreover, stakeholder perspectives

regarding the best possible future scenario for the governance of the sector were investigated, alongside its potential impact and implications. The overall results can be summarised as follows.

Firstly, almost all the sector's stakeholders were not satisfied with the current performance of the ports. Dissatisfaction can be attributed to the current existence of problematic issues at the ports in question.

Secondly, in order to satisfy stakeholders and achieve the government objectives, among the areas that require improvement and development, improving the administration and management system of the ports is ranked in first place (see table 5).

Thirdly, in respect of the attitude of stakeholders towards changing the governance structure of the ports, the overall analysis of the data demonstrated that the current governance structure of the sector should be changed and, more specifically, based on the results of the analysis, the operational function and some items of the landlord function should be devolved to the private sector. However, there are three scenarios possible for the future governance structure (refer to section 6.3.3 of this chapter).

Fourthly, the analysis of the survey data (stakeholder perspectives) indicated that the implementation of a devolution policy will have a positive impact and lead to superior benefits for all port stakeholders. The key benefit of a devolution policy includes:

- Enhancing the overall performance of the sector, which will be felt by all the port users
- Reduction in port user costs,
- Enhance competitiveness of the sector
- Dock worker numbers and wages will be further increased
- The sector throughput will be significantly increased,
- Government subsidies will be eliminated.
- Ports will contribute positively to national income, economic growth, and international competitiveness.

Finally, Statistical analysis shows that the most effective scenario is the third option (not the preferred one); this scenario has a positive impact especially on the technical

performance of the ports. However, the statistical results showed that an improvement in technical performance would not impair achievement of all the objectives (such as a reduced financial burden on the government, increasing the national income, decreasing the freight rate and enhancing international competitiveness). The results confirm that enhancing the technical performance of the sector by means other than changing the governance structure and allowing the participation of the private sector may have a limited effect in respect to other strategic objectives.

These results are required to be further confirmed and validated to avoid any bias that might exist. Other action necessary is to establish what factors should be addressed in order to implement the preferred scenario effectively. Therefore, a Delphi survey is deployed in order to further validate the findings of the stakeholder survey and to investigate the critical factors for success in implementing a devolution policy for Libya's container ports. The analysis and discussion of the Delphi survey is presented in the next chapter.

Chapter Seven

Analysis of Delphi Survey

7.1 Introduction

Empirically, the matching framework analysis demonstrated that changing the governance structure of the ports in question is a necessity rather than an option. This finding was confirmed via the stakeholder survey, and from that survey three possible scenarios for the future governance structure were developed. Overall, the results of the stakeholder survey anticipated that changes in the governance structure of the ports would have a positive impact on the different areas affected (stakeholder interests, including government objectives).

The Delphi survey was developed for two purposes: firstly, to investigate expert views regarding the governance structure scenarios, that is to say the impact of the preferred scenario on the achievement of government objectives. In this sense, the Delphi survey can be regarded as a **validation** instrument for the findings from the previously discussed methods used for this research. The second purpose of the Delphi survey was to **investigate** expert opinions regarding the nature of any private sector stakeholder that should become involved in the port and the functions that should be provided by the new entity; an aspect that may be vitally important for the performance of the devolution program. Also important are the further success factors identified by the experts to describe the most appropriate scenario for Libya's ports.

This chapter begins with a discussion of the survey formulation (questionnaire theme and scale) and then discusses the selection of the panel of experts. The determination of consensus was based on Cronbach's alpha with the analysis of this measure taking place in section 7.2. Section 7.3 endeavours to detail the process applied for the Delphi survey and the general ensuing analysis, alongside the discussion of the findings from the Delphi survey. A summary of the chapter will form section 7.4.

7.2 Delphi process

7.2.1 Questionnaire: Theme, Structure and Scoring

Five issues have been addressed via the Delphi survey of experts; three more areas were covered alongside those covered by the stakeholder survey. Firstly, the ideal nature of the private entity that will lead to an effective implementation of what is considered to be the most appropriate scenario for the future governance of Libya's container ports. Secondly, identifying the extra functions that need to be provided by the new entity to further enhance the performance of the devolution policy. Thirdly, the further success factors identified for devolution.

- **Governance structure**: The findings from the stakeholder survey reveal a consensus that the governance structure of the sector should be changed, with not only the operational function needing to be devolved to the private sector, but also some of the regulatory functions requiring transfer as well. These results confirm that the allocation of responsibility for port functions does not fall neatly into the categories proposed in the widely-accepted port privatisation matrix (refer to chapter six, section 6.3.3). By ranking stakeholder priorities and preferences, more than one scenario for future port governance emerged as feasible contenders.

Table 7.1 The first preferable scenario for Libya's port governance in the future

The Responsibilities of Libya's Maritime Transport and Port Authority	The Responsibilities of the Port Authority at the Port Level	Functions Provided Via Concession arrangement BOT
- Provide Ports Infrastructure - Planning and Monitoring Performance - Controlling Port Dues and Stevedoring Charges	- Enforcing and implementing the safety standards and regulations	- Provide Ports Superstructure - Stevedoring and cargo handling - Provide services to vessels

Table 7.2. The second possible scenario for Libya's port governance in the future

The Responsibilities of Libya's Maritime Transport and Port Authority	Functions Provided Via Concession arrangement
- Provide Ports' Infrastructure - Planning and Monitoring Performance - Enforcing and implementing the safety standards and regulations - Controlling Port Dues	- Provide Ports' Superstructure - Stevedoring and cargo handling - Provide services to the vessels - Stevedoring Charges

Table 6.8. The third possible scenario for Libya's port governance in the future,

The Responsibilities of Libya's Maritime Transport and Port Authority	Functions Provided by Private Sector alone	Jointly Between Libya's maritime transport, Port Authority and the Private Sector
- Provide Ports Infrastructure - Planning and Monitoring Performance - Enforcing and implementing the safety standards and regulations - Provide services to vessels	- Stevedoring and cargo handling	- Controlling Port Dues and Stevedoring Charges - Provide Ports Superstructure

However, the extent of private sector involvement and the different tiers of government involvement in port functions differ from one scenario to another. In addition, the results revealed that, statistically, the third scenario is the most effective one for improving the technical performance of ports. Therefore, in the Delphi survey of experts, the three scenarios are operationalised based on their degree of appropriateness to Libya's ports. The experts were asked to express their opinion in respect of the appropriateness of each scenario, using a Likert scale ranging from 1 (1 Most appropriate) to 4 (Not appropriate at all).

- **Assessment of the impacts:** The second issue covered by the Delphi survey relates to the impact of what the panellists regard as an appropriate scenario for different items (almost all of these are discussed in the stakeholder survey). As detailed in chapter five, section 5.5, these items represent the interests of the key stakeholders. Some of the items represent the common objectives of the port devolution policy (refer to chapter two section 2.3.3), while others represent the concerns of different parties, such as port labourers. The assessment will investigate whether the devolution program will fulfil the requirements of the government's strategy at the macro level (alternative source of income, reducing the burden on the general budget) and then at the micro level, which includes enhancing the technical performance of the ports, improving the competitiveness of the sector and increasing the throughput. Another item considered when assessing this is the goal of the government, which relates to converting two of the country's principal ports to regional hubs (this item has not been discussed in the literature). Technical performance is the main concern for the port customer, as well as the port's general costs (port dues and stevedoring charges). Thus, these two items have been considered as well. The assessment will be based on a Likert scale wherein the experts are asked to express their agreement (from 1=totally agree to 4=totally disagree) with the statement listed in the questionnaire, as can be seen in Appendix V and Table 7.4. All the statements were designed in a positive direction.

- **Outsider or insider, operator or carrier:** The nature of the investor or private entity that would participate in the public sector including the ports will play an important role in determining the extent of the success of the devolution policy, especially when the policy adopts a privatisation approach. Many scholars classify private sector entities involved in the privatisation process as either insiders or outsiders, as firms are likely to be in the hands of one of them after privatisation. An insider-owned firm transfers the firm to the hands of its pre-privatisation managers and employees through a specific type of privatisation. An outsider-owned entity is one that owns the firm after privatisation, and originates from outside the firm. The outside owner will be classified as either domestic or foreign. Many scholars have examined the impact of the characteristics of the new owner. Frydman et al. (1999) and Estrin et al. (2009) conclude that privatisation involving an outside owner is more effective than privatisation involving an inside owner, and that the subsequent performance of a firm owned by an outsider is more impressive. Indeed, Djankov and Murrell (2000) state that privatisation concerning an outsider results in 50% more restructuring than insider privatisation. Estrin et al. (2009) focused on foreign owners rather than domestic ones. Their results can be attributed to: (i) the fact that domestic owners suffer from a shortage in skills and have limited access to the global market; (ii) a lack of transparency or effective monitoring system; and (iii) limited shares being made available to domestic owners (sometimes the government owns the majority of shares). Estrin et al. (2009) argue that the positive effect of foreign ownership is general and not limited to a specific region, and such effects at a later stage of transition are better than at an earlier stage of reform.

  In the port industry, international experience has revealed that the majority of the countries across the world have all devolved operational tasks to foreign investors (outsiders), while for example in the UK many of the trust ports were sold to what were management buy outs – that is, to the existing 'public' managers. In many cases these ex public port managers then quickly sold their ports on to other private entities, making personal fortunes in the process.

  However, the outsider may be a carrier or port/terminal operator. On the one hand, countries such as Malaysia, Morocco (Anonymous, 2009a,b), Italy (Gioia Tauro, Taranto and Cagliari Ports) (Valleri et al, 2007) and many others have devolved operational tasks to global carriers via concession arrangements. On the other hand,

some countries, for instance Syria, Algeria and Argentina have devolved the operational tasks to global port/terminal operators, such as DP world and ICTSI. The newcomers have modernised the port superstructure (Anonymous, 2009c, d); such investments tend to be conditions of concessions; i.e. they are not optional, bidders have to commit to making investments in order to enhance the technical performance of the port and increase throughput.

Four different entities that have the potential to be involved in port devolution are listed in this survey; namely, a global carrier[24], port/terminal operator, domestic investor and other entity (an opportunity for the experts to propose an alternative). The panellists were asked to select the most effective entity that would maximise benefits (refer to Appendix V).

- **Further functions for success:** Different issues were covered in this section. There is a general agreement that one of the main problems with Libya's container ports is the lack of appropriate superstructure required for handling containers, and the skills of the labour force. In addition, the ports are operated for only a portion of the day. Therefore, the experts were asked to what extent they agreed that the private sector should rehabilitate the current superstructure, update it (invest in new port superstructure), provide training programs for dock labourers (to enhance the quality of labour) and increase working hours.

In respect of the operator role, Notteboom and Rodrigue (2005) argued that the focus today is on extending inland freight distribution, which has become important for enhancing the situation of ports in the market. Thus, a new approach to port governance is required. Heaver (2002) stated that the activities in a chain may be carried out by subsidiary companies collectively with the mother company. UNCTAD (2007) suggest that offering a terminal concession to a global terminal[25] operator is one possible solution available to a government/port authority. Furthermore UNCTAD further suggested that the operator may:

> "*...wish to consider vertical integration into the supply chain incorporating national transport systems... Uniting transport*

[24] From the interviews conducted by the author, as discussed in chapter 5, it was found that there are some shipping lines operating in the Mediterranean seeking to invest in one of the Libyan ports, however, the interviewees who were in favour of changing the country's port structure argued that global carriers are more preferred than others.

[25] This means the operators who operate globally such as PSA and DWP.

operators such as truck or rail operators together with terminal operators to provide a dedicated service along specific inland routes to a dry port are a possible way forward."

A further issue of key importance in this section relates to whether the port really needs to be operated in a logistical manner or not. Put another way, should the operator control all of the associated services or is technical performance likely to be enhanced without such an approach? In order to facilitate the understanding of this question, it was decided to simplify the issues. The logistic chain was divided into the operations at the port (as detailed within the proposed governance scenario), investment in the information technology (computerisation of the port), inland transportation and control of the container yards. The experts were then asked to express their agreement in relation to various hypothetical methods for controlling all these elements, which could be applied by the operator to enhance the performance of the port (refer to Appendix V). A Likert scale was deployed for this question, ranging from 1 (totally agree) to 4 (totally disagree).

- **Further factors for success**: beyond asking about the preferred nature of the private sector and the extra functions or activities that should be conducted or provided by the private sector; the first round of the survey contained an open question asking the panellists to list what they regarded as the success factors for the implementation of such a policy. This then allowed for these factors to be reformulated and redistributed to the experts in order to validate them in the second round. A Likert scale was employed for this question, ranging from 1 (totally agree) to 4 (totally disagree).

In term of the survey structure, the researcher followed Brockhoff' s (1975) framework, which states that round one of the Delphi survey is commonly structured to make the application simpler for the monitoring team and the panellists.

As can be seen from the above discussion, most of the survey questions are structured and closed questions. A Likert scale is used as it is likely to produce an easy to read and complete questionnaire with a highly reliable scale (Page-Bucci, 2003). In addition, the items were already identified and operationalised in light of the research questions in the literature and the aforementioned empirical analysis for the research.

The central natural point of the scale was eliminated for different reasons, the foremost being that all of the experts on the research panel took part in the stakeholder survey, and also confirmed their participation. In the stakeholder survey the central (neutral) point was rarely selected by participants. Secondly, the exclusion of a neutral point provides a better measure of the intensity of the participants, (Dumas, 1999). Finally, Eysenck (1998) argued that a central point will help participants to effectively opt out by selecting this answer. Thus, its removal encouraged the experts to choose what they really believed.

7.2.2 Panel of Experts

One of the most critical elements of the Delphi survey is the selection of the experts (section 4.5.5.4, research methodology chapter). The panel members should be those interested in and knowledgeable about, the topic being studied or considered. However, it was difficult to limit the criteria for expert selection to those interested in the topic of devolution/reform or privatisation. Thus, for the purposes of this research the panel members were viewed to be those interested in, and concerned with, the enhancement of container port conditions and their situation in the global market, having considerable experience and a broad knowledge of the port industry in general and the local market in particular.

In Libya different parties are concerned with the enhancement of the situation and the conditions at those ports being studied. As there are no globally accepted criteria for the selection of experts using the Delphi method, tailored criteria for the selection of the panel experts were established. The criteria considered the potential participant's experience, their educational level and the position held in their current field (whether in government or as private/operator or regulator). Furthermore, discussions were held with the Libyan shipping chamber to further confirm the identity of those people who were already known to be experts in the port and shipping industry field.

Based on the criteria discussed, seventeen experts were selected (Table 7.1), and currently they all hold different positions and perform different roles. The expert panel can be considered as a heterogeneous group as they are currently working in different areas of the shipping and port industry (regulatory body, port operator, shipping companies and private consultant). This diversity is an advantage; Okoli and Powluwski

(2004) stated that for decision making a heterogeneous group is more creative and more reliable than a homogeneous one.

Table 7.1 The panel of experts

Number of Experts	Experience and Current Situation
3	Their experience ranges from 10 to 25 years in the port sector and are still working with the LMTPA.
5	Over 30 years experience in the Libyan Port Industry (private consultants) some of them had previously worked with the government for more than 20 years
7	Running their own shipping companies with experience ranging between 15 and 30 years, highly educated, some of them hold Bachelor's degrees while some of them hold Masters, Marine Masters and in addition, almost all of them have worked on the government side at senior level.
2	Highly educated for more than 15 years and working with operator companies

7.2.3 Determining consensus

As discussed in section (4.5.5.4) the number of rounds is variable and different methods were deployed for determining the number of survey rounds. Typically, Delphi rounds are stopped when a consensus is reached (Delbecq et al, 1975). For the purpose of this research the number of rounds will be determined by the value of the consensus. Turoff (1975) stated that the purpose of the Delphi is to provide an organised method for correlating views. Consensus is reached when the answers of the panellists are correlated; in other words, when the panellists are in agreement with each other (John, 2010), or the consensus can be defined as representing a condition of homogeneity or consistency of experts' opinions and views (Palter, 2010).

For the purposes of this research, Cronbach's Alpha is used to estimate the consensus. Cronbach's α is typically used as a measure of internal consistency or reliability. Cronbach's Alpha is a function of the average inter-correlation among the items of the survey; it increases as the inter-correlation between test items increases. Cronbach's α is considered to be equal to the advanced consistency version of the intra-class correlation coefficient, which is commonly used when assessing consistency or conformity among observers measuring the same thing (Shrout and Fleiss, 1979). Graham et al (2003); John (2010); Palter (2010) and many others have all used Cronbach's Alpha as a means of estimating the consensus within the same group. Thus,

the experts are synonymous with the items of the survey. Cronbach's Alpha is calculated using the following formula:

$$\sigma = \frac{k}{k-1}\left(1 - \frac{\sum \sigma_{yi}^2}{\sigma_x^2}\right)$$

where k is the number of panellists

σ_{yi}^2 Are the variances of each individual panellist's responses

σ_x^2 Is the variance of the overall responses

As alpha moves closer to 1, it can be concluded that there is consistency in the responses of the expert panel. However, from the literature it appears that there is no cut-off value for consensus. George and Mallery (2003) and Pallant (2001) argued that for the value of alpha to be accepted it should be over 0.7. George and Mallery (2003) state that a value of of 0.8 is good, 0.9 or above is excellent, while 0.6 is questionable and less than 0.5 is unacceptable. Thus, for the purposes of this research a value of alpha above 0.7 will be considered as representing an appropriate level of homogeneity and sufficient consensus to conclude the Delphi rounds.

7.3 Delphi general analysis

This section endeavours to analyse the Delphi rounds, with the first part being devoted to assessing the consensus of the first round and describing the development process for further rounds.

7.3.1 The response rate

Thangaratinam and Redman (2005) pointed out that the representativeness of the Delphi is measured according to the quality of the panellists rather than their numbers. However, Hsu and Sandford (2007) argued that a reduction in the response rate can jeopardise the validity of Delphi research. Thus, a researcher should seek a high response rate for all the Delphi rounds. In order to ensure a high response rate, all of the options suggested by Hsu and Sandford (2007) for enhancing the response rate were considered; these included assistance from endorsed individuals, initial contact with the

panellists and the use of a close-ended, pre-established questionnaire in order to facilitate the response. To avoid non-response the research followed the same procedure as that of a classical survey; different follow-up and reminder strategies were used including email reminder and telephone contact, the latter of which was the most effective. The response rates for the Delphi survey are as shown in Table 7.2.

Table 7.2. The response rate for the Delphi iterations

Iterations	Panellists	Response Rate	
		Number	Percent
First round	17	17	100%
Second round	17	15	88.3%

As discussed in section 3, seventeen experts were targeted by the Delphi survey, and the response rate for the first round was 100%, while for the second round (in spite of the reminder process) the response rate was 88.3%. The response rate for this research was high; the absence of two experts in the second round does not affect the results, as they have no particular specialism to distinguish them from the rest of the experts. Thus, the quality of the panel was not affected. In addition, the rate did not fall below the common minimum size for the panel (throughout the Delphi literature, the minimum panel size was seven experts).

7.3.2 Responses in the first round

7.3.2.1 First round consensus

As discussed in section 7.2.3 of this chapter a Cronbach's alpha value of 0.7 will be used to determine whether consensus has been achieved or not, and when the pre-determined value for Cronbach's alpha has been achieved the Delphi will be concluded and the interpretation of the results will take place (i.e. a discussion about the direction of consensus; whether the panellists agree or disagree about the question components).

From table 7.3 Cronbach's Alpha for the first round was 0.730 (for the homogeneity and consistency within the opinions of the experts) for the seventeen items examined (the panellists). According to George and Mallery (2003) and Pallant (2001), the value of Cronbach's Alpha is at an acceptable level, which means that there is homogeneity among the experts' opinion regarding the questions of the survey.

Table 7.3. Cronbach's alpha for panellists as a measure of the homogeneity of group opinion for the first round and the correlation between individual panellists and the group opinion

N	Cronbach's Alpha	Panellist	Panellist-Group correlation for the first round
17	0.730	1	0.806
		2	0.830
		3	0.632
		4	0.140
		5	0.008
		6	0.444
		7	-0.233
		8	0.504
		9	0.059
		10	0.711
		11	-0.133
		12	0.291
		13	0.219
		14	0.464
		15	0.291
		16	0.754
		17	-0.233

The individual panellist-group correlation ranged between – 0.233 and 0.830, this indicated that there were some panellists whose opinions were not included. Pallant (2001) indicated that the low value of correlation (less than 0.3) indicates that the item with a low correlation in the group means the items are measuring something different (this can be translated as meaning that the experts with low correlation have totally opposing views, or no reasonable consensus was achieved). The negative figures alongside figures of less than 0.3 indicate that something requires improvement.

Despite achieving an acceptable value for Cronbach's alpha in the first round of the survey, the second round of the Delphi is needed for a variety of reasons. The foremost reason being that the main characteristics of the Delphi survey relate to iteration and providing feedback, so as to give the panellists the opportunity to reassess their answers in light of the answers of the other experts. This is especially the case in this survey as there was a very low correlation between the panellists. Whilst it is true that some researchers (e.g. Kuo and Yu (1999) and many others) have concluded the Delphi in the first round; but such an action does not allow the participants to evaluate their responses. Secondly, in the first round there was an open question where several factors were indicated by different experts as the success factors for the implementation of what is considered to be the most appropriate scenario for Libyan ports. These factors need to be reformulated and redistributed to the experts to assess their level of agreement

regarding them. Finally, some experts provided some comments in the first round, which needed to be considered during the second round.

7.3.2.2 Analysis of the first round response

The experts suggested that the most appropriate scenario for governing Libya's container ports is scenario 2, refer table 7.4 (refer to Appendix V; first round of Delphi survey, the three scenario were mentioned above in section 7.2.1 of this chapter).

Table 7.4. The second possible scenario for Libya's port governance in the future

The Responsibilities of Libya's Maritime Transport and Port Authority	Functions Provided Via Concession arrangement
- Provide Ports' Infrastructure - Planning and Monitoring Performance - Enforcing and implementing the safety standards and regulations - Controlling Port Dues	- Provide Ports' Superstructure - Stevedoring and cargo handling - Provide services to the vessels - Stevedoring Charges

From Table 7.5 we can see that the mean value of the responses for the second scenario is 1.88 and the standard deviation is relatively low, indicating that there was no remarkable variation in expert opinion with respect to the second scenario.

Table 7.5. The preferred scenario of the experts in the first round.

First part		first round Mean responses	
Category	**Items**	**Mean Value of the responses***	**St. Deviation**
Scenario for the future governance structure	Scenario 1	2.18	1.074
	Scenario 2	1.88	.928
	Scenario 3	2.47	1.007

***1=Most appropriate, 2=Appropriate, 3=Less appropriate and 4=Not appropriate at all**

The second choice is Scenario 1 with the next smallest mean value of 2.18. The least preferred is Scenario 3 with the biggest mean value of 2.47. To relate the mean values back to the scale, 1 to 1.49 = Most Appropriate, 1.50 to 2.49 = Appropriate, 2.50 to 3.49 = Less Appropriate and 3.50 to 4.00 = Not Appropriate at all. Thus, as can be seen from table 4 in which 1.88, 2.18 and 2.47 all fall between 1.50 and 2.49, all secenarios are deemed 'Appropriate'.

Table 7.6. The potential impact of the devolution policy on government objectives

Second part		first round Mean responses	
Category	**Items**	**Mean Value***	**St. Deviation**
The potential impact of what the experts feel to be the most suitable scenario for Libya's ports	Enhancing the overall performance of the ports	1.41	0.507
	Enhancing the competitiveness of the ports	1.82	0.809
	Improving the general conditions for port labourers	1.82	0.529
	Decreasing user costs	2.12	0.485
	Increasing container throughput	1.59	0.507
	Increasing the sector's contribution to national income	1.82	0.529
	Reducing the financial burden on the government in modernising the ports	2.18	0.728
	Converting Benghazi and Elkhoms Ports to hubs for the Mediterranean region	2.12	0.928

***1=Totally agree, 2=Agree, 3=Disagree and 4=Totally disagree**

The results in table 7.6 indicated that the experts were almost in agreement regarding partial involvement of the private sector in the ports, as this will assist in achieving almost all of the government objectives and fulfilling all the stakeholder interests. There is a mean value of 2.18 for reducing the financial burden on the government's shoulders and a lower value for the remaining objectives. As suggested by the experts, the best improvement will be seen in the technical performance of the port sector with a mean value of 1.41 and a standard deviation of 0.507.

Table 7.7. Experts' perceptions in respect of the most effective scenario

Third part	Response Rate	Global Carrier	Global port/terminal operator	Domestic Investor	Other	Total
The nature of the preferred entity (private)	count	6	8	3	0	17
	%	35.3	47.1	17.6	0.0	100%

According to the results in table 7.7, to assure an effective implementation of what is regarded as the most appropriate scenario for governing Libya's ports in the future and helping to achieve policy objectives, 47.1% of the experts voted in favour of a global port operator (they regarded this as the most effective entity), while 35.3% said that a global carrier would be more effective, and only 17.6% were interested in a domestic private (port operator company).

From the analysis of the results in Table 7.8 we can see that the experts agreed that the new private entity should provide/perform most of the services/functions listed. The lowest mean value of 1.41 was recorded for modernisation of the current superstructure (fixed and mobile equipment), while the highest mean value of 2.18 was recorded for

inland transport services, indicating that the experts disagreed about the involvement of the private (or any operator) in such services.

Table 7.8. Areas and functions that should be provided by the new entity (as suggested by the experts)

Fourth part		Responses	
Category	**Items**	**Mean Value***	**St. Deviation**
Extra functions /services should be provided by the new entity	Modernising the current superstructure	1.41	0.507
	Installing a new superstructure that help the ports handle containers	1.53	0.717
	Providing training programs for port labourers	1.47	0.514
	Computerising the ports	1.47	0.514
	Providing Inland transportation Services	2.18	0.636
	Controlling container storage areas	1.65	0.606
	Increasing working hours at the ports	1.71	0.686

***1=Totally agree, 2=Agree, 3=Disagree and 4=Totally disagree**

Beyond the nature of the private entity and the extra function(s) that should be provided by the new entity in order to assure a successful implementation of what is considered to be the appropriate scenario, the last aspect of the first round was to investigate if there were any further factors that will help with successfully applying what the experts feel to be the appropriate scenario.

The experts provided several suggestions for different factors. Several experts proposed the same factors but in different words, while some did not provide any answer. Therefore, these factors need to be presented to the experts in order to assess their agreement with them and to determine if they would like to make any comments about them. The factors collected were formulated and categorised as shown in Table 7.9.

Legislation: This relates to establishing a legislative framework which allows the organisation and involvement of the private sector in port functions (the operational function alongside the transferable items of the Landlord and Regulatory functions). Port prices (dues and stevedoring charges) have long been controlled by central government under Law No: 53/1970 for port tariff and stevedoring charges, modified by resolutions Nos: 75 /1980, 400 / 1992 and 758 / 2006, listed in Harab, (2006). All have been issued and formulated at the central level. The experts were in line with UNCTAD (1998) who stated that the freedom to set a price is a necessity. The experts argued that such a framework should secure the freedom to set the port and stevedoring charges in accordance with the market and the value of the investment. The experts stated that the other area needing to be covered by the legislative framework relates to managing port labour. Without going into any further detail, they also highlighted the fact that the

work force should be managed in such a way that they are able to cope with such change.

Table 7.9. Success factors for the implementation of devolution policy

Fifth part	
Main Categories	**Factors**
Legislation: Establishing a legislative framework, which should cover the following areas:	1-Allows for the involvement of different entities in the ports' operational tasks
	2-Makes the terms and conditions of such involvement clear
	3-Secures the freedom of price and charge setting
	4-Governs the workforce in a way that copes with such changes
Policies: Setting clear and documented policies for the port sector, the policies should be considered within the country's economic' policies which should clearly identify:	5-The strategic objectives of the country in respect of the country's ports
	6-The function of each port (e.g. hub, gateway or local)
	7-The role of the government and the private sector
Knowledge utilisation: associated with the following areas	8- utilising of educational institutions to train and quality technical persons and administrative
	9- establishment of centres for research development
General: cover the following factors	10-Transparency in the bidding process and that equal opportunities should be available to all
	11-Coordination and cooperation between different entities involved in the ports (e.g. customs, port authority and operators).
	12-The financial system and bank services need to be further improved to manage such policies and facilitate loans for newcomers
	13-For the purposes of the concession arrangement the port infrastructure should be rehabilitated and developed to facilitate the bidding process

Source. Formulated from the first round of Delphi Survey

The second category relates to the clarity of government **policies** in respect of the port industry. The panellists pointed out that a clear formulation and documentation of government's strategic objectives, with a requirement for the ranking of these objectives in addition to a time scale for achieving them. Determining the function of each port is another important factor in the success of the devolution policy, alongside maintaining the clarity of the border between the role of the public and the private sector. **Knowledge utilisation is** associated with enhancing the quality of management and administrative staff, in addition to conducting research at specialised centres in the country. The rest of the factors identified by the experts were categorised under the **general category** which includes transparency in the bidding process, and that equal opportunities should be available to candidates; avoiding direct appointments and

making terms and conditions clear, subject to market opinion and without prejudice to any party involved in the bid.

The panellists further stated that cooperation and coordination between different entities involved in the port sector is an important factor for ensuring the success of the devolution policy. They were also in agreement with UNCTAD (1998), that the reforms should be initiated with close collaboration and consultation between government, port authority, private companies and unions. Libya's ports have long been governed by the public sector, so the acceptance of the involvement of the private sector in the ports may be an issue. Therefore, the awareness of the entities involved in, or related to, the port with respect to the importance of such a change is important. In addition, establishing a mechanism for coordination between these entities (customs, security etc.) and the new operator is also very important.

The banking and financial system of the country needs to be further improved and developed in order to meet the expectations of the private sector, especially those involved in the port and shipping industry. It is true that the banking and financial system has witnessed and undergone development and reform since 2005. As stated by the panellists, however, the banking and financial system needs to cover and manage all the economic activities in general and establish specialised departments handling the issues related to shipping and ports, such as loans.

The last factor stated by the experts relates to the infrastructure of the country's ports. The entire proposed scenario suggests that port infrastructure should remain the responsibility of central government. Thus, the experts argued that in order to ensure the success of the devolution policy, the government should rehabilitate the current infrastructure of the ports (quays, deepening channels and berths at the ports etc.) prior to any action being taken in respect of devolving the transferable elements of the port functions into the hands of the private sector.

7.3.3 Second round formulation and process

As mentioned above, the first round of the Delphi survey reached an acceptable consensus, even though the experts' opinions were not strongly correlated with each other. In addition, after the analysis of the first round's items, there was no major agreement between the experts regarding the most suitable scenario for the case of

Libya's ports. Furthermore, in spite of the experts' majority agreement about the positive impact of changing the governance structure, the results did not indicate which scenario would lead to superior benefits.

Therefore, a second round was developed so as to be slightly different from the first one, and then was redistributed to allow the experts to reassess their answers in the light of the first round responses, which had already been included in the second round questionnaire (refer to Appendix VI).

7.3.3.1 Amendments

From Appendix VI relating to the first part of the survey, nothing was changed with respect to the structure of the scenarios of future governance structure, except that the sentences explaining the stakeholders' preferred rankings for each scenario were removed.

For the second and the fourth parts of the questionnaire, the experts were asked to express their opinions about the impact of each individual scenario separately, and the extra services/functions that should be provided by the prospective new entity. Regarding part three there were no changes to be made; it is simply about the nature of the private sector.

In part five the success factors identified in the first round (refer to section 7.3.2.2) were inserted, and the experts were asked to express the degree of agreement about the importance of each to the success of the devolution policy. A Likert scale was deployed for this question, ranging from 1 (totally agree) to 4 (totally disagree) 'with no neutral position'

7.3.3.2 Consensus elicited in the second round

The homogeneity of the experts' answers was assessed by the same technique as in the first round (Cronbach's alpha). The scale produced an alpha for the second round of the Delphi survey of 0.964; this is an increase from 0.730 in the first round. According to George and Mallery (2003), this value is excellent. By interpreting the value produced by the scale, it can be said that the experts' responses were highly homogeneous. Inspection of Table 7.10 indicates that the correlation between individual panellists and

group opinion was over the level acceptable for the correlation, it ranged between 0.318 and 0.931.

Table 7.10. Cronbach's alpha for panellists as a measure of the homogeneity of group opinion for the second round and the correlation between individual panellists and group opinion

N	Cronbach's Alpha	Panellist	Panellist-Group correlation for the second round
15	0.964	1	0.924
		2	0.900
		3	0.876
		4	0.815
		5	0.732
		6	0.894
		7	0.318
		8	0.897
		9	0.670
		10	0.931
		11	0.552
		12	0.893
		13	0.883
		14	0.888
		15	0.827

By comparing the first and second round results, it is clear that the correlation between each panellist and the group was increased in all fifteen instances, corresponding to the higher Cronbach's alpha produced for the entire group of experts.

7.4 Findings of the Delphi Survey

After consensus was achieved in the second round (section 7.3.3.2), the findings of the Delphi survey are presented and discussed in this section, with an assessment of whether the Delphi survey has validated or not the results from the stakeholder survey results. In addition, it is used to investigate expert opinion in respect of the extra functions/services that need to be provided by the new entity and, indeed, the nature of that new entity, in order to further enhance the performance of the ports and apply the devolution policy successfully (at least the preferred approach). Furthermore, there is a discussion of the extent of the experts' agreement regarding factors for the success of devolution.

7.4.1 Appropriate devolution scenarios

The results in Table 7.11 showed more consistency among the experts, as well as a consensus about the appropriateness of scenario two for the case of Libya's ports, confirming the first round finding with a small difference in the mean value. As can be

seen, the mean value decreased from 1.88 in the first round to a value of 1.33 in the second round, with the change in the mean value implying that the scenario mentioned moved from being just 'appropriate' to 'most appropriate', for the future governance structure of Libya's container ports. Scenario two had the lowest standard deviation value of 0.617 in the second round, indicating that the experts' opinion was very close.

Table 7.11. Experts preferred scenario in the second round.

First part		First round Mean responses	
Category	**Items**	**Mean Value of the responses***	**St. Deviation**
Scenario for the future governance structure	Scenario 1	3.07	0.799
	Scenario 2	1.33	0.617
	Scenario 3	2.73	0.704

***1=Most appropriate, 2=Appropriate, 3=Less appropriate and 4=Not appropriate at all**

The experts' views have been changed regarding scenarios three and one, with the former moving from being 'appropriate' to 'less appropriate', while the latter was considered not appropriate at all for the second round.

7.4.2 The impact of each scenario

In general, the experts have suggested that the impact of the implementation of devolution policy on government objectives is positive.

Table 7.12: The potential impact of each individual scenario on government objectives

Second part		Second round Mean responses					
		Scenario 1		Scenario 2		Scenario 3	
Category	**Items**	**Mean Value***	**St. Deviation**	**Mean Value***	**St. Deviation**	**Mean Value***	**St. Deviation**
The potential impact of what the experts feel the most suitable scenario for Libya's ports	Enhancing the overall performance of the ports	1.80	0.414	1.07	0.258	1.80	0.414
	Enhancing the competitiveness of the ports	1.87	0.352	1.33	0.488	2.40	0.507
	Improving the general conditions for port labourers	1.87	0.516	1.80	0.561	2.67	0.488
	Decreasing user costs	1.80	0.414	1.33	0.488	2.20	0.561
	Increasing the container throughput	1.80	0.414	1.20	0.414	2.27	0.594
	Increasing the sector's contribution to national income	1.80	0.414	1.33	0.488	2.33	0.617
	Reducing the financial burden on government when modernising the ports	1.87	0.352	1.73	0.458	3.73	0.458
	Converting Benghazi and Elkhoms Ports to hubs in the Mediterranean region	1.93	0.258	1.53	0.516	3.33	0.617
Average of mean value		**1.85**		**1.42**		**2.6**	

***1=Totally agree, 2=Agree, 3=Disagree and 4=Totally disagree**

However, according to Table 7.12, the experts were in agreement (there is a consensus) that the second scenario is likely to be the most effective scenario for achieving the government's objectives and fulfilling the key stakeholder interests, with a grand average mean value of 1.42. With scenario two, the private sector will be responsible for both the functioning of almost all of the operational tasks of a given port and for providing the associated superstructure (fixed and mobile equipment). The experts voted against the first scenario, although ranked it second in terms of its impact on the government's objectives with a grand average mean value of 1.85.

On the basis of the expert view, scenario three is judged to be the least effective scenario with a mean value of 2.6. The role of the private entity in this scenario is limited to performing the stevedoring and cargo handling activities, while the rest of the services would be transferred from the hands of the SPC to the central port authority. Only investment in the port superstructure would be conducted jointly between a private entity and the government, which means no remarkable reduction in government subsidies.

The experts agreed that the adoption of scenario two as a means for governing Libya's container ports will inevitably benefit all the key stakeholders. The foremost benefit is the enhancement of the technical performance in ports, which is the main concern for the shipping companies and their representatives in the country. In general, port customers will benefit from this scenario as one component of technical performance is the effectiveness, which is relevant for customer satisfaction. The other benefit that will be felt by port customers is the reduction in costs to port users. However, even if the cost remains the same, this should be compensated for by the improved quality of the services provided.

Experts have agreed that inter- and intra-port competition will be increased and this can be translated into an enhancement of the sector's situation in the market, and an improvement in the quality of the services provided.

As mentioned in section 5.5.1 (chapter 5), the main reason provided by current operator justifying their attitude; which is against changing the governance structure of the ports, is the dock worker position following devolution. The experts agreed that scenario two would lead to enhanced conditions for the labour force (in terms of their numbers and wages) with a mean value of 1.80. Such benefits will be felt by the government as well,

as the application of this scenario is likely to run more smoothly without any concerns over labour conditions.

At the macro level, the government will benefit from the reduction in expenditure from the national budget, as investment will be conducted by the private sector itself. In addition, increasing the sector throughput can be directly translated to revenue. An indirect benefit for the national budget is that labourers' wages will be paid by the private sector instead of the government. Furthermore, with a mean value of 1.53, the experts agreed that scenario two would help with achieving one of the government's strategic objectives, which is converting one or more of the country's ports to a hub in the region.

7.4.3 Most effective private entity

In many countries across the world, global carriers or port/terminal operators have been involved in the port via a concession arrangement. Such an arrangement has helped these countries to achieve different goals, such as increasing investment in the port (thereby reducing the burden of modernising the ports on government shoulders) and enhancing technical performance. Increasing port throughput is another goal, with these two entities having helped countries achieve such a goal. However, while the port/terminal operators have helped with achieving the goal of increasing throughput gradually over an agreed period of time, the involvement of the carrier in port operations has led to an immediate increase in the throughput as they tend to transfer their containers to their terminal (mainly transhipment volumes). Although, the involvement of the carrier in the port does lead to market monopoly as the terminal(s) will become dedicated[26].

Table 7.13. Experts' perception in respect of the most effective scenario in the second round

Third Category	Response Rate	Global Carrier	Global port/terminal operator	Domestic Investor	Other	Total
The nature of preferred entity (private)	count	5	8	1	1	15
	%	33.3	53.3	6.7	6.7	100%

[26] Refer to the discussion regarding international experience in chapter two section 2.7; Malaysia is an example of this, however, two of the expert respondents were against the involvement of the carriers, and they commented that this would lead to a monopolistic marketplace.

With Libyan port stakeholders' interests in mind, the experts were asked to indicate the most effective entity for achieving a combination of such interests. From Table 7.13, in general, there was a consensus about the involvement of a foreign operator as the most effective entity for achieving the superior performance of devolution policy; with 53% of the experts voting in favour of a global port/terminal operator and 33.3% of them saying that a global carrier would be more effective. The experts also stated that a global port/terminal operator is the best for avoiding monopoly.

Only 6.7% preferred a domestic investor. Their justification was that almost all of the port income would then remain in the country and be available to be recycled for further investment; nothing further was mentioned. 6.7% of the total selected another option without specifying its nature.

7.4.4 Further activities for the success of devolution

The experts agreed that the most suitable scenario for the Libyan case is the second scenario, which revolves around devolving the operational function of the ports to the private sector via concession arrangement, alongside responsibility for providing the port superstructure (fixed and mobile equipment, offices and buildings, etc.).

This section endeavoured to investigate the necessary tasks that should be conducted by the new private sector stakeholder, alongside their principal role in the ports, in order to assure the effective implementation of what is regarded as the most appropriate scenario. The items listed in this table serve two purposes; **firstly,** the items will reflect the most crucial areas to be considered by the new entity. **Secondly,** to investigate whether expanding the role of the port operator beyond the border of the ports is important for enhancing the performance or not.

According to the results in Table 7.14, in order to assure the success of the devolution program, the experts agreed that the new operator of a given container port in Libya should modernise the current superstructure of the port and install new equipment that would be required for handling containerised cargo and, in addition, to computerise the workings of the ports. The lowest mean value of 1 and the standard deviation of zero were recorded for scenario two. Scenario three was almost excluded as in this the private sector may only invest in computerising the workings of the port.

Table 7.14. Areas and functions that should be provided by the new entity (as anticipated by the experts)

Fourth part		Second round Mean responses					
		Scenario 1		Scenario 2		Scenario 3	
Category	Items	Mean Value*	St. Deviation	Mean Value*	St. Deviation	Mean Value*	St. Deviation
Extra functions /services should be provided by the new entity	Modernising the current superstructure	1.40	0.507	1.00	0.000	2.60	1.183
	Installing a new superstructure that helps the ports handle containers	1.40	0.507	1.00	0.000	2.73	1.280
	Providing training programs for port labourers	1.40	0.507	1.00	0.000	1.93	0.704
	Computerising the ports	1.40	0.507	1.00	0.000	1.880	0.414
	Providing Inland transportation Services	2.67	0.976	2.60	0.737	3.47	0.516
	Controlling container storage areas	1.47	0.516	1.13	0.352	2.33	0.816
	Increasing working hours at the ports	1.40	0.507	1.00	0.000	1.87	0.516

***1=Totally agree, 2=Agree, 3=Disagree and 4=Totally disagree**

Regarding the provision of a training program for port labourers, the experts agreed that the new entity should do so in order to assure a high level of performance. This should be implemented alongside increasing working hours at ports and that such tasks should be provided regardless of which scenario will be implemented. However, the smallest mean value of 1.00 and standard deviation of zero was recorded for scenario two. Some of the experts suggested that the container ports in Libya should work a full twenty-four hours in order to reduce vessel time in port, which would have a positive impact on port efficiency.

This survey asked the experts whether, for the effective implementation of devolution policy, it is important that services provided along the chain of container distribution should be logistically managed by a single entity. The finding of the survey revealed that there was a consensus against the involvement of any prospective operator (private entity) in all the activities beyond the port border. According to the results in Table 7.14, the experts agreed that the operator should control the container yard and/or storage area and be responsible for computerising the port in order to enhance its overall performance, although the best improvement will be seen when this service is provided by the second scenario with a mean value of 1.13 and a standard deviation of 0.352.

In respect of the port operator providing inland transport and its impact on the performance (from the results in table 7.14), the mean value of the expert response lies

between 2.5 and 3 for all of the listed future governance scenarios, indicating that the experts agreed that provision of inland transport services by the port operator is not important for enhancing the performance of any given port. Instead, they regarded coordination as more important. Some experts argued that if the port operator provided inland transport, this may well lead to a monopoly of the market and, thus, performance will be affected negatively. Instead, they suggested that a high level of coordination between the chain's components is the best choice for enhancing performance (mainly time reduction).

7.4.5 Further success factors for port devolution

The experts were asked to what extent they agreed with the importance of the factors determined from the first round for the success of the implementation of the devolution policy in Libya's container ports. Thirteen factors from the first round were categorised into four main categories namely legislation, policies, knowledge utilisation and general. The experts' responses in respect of the importance of these factors appear in Table 7.15.

To relate the mean values back to the scale, 1 to 1.49 = totally agree, 1.50 to 2.49 = Agree, 2.50 to 3.49 = Disagree and 3.50 to 4.00 = totally disagree. Therefore, as can be seen from Table 7.14, the panellists were in total agreement about the importance of the factors listed for the success of the implementation of devolution policy.

The results indicated that the institutional environment (legal framework and government policies with respect to the port industry) of Libya is still not mature enough to deal with changing the governance structure of the country's container ports in general, and introducing the private sector to the ports in particular.

The legal framework covers a variety of aspects, most of which have not been discussed elsewhere. Only the freedom of price setting was discussed by UNCTAD 1998. Interestingly, for the Libyan case the panellists suggested that the management of the labour force should be subject to the market situation where the operator(s) have the right to hire and dismiss labourers based on the conditions and situation regarding the work.

Table 7.15. Expert agreement about the success factors for the implementation of devolution policy in the second round

Fifth part		Second round responses	
Main Categories	**Factors**	**Mean Value***	**St. Deviation**
Legislation: Establishing a legislative framework which should cover the following areas:	1-Allows the involvement of different entities in the ports' operational tasks	1.07	0.258
	2-Makes the terms and conditions of such involvement clear	1.07	0.258
	3-Secures the freedom of price and charge setting	1.13	0.352
	4-Governs the workforce in a way that copes with such changes	1.13	0.352
Policies: Setting clear and documented policies for the port sector, the policies should be considered within the country's economic' policies which should clearly identify:	5-The strategic objectives of the country in respect of the country's ports	1.13	0.352
	6-The function of each port (e.g. hub, gateway or local)	1.07	0.258
	7-The role of the government and the private sector	1.13	0.352
Knowledge utilisation: associated with the following areas	8- utilising of educational institutions to train and quality technical persons and administrative	1.07	0.258
	9- establishment of centres for research development	1.07	0.258
General: Cover the following factors:	10-Transparency in the bidding process and that equal opportunities should be available to all	1.07	0.258
	11-Coordination and cooperation between different entities involved in the ports (e.g. customs, port authority and operators).	1.07	0.258
	12-The financial system and bank services need to be further improved to manage such policies and facilitate loans for newcomers	1.07	0.258
	13-For the purposes of the concession arrangement the port infrastructure should be rehabilitated and developed to facilitate the bidding process	1.07	0.258

***1=Totally agree, 2=Agree, 3=Disagree and 4=Totally disagree**

Unlike the mission of the policy discussed by UNCTAD, the panellists stated that the general policies of the ports should cover the range of government objectives, clarifying the country's plan in respect of port development. In addition, the experts believe that determining the function of each port in terms of a port classification (hub, Gateway etc...) is crucial to the success of the implementation of the devolution policy, as the newcomers need to know in advance the goals and missions behind their involvement in the port's function(s). The panellists were in agreement with UNCTAD about the determination of the post-devolution role for the private and public sector.

Other important factors for implementing devolution successfully are knowledge utilisation. Almost all the experts were in complete agreement with the foundation of research development centres and that the establishment of specialised institutions to train and develop the dock labour force at both the managerial and administrative level

would play a substantial role in the success of devolution policy.. It can be inferred that the identification of these factors is because the sector suffers from a lack of specialised people and is in need of continual research and development in order to survive and evolve in response to continual changes in the surrounding environment.

Factors which have not been discussed elsewhere include the transparency of the bidding process, coordination and cooperation between different entities involved in the ports (e.g. customs, port authority and operators), reform and improvement of the financial system in order to respond to new policies, and finally, the need to rehabilitate and develop the current port infrastructure in order to facilitate the bidding process.

Almost all of the issues identified can be considered as relating to the duties of the central government. This is due to the fact that there is a strong presence of central government, even when devolution is implemented, as the stakeholders anticipate that some functions (especially those named as non-transferable functions) need to be in the hands of a central port authority to assure the effective implementation of what is regarded as the most appropriate scenario. However, some of these factors are strongly associated with the institutional environment of the country at the macro level, while the remaining factors need to be considered at the micro level.

7.5 Summary

The findings of a Delphi survey were presented in this chapter. The technique was used for two main purposes: firstly, as a validation phase for the findings of the previously discussed empirical methods. Secondly, its investigation phase was utilized. From the results of the Delphi survey, this chapter revealed that there was consensus about the involvement of the private sector in the Libyan container ports' operational tasks, with a government presence as infrastructure provider and regulator. However, based on stakeholder survey analysis (refer to chapter six, section6.3.4) more than one scenario for future port governance emerged as in contention. The appropriateness of these scenarios was further examined by the Delphi survey. The Delphi survey analysis revealed that scenario two (the one modified from the literature) was the most appropriate one in the case of the Libyan ports. Scenario two was a modification of scenario one, as proposed by the stakeholders. This can be explained by the fact that expert opinion elicited via the Delphi survey was more realistic and so should be more reliable.

Regardless of the current operator interest in dominating the operational functions of the ports in question, the experts further confirmed that there is a potential for accommodating the rest of the stakeholder interests at an acceptable level.

To assure the effectiveness of what has been regarded as the most appropriate scenario for the case of Libya's container ports, different areas were under investigation, which include the nature of the private sector; outsider or insider newcomers. A variety of options were presented and the experts voted in favour of an outside operator; more specifically, they stated that a global port/terminal operator is the most effective entity for achieving a combination of meeting the key stakeholder interests and to play an important role in the success of such policy. They stated that replacing the current operator with a global carrier would not liberate the ports from a monopolistic situation.

Other areas relate to the tasks that should be conducted by the new entity and there is consensus in these areas. The experts agreed that to ensure the success of the implementation of what they feel to be an appropriate scenario, the new entity should invest in the ports, not just rehabilitate the existing superstructure and/or install a new one. The private sector should also provide a training program for the labourers at the ports. Furthermore, they agreed that the working hours at the ports should be increased.

Interestingly, the view of the experts was in opposition to the expectations of the researcher, in respect of the expansion of the role of the port operator beyond the port's border. The consensus of experts was against the involvement of a private entity (prospective operator) along the chain of container handling and distribution. They pointed out that the operator should control the container yards regardless of the container location. The panellists were against the involvement of the operator in inland transport activities since they stated that the involvement of the operator throughout the chain of activities will very likely lead to a monopolistic situation.

The panellists provided a set of additional factors which they regarded as crucial factors for success in terms of implementing a devolution policy for Libya's container ports. These included the reform of the institutional environment (policy and legal framework) as related to the port sector, transparency of bidding process, enhancement of the country's financial and banking system, cooperation and coordination between different entities involved in and/or related to the port sector, in addition to rehabilitating and developing port infrastructure.

A general discussion of the findings of the empirical triangulation approach used in this research will take place in the next chapter; in addition the findings of the approach will be utilized to develop a framework for the successful implementation of devolution policy.

Chapter Eight

Summary, Policy Recommendations and Agenda for Further Research

8.1 Introduction

Summarised briefly, the main objectives of this research are to analyse the necessity of the implementation of a devolution policy at Libyan ports and investigate the best proposed future governance structure in view of its potential impact and implications. The ultimate objective is to determine the critical success factors for implementing a suitable approach to devolution. The achievement of these objectives was approached via a set of questions, outlined in chapter one (the introduction) and further discussed in chapter four (the research methodology chapter). This research was built on a research method involving a triangulated approach; more than one technique for data collection and analysis was applied in order to enhance the validity and reliability of the findings of the research. The techniques used were in-depth interview; informal open discussion, a stakeholder survey and a Delphi expert survey.

Prior to conducting the empirical investigation, in chapter two the literature into port devolution policy was critically reviewed with the aim of covering all aspects of devolution including the concept itself, drivers, the dynamism of the operational environment and low levels of efficiency and productivity that lead to high port prices and poor services. Other goals include improving efficiency, reducing government involvement, reducing the financial burden on the government, providing access to alternative sources of investment, introducing commercially focused management and expanding national trade.

Approaches to devolution involve decentralising the responsibility for port function(s) to local authority level, or to the (public) port authority level, in order to ensure quick responses and fast reliable decisions when required. Decentralisation is often incorporated with other methods of devolution for facilitating the participation of the

private sector. Additional approaches addressed included commercialisation and corporatisation, with the most important difference between them being that in the case of the latter the new entity will be independent, both legally and financially, despite remaining a public entity continuing to provide certain port functions (usually the operational functions). Commercialisation means operating and managing ports in a commercial manner as occurs in the private sector. Ports could be commercialised via the introduction of the private sector through a concession arrangement (when some of the port functions are devolved to the private sector for an agreed period of time). However, the private sector can be introduced via alternative means, e.g. selling stocks, joint ventures, etc. At the extreme end of the spectrum the private sector could take control over all port functions, as in the UK.

Variations in the governance structure of ports have resulted from the implementation of assorted policies. It was apparent that devolution does not necessarily mean the sole participation of the private sector in the port industry. Public ports still exist, as do partnerships between the public and private entities. However, the literature reveals that the mixed governance model (somewhere between a purely private and a fully public port) is the most common model for port devolution (Baird, 1999; Brooks and Cullinane, 2007b).

It is true that the mixed model has proven to be an effective model (Baird, 2000; Cullinane, et al, 2002; Tongzon and Heng, 2005), Agustin (1998), Cass (1999), Hoffmann (2001), Galal et al. (1994) and Haarmeyer and York (1993) have all found that the mixed governance structure has had a positive impact in a number of different countries. However, the dilemma is in deciding what mixed (the degree of private sector involvement in the port function (s)) structure would best serve the objectives sought and in determining which function(s) need to be transferred in order to arrive at the most effective model.

Brooks (2007) has pointed out that the objectives for devolution are interrelated with the measurable success of a devolution programme and with the capacity to learn from the experience of others (Brooks and Pallis, 2008). In 2007, based on the work of others (e.g. Ircha, 1997 and Morris, 2000), she further argued that stakeholder satisfaction is a crucial element of devolution performance evaluation, as the implementation of devolution policy has frequently been burdened by unfavourable stakeholder responses. However; a more immediate question that arises relates to the selection of an

appropriate approach to port devolution that achieves the sought after balance between stakeholder interests and whether this is sufficient justification to go ahead and adopt such an approach, or if other aspects should perhaps become influential in this decision.

Currently, Libya's ports sector is administered and operated in a highly centralised fashion with all port functions (landlord, regulatory and operations) in the hands of public entities that report to the central government. The landlord and regulatory functions come under the control of the Libyan Marine Transport and Port Authority (LMTPA), whilst the operational activities at all the country's general cargo and container ports are managed by the Socialist Port Company (SPC); a government owned company (GOC) that takes the form of a corporation. The Port of Misurata is operated by Misurata Free Trade Zone (MFTZ) and is a government owned company (GOC).

The ports are facing a variety of challenges which include, at the mega level of the operational environment; the international market becoming more dynamic as a result of the globalisation of international trade. In addition, influence is exerted by recent technological developments in the port and shipping industry and increased competition between ports, as well as the changing role of ports, and the spreading wave of port governance restructuring. At the macro level, following a period of isolation, particularly since the lifting of the sanctions imposed by the United Nations at the beginning of the 1990s, Libya's economy has witnessed remarkable growth, with a corresponding increase in external trade that puts additional pressure on Libyan ports. The country's economic policy has changed and become more liberalised, involving a movement towards a market economy and an increase in the participation of the private sector in all economic activities. At the micro level the port sector has been unable to cope with such developments and, currently, the Libyan ports are characterised by low efficiency, low productivity and high levels of bureaucracy. In addition the government is looking beyond serving simply local trade in that there is a desire to convert one or more of the country's ports into a hub in the Mediterranean region, to serve as a gateway serving the trade of landlocked countries in Africa.

With the above discussion in mind, four questions were addressed across this research. These questions aimed to analyse the importance of having a policy of port devolution in Libya, indicating the possible approaches to it, and the assorted governance structure that might result from the implementation of such a policy. Furthermore, this research analysed the potential impact and implications of the policy approaches as found based

on previous relevant international experience. An additional other outcome of this research was the determination of the success factor for devolution, which then helped in bridging one of the literature gaps. The detailed discussion of the research results were presented in subsequent sections, which also highlighted the main research questions.

8.2 Analysing the necessity for devolution

Question 1: Is there any need for the implementation of a devolution policy at Libya's container and general cargo ports?

The data collected and incorporated in chapter three (Review of Libya's Ports Industry) was further utilised in analysing the importance of changing the governance structure of Libyan ports via the implementation of a devolution policy. This was done through the application of a matching framework (discussed in chapter five); the data is qualitative in nature and derived from in-depth discussion with key people in the industry in Libya and a variety of other sources.

Chapter five presents the matching framework analysis. The analysis revealed that the governance structure of Libyan ports should be altered in a way that helps the ports to survive in its aggressive surrounding operational environment. In other words, the current governance structure of Libyan ports seems to no longer be efficient. However, from the matching framework analysis, it seems that not only does the governance structure need to be changed, the operational strategy should be considered as well. This creates the following dilemma:

- The matching framework relates to the alignment of the organisation component (the port) with the operational environment, meaning the framework should offset the negative impact of the operational environment by changing the operational strategy or governance structure. While the literature revealed a variety of drivers for changing the governance structure, Libyan ports are facing challenges from different sources

- Which component (strategy or structure) needs to be considered first, especially in the case of Libya when the operational strategy of the sector neither engenders strategic efficiency nor effectiveness?

- The matching framework includes no clear and defined guide for the selection of an appropriate governance structure. All it provides is a guide to fit between the three components of the frame (operational environment, operational strategy and structure) to achieve better performance.

In order to arrive at the most convenient view and solve the dilemma of the matching framework, an investigation into the necessity of changing the governance structure was also considered as part of the stakeholder survey (Appendix II). The stakeholders were found to be in favour of a devolution policy; improving the administration and management system of Libya's container ports is ranked first in terms of the prioritisation of actions required. Diversifying the port's services is considered to be representative of effective operational strategies. In the case of Libyan ports, the stakeholders considered all the factors (management structure, physical condition, dock labour skills and so on, refer to appendix II) that would impact the performance as important but in terms of priority, however, the provision of added-value services is ranked lowest.

8.3 Suitable Governance structure

Question 2: What is the most effective approach for governing Libya's container ports in the future?

In respect of the most preferred governance structure, that would simultaneously help the sector survive in the highly dynamic environment, manage the government's new strategic direction and help in solving the problems endemic in Libyan ports (discussed in chapter three), the stakeholder survey demonstrates that a mixed governance structure (public and private) is the best choice; this is an outcome which is in line with that of Baird, (2002), Cullinane et al, (2002), and Brooks and Cullinane (2007b).

The results suggested that not only does the allocation of responsibility for port functions not fall neatly into the categories proposed in the widely-accepted port privatisation matrix (Baird, 1995; 1997; World Bank, undated), but that from the pre-survey findings there are certain functions that can be considered to be non-transferable functions. The transferable items are constructed from the operational function and some items of the regulatory/landlord functions. The functions involve transferability of governance with regards to different factors, which include:

- National sovereignty and the public interest.

- The country's financial capabilities
- The government's objectives
- The level of knowledge utilisation (know how)
- The quality of the dock labour (management and administrative)

By ranking stakeholder priorities and preferences, more than one scenario for future port governance has emerged in contention. Based on these scenarios (refer to section 6.4), it was considered preferable to leave some of the transferable items in the hands of the central government (the central port authority). This can be justified by the ability of the country to supply such items. However, it is definitely the case that the current governance structure (corporatised entity) is no longer preferred, as the existing operators are perceived to be falling behind on delivering on the expectations of the stakeholders.

Brooks and Cullinane (2007c) have concluded that commercialisation may be better than corporatisation with majority shareholdings in the hands of governments. They proposed that commercialisation should be via concession arrangement (i.e. the introduction of the private sector into the port function(s)). This conclusion has been validated in this research, when in the preferred governance structure scenario, the experts opinion, as expressed in a Delphi survey findings perceived that it was better to provide/conduct some transferable functions using private entities via a concession arrangement, while other functions (refer to section 7.4.2.2) (most importantly, the port infrastructure) should be provided and retained in the hands of the government (via a central port authority) (table 8.1).

Table 8.1. The second possible scenario for Libya's port governance in the future

The Responsibilities of Libya's Maritime Transport and Port Authority	Functions Provided via Concession arrangement
- Provide ports' infrastructure - Planning and monitoring performance - Enforcing and implementing the safety standards and regulations - Controlling port dues	- Provide ports' superstructure - Stevedoring and cargo handling - Provide services to the vessels - Stevedoring charges

8.4 Impact and Implication of preferred governance structure

Question 3: What are the expected outcomes of the implementation of the devolution policy?

8.4.1 Impact

To measure the impact and implications of the preferred governance structure for Libya's ports, the potential accommodation of stakeholder interests was examined as a measure of the achievement of devolution objectives. These interests can be regarded as a non-financial measurement of the devolution programme as they are distinct from, and are not concerned with, profit, return on investment etc. However, these measures can be reported to the three groups identified by Brooks and Cullinane (2007c), which include the port itself, government, stakeholders and customers.

Surprisingly, distinct from the interests of existing operators, the proposed governance structure would accommodate key stakeholder interests. The research revealed that the adoption of a mixed governance model (mainly scenario two) as a means for governing Libya's container ports will inevitably benefit all the key stakeholders. This is where the private sector will be responsible for both the functioning of almost all of the operational tasks of a given port and for providing the associated superstructure (fixed and mobile equipment).

The foremost benefit is the enhancement of the technical performance at the ports, which is the main concern for the shipping companies and their representatives in the country. In general, port customers will benefit as well, since one component of technical performance is effectiveness, which correlates to customer satisfaction. The other benefit that will be felt by port customers is the reduction in costs to port users. However, even if the cost remains the same, this should be compensated for by the improved quality of the services provided. Inter- and intra-port competition will be increased and this can be translated into an enhancement of the sector's situation in the market, and an improvement in the quality of the services provided.

Unexpectedly, on the basis of the stakeholders/experts opinion, the results of this research revealed that there would not be a negative impact on the dock labour position following the devolution. The devolution policy would lead to enhanced conditions for

the labour force (in terms of their numbers and wages). Such benefits will be felt by the government as well, as the application of this scenario is likely to be implemented more smoothly without any concerns over labour conditions.

At the macro level, the government will benefit from the reduction in expenditure from the national budget, as investment will be conducted by the private sector itself. In addition, increasing the sector throughput can be directly translated to added revenue. An indirect benefit for the national budget is that labourers' wages will be paid by the private sector instead of the government. Furthermore, the introduction of the private sector at the ports would help with achieving one of the government's strategic objectives, which is converting one or more of the country's ports to a hub in the region.

8.4.2 Implications

As a consequence of the implementation of the devolution policy in general and introducing the private sector in particular, there is a high penalty that the current operators of Libyan ports will face in the form of fierce competition. They may well lose their foothold and control over the port, which means that the role of the government would be further reduced allowing for commercial operation of the ports.

However, the current operators were against changes to the ports governance structure. They argued that the alteration of the current governance structure would come at the cost of dock labour, and they suggested that the situation at the ports could be enhanced by other means (e.g. rehabilitation of the infra and superstructure, etc.). In addition, they would justify their argument further as they preserved their position as protector of public interests. Such an argument was offset by the results discussed above, even though a warning regarding the existence of a lobby against the devolution is given. For defending their interests this lobby would work against changes to the governance structure of the ports.

On the basis of this research, the role of the government was preserved as important and for different purposes. The duties of the government extended beyond monitoring the ports, protecting public interests and providing non-commercial services, to include providing port infrastructure (including maintaining the quays, dredging etc.) in addition to collecting the associated fees, which means that the public port authority (represented at a central level) is still eligible for providing commercial functions and

can derive income from these functions. Again such a position would further counterbalance the argument of the current operators.

8.5 Success factors of port devolution.

Question 4: What are the critical factors for the successful and effective implementation of the devolution approach?

In respect of the nature of the entity that would lead to an effective implementation of the devolution policy, in general, the involvement of a foreign operator (an external global port/terminal operator or global carrier), is seen as likely to be the most effective for achieving the devolution policy with superior performance. In many countries across the world, the global carrier or port/terminal operator has been introduced in the port industry via a concession arrangement, which has helped these countries to achieve different goals, such as increasing investment in the port and removing the burden of modernising ports from government shoulders, as well as enhancing technical performance. Increasing port throughput is another goal. A global port/terminal operator is considered to be the best option and the involvement of a carrier in the port is less preferred, as the carrier would lead to market monopoly as the terminal(s) will probably be dedicated to that single carrier.

Particularly for Libya, the new operator for a given container port should perform the following additional activities:

- Invest in modernising the current superstructure of the port,
- Installing new equipment that would be required for handling the containerised cargo,
- Computerising the port systems.

The stakeholder survey revealed that the quality of dock labour needs to be enhanced. The final results emphasised that the new entity should also provide a training program for port labourers in order to assure a high level of performance. This means that the enhancement of the skills of the dock labour, management and administration is regarded as a pre-condition for the success of devolution, and that this should be conducted in combination with increasing working hours at the given port(s).

Interestingly, the view of the experts was in opposition to expectations with respect to the expansion of the role of the port operator beyond the port's boundary. The consensus of experts was against the involvement of a private entity (prospective operator) along the container handling and distribution chain. They pointed out that the operator should control the container yards regardless of the container location. The panellists were against the involvement of the operator in inland transport activities since they stated that the involvement of an operator throughout the chain of activities as this will very likely lead to a monopolistic situation.

Furthermore, the results revealed that there are another thirteen important factors for the success of the implementation of devolution policy. These were categorised into four main categories, namely: legislation, policies, knowledge utilisation and general factors.

The results indicated that the institutional environment of Libya (legal framework and government policies with respect to the port industry) is still not sufficiently mature to deal with changing the governance structure of the country's container ports in general, or with introducing the private sector to the ports in particular.

The legal framework covers a variety of aspects, most of which have not been discussed elsewhere. Of these, only the freedom of price-setting was discussed by UNCTAD in 1998. Interestingly, for the Libyan case, the panellists suggested that the management of dock labour should be subject to market forces (i.e. the operator has the right to hire and dismiss labourers based on the conditions and situation regarding availability of work). Unlike the mission of the policy discussed by UNCTAD, the panellists stated that the general policies of the ports should cover the range of government objectives, clarifying the country's plan in respect of port development. In addition, determining the functions of each port in terms of port classification (hub, gateway etc...) is crucial to the success of the implementation of the devolution policy, because newcomers will need to know in advance the goals and mission behind their involvement in port's function(s). The panellists were in agreement with UNCTAD about the determination of the post-devolution role for the private and public sector. In other words, the identification of the functions tends to be devolved to the private sector.

Another important factor for implementing devolution successfully is knowledge utilisation. The research results stressed the importance of the foundation of research development centres, and the establishment of specialised institutions to train and

develop dock labour at both the managerial and administrative level. It was felt that this would play a substantial role in the success of the devolution policy. It can be inferred that the identification of these factors resulted from the reality that the sector suffers from a lack of specialised people and is in need of continual research and development in order to survive and evolve in response to continual changes to the surrounding environment.

Factors which have not been discussed elsewhere include the transparency of the bidding process, coordination and cooperation between different entities involved in the ports (e.g. customs, port authority and operators), reform and improvement of the financial system in order to respond to new policies, and finally, the need to rehabilitate and develop the current port infrastructure in order to facilitate the bidding process.

Almost all of the issues identified can be considered to relate to the duties of central government. This is due to the fact that there is a strong presence from central government, even when devolution is implemented. As found in this research that some functions (especially those described as non-transferable functions) need to be in the hands of a central port authority to assure the effective implementation of what is regarded as the most appropriate scenario. However, some of these factors are strongly associated with the institutional environment of the country at the macro level, whilst the remaining factors need to be considered at the micro level.

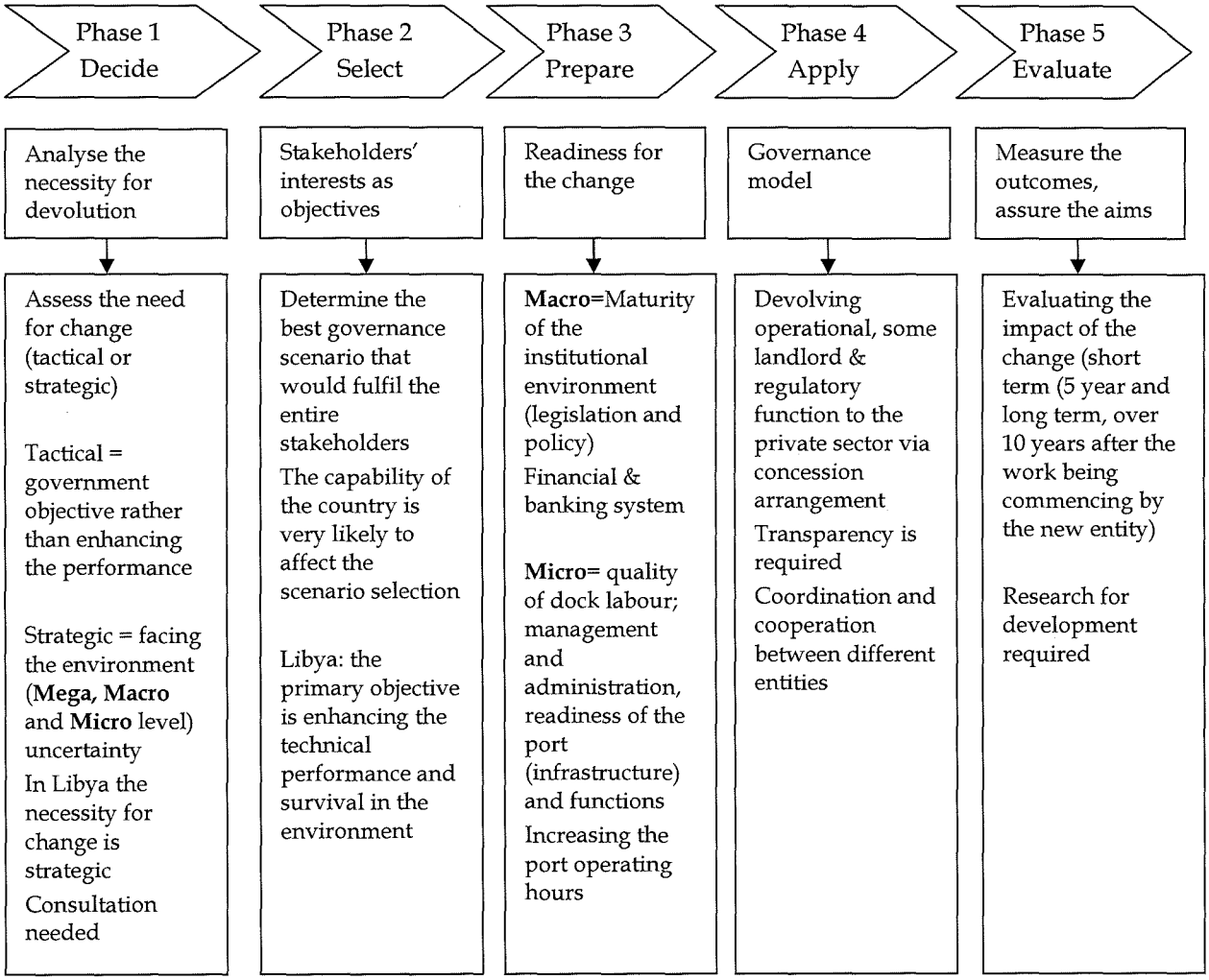
8.6 Bridging the literature gap

Identifying the prerequisites for devolution should mean that the implementation and the success of such a policy would be subject to these factors. However, some need to be addressed horizontally (such as the knowledge utilisation factor) more than once along the continuum of the devolution process (figure 8.1) and some vertically to fulfil the requirement for successful devolution policy (coordination and cooperation).

According to the literature, the two phases that already exist are the analysis of the necessity for devolution. This is referred to as the decision phase, which needs to be assessed in the very early stages at different levels of the task environment (Mega, Macro and Micro). This research has revealed that the drivers of devolution could not be considered individually as they are interrelated.

The measuring of the performance of such a policy (commonly based on financial and productive efficiency) is referred to as the evaluation, and this will be considered in the final stage after implementation. However, in the case of Libya, stakeholder interests were regarded as a measurement of the programme's performance (i.e. the level to which stakeholder satisfaction is secured). Achieving stakeholder satisfaction can be translated into the success of the policy.

Figure 8.1: the proposed roadmap to the success of the devolution policy in Libya



Stakeholder interests have been used as an objective for determining the best scenario for governing the ports in the future and as a measurement for the success of the devolution programme. This would be the second phase (the selection phase) and is not only dependent on the objectives; the country's capabilities and resources would play an important role in determining the appropriate governance structure. In Libya there is an absolute belief that the country is not in need of money to rehabilitate and modernise the sector, but rather that technology and management skills are needed. Thus, the role of the private sector would be limited to introducing IT to the ports, dock labour training, installing a modern superstructure and operating the cargo handling activities over a

certain period of time. To perform these tasks the preferred entity would be a global port operator so as to avoid the monopolisation of the marketplace. The results stated that the operator should increase port working hours. However, such a requirement is against the current work law, and any amendment to this would need to be addressed at the macro level.

The research outcomes stressed the further factors that constitute the prerequisites for success for changing the governance structure of Libya's port sector. These factors include reform of the institutional environment, the establishment of a well-designed legislative framework and the setting out of a clear policy. These factors will define the rules of practice, and need to be addressed from the macro level (the role of the government).

In addition, because the stakeholders prefer to devolve the operational functions and the responsibility of the superstructure (fixed and mobile equipment) to the private sector via a concession arrangement, with the port infrastructure remaining the responsibility of the public sector. Thus, the preparation of the ports (in terms of the infrastructure and the quality of dock worker conditions – i.e. micro related issues) is regarded as crucial and a requirement for success. This stage is referred to as the preparation phase. According to figure 8.1, the institutional and physical preparation would take place in the third phase (preparation phase), in particular the improvement the financial and banking services (especially in dealing with shipping and port business).

There are additional factors for success, such as transparency in the bidding process and coordination and cooperation between different entities related to the port industry, that need to be considered in the subsequent phase (application phase). These two factors would be considered as roadmap phases, both at the macro and micro level. However, in order to assure the sustainability of performance, such a process would not be concluded at this point. At the evaluation phase, a defect may exist which would require review or assessment at one of the later phases.

8.7 Policy recommendation

The results of this research have shown that the changing of the governance structure of Libya's container and general cargo ports is a necessity rather than an option in order to cope with the dynamic operational environment, to solve the current problems of the sector and help in achieving the strategic objectives of the government for increasing

the sector throughput and converting one or more of the country's ports into a hub in the region. However, the following recommendations and measures need to be taken into account as this research has shown that such actions will help facilitate the implementation of devolution policy:

- Participation of the private sector in the operational tasks should be allowed whilst sustaining the principle of public ownership and monitoring (refer to section 8.3 of this chapter)

- Allow intra-port competition as it will help in improving the quality of services (refer to section 8.5)

- Avoid the dedicated terminal approach, as this could hamper competition and replace the public monopoly with a private one (refer to section 8.5)

- Transform the legislative framework in a way that facilitates the introduction of the private sector in the port's transferable functions (as described in the emergent scenario), and support the competition in and between the ports (refer to section 8.5)

- Setting out a clear policy that covers the short and long term is vitally important as there are no clear policies in respect of the transport and logistics sector in general and the ports in particular. Among the policies that need to be considered is education and training, which are important elements for improving the situation and condition of the sector.(refer to section 8.5)

- Engender a good level of cooperation and coordination between port stakeholders to sustain the improvement and development of the sector.(refer to section 8.5)

- Monitoring the ports in terms of performance and the application of international safety and security standards is very important. Thus, more attention needs to paid to this function, which should take place at the central level to assure a satisfactory performance from different stakeholder perspectives. .(refer to section 8.5)

- It is not necessary to abolish the current corporations. Encouraging them to compete with the private sector would have many advantages. However, this

needs to be done without government support and subsidy and they must be subject to the market forces. (refer to Chapter 5 section 5.5.4)

8.8 The contributions of the research

This research has made a number of contributions to the literature on port studies, some of which involved new propositions and findings, whilst others were confirmations of previous research.

8.8.1 Confirmations

- This research has confirmed the necessity of applying a devolution policy as a means for dealing with different issues (dynamism in the operational environment, solving port problems and dealing with changes in the strategic objectives). (refer to section 5.5.2 chapter 5 and section 6.3.3 chapter 6)

- The importance of involvement of the private sector in the container port industry was proved. However, it should be mentioned that such involvement should not be limited to the large sized ports, as small and medium sized ports are in need and would benefit from private sector participation in the operational functions (refer to section 5.5.3 chapter 5, section 6.3.4 chapter 6 and section 7.4.3 chapter 7)

- The mixed governance structure (private and public) was further proven to be the best choice (refer to section 6.3.4 chapter 6 and section 7.4.1 chapter 7).

- Distinct from the interests of existing operators, the mixed governance structure (partial involvement of the private sector) would accommodate key stakeholder interests. The main benefits would include enhancing the overall technical performance of the sector. The positive impact of the policy would be felt by all the port users as the port costs would decrease and the sector's competitiveness would be enhanced. In addition, the amount of labour and their wages would be further increased, sector throughput would be significantly increased and government subsidy would be eliminated. Moreover, the ports would contribute to national income and improve national competitiveness (refer to section 6.3.5 chapter 6 and 7.4.2 chapter 7) .

8.8.2 Innovations

The Libyan ports sector has not been studied previously by academics, particularly in terms of the operation and management style, or the operational strategies and challenges' facing the sector. Therefore, this research is unique in providing an academic piece of work containing an analysis of the Libyan port sector (container and general cargo ports).

- In the transport in general one study was conducted using Delphi survey. The research was entitled "Road freight privatisation in Egypt, a comparative analysis with Great Britain and Hungary" (Abdel-Fattah, 1997) and focused on privatisation whilst the process was being undergone. Thus the research analysed the problems facing privatisation in the early stages, as well as its impact on the road freight industry, in addition to the treatment of external costs that arose under privatisation. Subsequently, the research aimed to investigate and analyse the structure of the road freight industry, its costs, and how the privatisation of the industry was approached under three different regulatory systems (the UK, Egypt, and Hungary).

  This research utilised a Delphi expert survey. The technique was used for two main purposes; as a validation phase for the findings of the previously discussed empirical methods. Secondly, its investigation phase was utilised to explore the critical determinants for the success of port devolution policy in Libya. In eliciting a consensus, Cronbach's Alpha was utilised. The technique and its measure has been derived from health care services research and this is the first time that is has been used for port studies.

- In terms of governance structure selection it was found that not only would the objective behind the devolution play an important role, but the country's capabilities (particularly its financial capability) and stakeholder ideologies would also have an impact on the allocation and distribution of the port's functions between different entities. On this basis, port's functions have been classified into transferable and non-transferable functions. In addition, the allocation of responsibility for port functions were not found to fall neatly into the categories proposed in the widely-accepted port privatisation matrix (refer to section 5.5.4 chapter 5, further confirmed in the subsequent chapters).

- The potential accommodation of stakeholder interests was used as a measure of the achievement of devolution objectives. These interests can be regarded as a non-financial measurement of the devolution programme as they are distinct from, and are not concerned with, profit, return on investment etc. However, these measures can be reported to the three groups identified by Brooks and Cullinane (2007c), which include the port itself, government, stakeholders and customers (refer to section 5.3 chapter 5, section 6.5.3 chapter 6 and section 7.4.2 chapter 7).

- Unexpectedly, the performance at the ports can be enhanced without a reduction in dock worker numbers (refer to section 6.3.5.3 chapter 6)

- The successful implementation of port devolution is via a systematic and integrated process, which is subject to different but interdependent phases. The elements of success were discussed in the previous section of this chapter (refer to section 8.6 of this chapter).

8.9 Agenda for further research

This research concerned the determination of an ideal future governance structure for Libyan ports and analyzed the impact and implications of the proposed governance structure. Thus, the validity of some findings still needs to be assessed following their potential implementation.

Further research should be conducted in order to investigate the validity and the effectiveness of utilising stakeholder interests as measures for the success of a devolution policy.

This research has shown that the introduction of a global port operator would be the most preferable and effective measure ensuring the success of the devolution programme. However, the results did not elaborate on the advantages and disadvantages of the participation of carriers or operators at the ports. The results only stated that carriers are typically interested in dedicated terminals, which are arguably seen as involving the replacement of a public monopoly with a private one. Therefore, further research is required to weigh the benefits and costs of each of these options.

The framework of the roadmap for the success of the devolution programme developed in this research was built on factors provided by information collected from Libyan

ports and shipping experts. These factors were stated on the basis of the situation at Libyan ports, the country's capabilities and Libya's business environment. However, it should be noted that this framework is really required for the success of the devolution policy regardless of the current conflict. Whatever the nature of the regime that will govern the country in the future, it will still be in need of the guidance provided herein. However, the framework needs to be validated and examined at the global level, taking into consideration the situation, business climate and capabilities of different countries in different regions in accordance with different factors, e.g. culture.

8.10 Research limitations

Throughout this research the academic process involved in any piece of research was followed to assure the delivery of a reliable piece of work. However, no research would be complete without extending a limitation. There are many possible limitations that such a piece of research may face. However, there are four main types of research limitation, which commonly occur including

- An inability to answer your research questions
- Theoretical and conceptual problems
- Limitations affecting your research strategy
- Problems of research quality

In this research, there was no doubt that the research question was answerable, and this was proven across the research empirical part chapters. In addition, the theoretical perspective of the research also represented no problems. However, one possible criticism of the research strategy was in the areas of the selection of the methods applied in the research. Therefore, the researcher justified the selection of the methods in chapter four section 4.5.1, such a justification clearly enhanced the strategy followed in this research and subsequently the quality of the research in general.

In spite of this there are still some limitations that need to be highlighted and addressed in the future. The main limitation of this research is that it concerns the future of Libyan ports, thus, the results need to be revisited after the implementation of a devolution policy. Other limitations are that the results of this research particularly, the road map for successful devolution, produced on the basis of the Libyan situation, needs to be

assessed at the global level. Furthermore, the usage of stakeholders' interests as a measure for the programme's performance needs to be examined as a valid measure informing the performance of the policy.

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Appendices

Appendix I Major questions and selected samples of the in-depth interview notes

A - Name: Anonymous[27]
Organisation: LMTPA
Time and Date: 0830 on the 7th October 2009

I- General Introduction:[28]

- Explained why the researcher asked for this interview,
- Enquired about the best means for recording the data
- Explained the research ethics and guaranteed anonymity if required
- Provided a general Idea about the potential discussion, especially that the themes were already predefined

II- The interview questions (open questions) and notes taken by the researcher

- Please describe the current situation at Libyan container and general cargo ports, considering:

Theme	Notes taken by the researcher
Surrounding operational environment	☞ *Very competitive* ☞ *Change in the economic policies of Libya* ☞ *Ongoing changes in the world's economy, trade and technological development* ☞ *Serving local trade only* ☞ *Inland transport – moving a percentage of Libya's trade by land transport from neighbouring countries' ports* ☞ *Located in triangular hubs*
Current performance	☞ *Below expectation* ☞ *It needs to be further improved* ☞ *Current physical condition* ☞ *Lots of factors need to be considered* ☞ *Lots of complaints from customer (shipping line – local shipping companies; agents)*
Challenges facing the ports	☞ *Larger share of local trade would be lost to others* ☞ *No clear and / or documented policies* ☞ *Inland transport – other port in the region* ☞ *The direction of government policies regarding serving landlocked countries* ☞ *Increasing the number of the surrounding hub ports in the region*

- What activities / processes should be adopted to enhance the situation at the ports in general and performance in particular?
  Priorities: -

[27] Presented anonymously in response to the request of the interviewee, and research ethics
[28] This process were followed with each individual interview

- *Enhancing the technical performance of the ports,*
- *providing reasonable costs for our client;*
- *cope with continues changes in the operational environment*

Means: no specific means for doing so. Number of factors need to be considered

- *Dockworkers' skills*
- *Technology*
- *Diversification of the services provided*
- *Operational and management structure*

- What do you think of the current governance structure of the ports?

- *Bureaucratic*
- *Monopolistic market place*
- *Needs to be reviewed*
- *Searching for best practice*
- *The interests of different parties should be kept in mind*

- Can you elaborate on the idea of the introducing the private sector to the ports?

- *Introduction of the private sector to the ports, particularly in operation's tasks, is becoming a necessity rather than an option*
- *Factors to be accounted for: Libya financial capability, cultural aspects and political wellbeing.*
- *Thus, not all aspects would be transferred*

Function Transferability	***Regulatory Functions***	***Port Functions***	
		Landlord	***Operator***
Transferable	▪ *Vessel traffic safety* ▪ *Port monitoring*	▪ *Waterside maintenance (e.g. dredging)* ▪ *Maintenance of port access* ▪ *Marketing of location, development strategies, planning*	▪ *Cargo and passenger handling* ▪ *Pilotage and towage* ▪ *Line handling* ▪ *Facilities security, maintenance, and repair* ▪ *Marketing of operations* ▪ *Waste disposal*
Non-transferable	▪ *Licensing, permitting* ▪ *Customs and immigration* ▪ *Emergency services* ▪ *Protection of public interest on behalf of the community* ▪ *Determining applicable port policy and environmental policies*	▪ *Port security* ▪ *Land acquisition disposal*	▪ *Land side and berth capital investment*

- *Even the transferrable functions would be provided by the central port authority*

- *No official policies to do so*

- As an important stakeholder, what do you expect from the ports; or what would you like to see?
    - *Enhanced technical performance;*
    - *Reduction in expenditure;*
    - *Increased throughput;*
    - *Increasing the national income;*
    - *Expanding the role of the ports;*
    - *Converting one or more of the country's ports into a hub;*
    - *Allowing competition within and between the country's ports;*
    - *Reducing the freight rate;*
    - *Protecting dock labour.*

B **- Name: Anonymous**
Organisation: Shipping Company
Time and Date: 1130 on the 8th October 2009

I- Introduction

II- The interview questions (open questions) and notes taken by the researcher

- Please describe the current situation at Libyan container and general cargo ports, considering:

Theme	Notes taken by the researcher
Surrounding operational environment	☞ *The world is in a continuous flux (economically and technologically)* ☞ *Interaction from Libyan side very slow* ☞ *No stable or clear economic policy from the government* ☞ *Surrounding countries competing for serving Libyan trade*
Current performance	☞ *Below expectations* ☞ *Much behind the international standard* ☞ *It needs to be further improved* ☞ *Lots of complaints from customer (shipping line – local shippers and customers alike)*
Challenges facing the ports	☞ *Losing foothold to other ports in the region* ☞ *Behind the requirements of current technological development* ☞ *Inland transport – other ports in the region* ☞ *The direction of the government policies regarding serving landlocked countries* ☞ *Increasing the number of surrounding hub ports in the region* ☞ *Monopolistic market place is the major challenge* ☞ *Bureaucratic*

- What activities / processes should be adopted to enhance the situation at the ports in general and performance in particular?
  Means:
  - *Open the ports to the investor (private sector)*
  - *Allow competition in operational tasks*
  - *Dockworkers' skills*
  - *Technology*
  - *Diversification of the services provided*

- What do you think of the current governance structure of the ports?
  - *Bureaucratic*
  - *Monopolistic market place*
  - *Centrality is one obstacle*
  - *Allowing the participation of private sector*

- Can you elaborate on the idea of the introducing the private sector to the ports?

- *Introduction of the private sector at the ports, particularly becoming a necessity rather than an option*
- *Would help in solving the problems at the ports*

- As an important stakeholder, what do you expect from the ports; or what would you like to see?
  - *Enhancing technical performance;*
  - *Reduction to the freight rate;*
  - *Reduction in port charges;*
  - *Increased throughput;*
  - *Contribution to the national income;*
  - *Expanding the role of the ports;*
  - *Converting one or more of the country's ports into a hub;*
  - *Allowing competition within and between the country's ports,*

- This table shows the general opinion of the LMTPA; can you comment on it please?

Function Transferability	***Regulatory Functions***	***Port Functions***	
		Landlord	***Operator***
Transferable	▪ *Vessel traffic safety* ▪ *Port monitoring*	▪ *Waterside maintenance (e.g. dredging)* ▪ *Maintenance of port access* ▪ *Marketing of location, development strategies, planning*	▪ *Cargo and passenger handling* ▪ *Pilotage and towage* ▪ *Line handling* ▪ *Facilities security, maintenance, and repair* ▪ *Marketing of operations* ▪ *Waste disposal*
Non-transferable	▪ *Licensing, permitting* ▪ *Customs and immigration* ▪ *Emergency services* ▪ *Protection of public interest on behalf of the community* ▪ *Determining applicable port policy and environmental policies*	▪ *Port security* ▪ *Land acquisition disposal*	▪ *Land side and berth capital investment*

- *Would be considered as ideal*
- *But could not be implemented as it is*

C - Name: Anonymous
Organisation: Operator
Time and Date: 1200 on the 15th October 2009

I- General Introduction:

II- The interview questions (open questions) and notes taken by the researcher

- Please describe the current situation at Libyan container and general cargo ports, considering:

Theme	Notes taken by the researcher
Surrounding operational environment	☞ *Its competitive but we are not a part of the competition, as we serve only the local trade* ☞ *Change the economic policies of Libya* ☞ *Ongoing change in the world's economy, trade, technological development* ☞ *serving only the local trade* ☞ *Inland transport – moving a percentage of Libya's trade by land transport from neighbouring countries' ports*
Current performance	☞ *It needs to be further improved* ☞ *Port infrastructure and super structure need to be developed* ☞ *Lots of factors need to be considered* ☞ *There are complaints*
Challenges facing the ports	☞ *Centrality* ☞ *Autonomy* ☞ *No clear and / or documented policies* ☞ *Inland transport – other ports in the region* ☞ *The direction of government policies, regarding serving landlocked countries* ☞ *Increases in the number of hub ports in the surrounding region*

- What activities / processes should be adopted to enhance the situation at the ports in general and performance in particular?
  Priorities: -
  - *Enhancing the technical performance of the ports;*
  - *Providing reasonable costs for our clients;*
  - *Coping with continuous changes in the operational environment*

  Means: no specific means for doing so. Number of factors need to be considered:
  - *Dockworkers' skills*
  - *Technology*
  - *Diversification of the services provided*
  - *No problem: Operational and management structure*

- What do you think of the current governance structure of the ports?
  - *Almost the same as at the Singapore ports*
  - *Defects not related to the governance structure*
  - *The interests of different parties should be kept in mind*

- Can you elaborate on the idea of the introducing the private sector to the ports?
    - *Not necessary - the introduction of the private sector at the ports is a solution;*
    - *It may cause a problem, particularly as related to dock workers;*
    - *Factors should be accounted for: Libya's financial capability, cultural aspects and political wellbeing;*
    - *More autonomy required.*

- As an important stakeholder, what do you expect from the ports; or what would you like to see?
    - *Enhanced technical performance;*
    - *Protection of dock labour;*
    - *Reduction of expenditure;*
    - *Increasing throughput;*
    - *Increasing the national income;*
    - *Expanding the role of the ports.*

- This table shows the general opinion of the LMTPA; can you comment on it please?

Function Transferability	***Regulatory Functions***	***Port Functions***	
		Landlord	***Operator***
Transferable	▪ *Vessel traffic safety* ▪ *Port monitoring*	▪ *Waterside maintenance (e.g. dredging)* ▪ *Maintenance of port access* ▪ *Marketing of location, development strategies, planning*	▪ *Cargo and passenger handling* ▪ *Pilotage and towage* ▪ *Line handling* ▪ *Facilities security, maintenance, and repair* ▪ *Marketing of operations* ▪ *Waste disposal*
Non-transferable	▪ *Licensing, permitting* ▪ *Customs and immigration* ▪ *Emergency services* ▪ *Protection of public interest on behalf of the community* ▪ *Determining applicable port policy and environmental policies*	▪ *Port security* ▪ *Land acquisition disposal*	▪ *Land side and berth capital investment*

- *It's a point of view!*
- *Not necessarily an ideal approach*
- *Autonomy, cooperation and coordination are more important*

Appendix II Survey of Libya's Major Commercial Ports Stakeholders

Dear .....

I am currently a PhD candidate at Edinburgh Napier University (Transport Research Institute) in the UK, sponsored by the Libyan government. The research that I am conducting aims to investigate the perspectives of stakeholders in Libya's Ports in order to determine the necessity of port devolution and its likely future impact. This questionnaire is part of the research project and, therefore, I would truly appreciate your participation in this research. I am sure your contribution will add value to this study and to knowledge as well.

The questionnaire should take you about fifteen minutes to complete. Please answer the questions in the spaces provided. If you wish to add further comments, please feel free to do so. Please be guaranteed that your responses will be treated confidentially and anonymously; you will notice that you are not asked to include your name or address anywhere on the questionnaire.

I hope that you will find completing the questionnaire enjoyable. Please return the completed questionnaire to me, Hesham M Ghashat, by the end of February 2010. If you have any questions or would like further information, please do not hesitate to telephone me on 00447832192404 or email me at h.ghashat@napier.ac.uk or fax on 00441314552953
Thank you for your help

Mr. Hesham M Ghashat

السيد .....

تحية طيبة

أنا حاليا طالب دكتوراه بجامعة إدنبرة نبير (مركز أبحاث النقل) بالمملكة المتحدة. موفد من قبل الدولة الليبية . يهدف البحث الذي أقوم به إلى تحقيق مدى أهمية تطوير تشغيل قطاع الموانئ بالجماهيرية و ذلك بناءً على خبرة جميع الأطراف ذوي العلاقة المباشرة بالموانئ التجارية الرئيسية (سلطات الموانئ بالدولة / الشركة المشغلة / شركات الملاحة / الخطوط الملاحية). هذا الاستبيان هو جزء من مشروع البحث. سلفاً أثمن مساهمتكم في هذا البحث و أنا متأكد من أن مساهمتكم ستضيف قيمة لهذا البحث بوجه خاص وللعلم بشكل عام.

صمم هذا الاستبيان بحيث لا يأخذ من وقتكم أكثر من خمسة عشر دقيقة .نأمل منكم إجابة الأسئلة في الفراغات المحددة و إذا كنتم ترغبون في إضافة أي تعليقات أخرى يمكنكم ذلك . **ومن فضلكم كونوا على ثقة تامة بأن هذا الاستبيان لن يتم استعماله إلا للأغراض الأكاديمية و العلمية ولن يتم تمريره إلى أي طرف آخر**. وكما تلاحظون انه لم تحدد أي فقرة في الاستبيان تتعلق بالاسم أو وسيلة الاتصال ولكن إذا رغبتم في الحصول على النتائج النهائية لهذا البحث فلطفاً آمل منكم تزويدي ببريدكم الالكتروني أو رقم بريدكم المصور حتى أتمكن من إرسال نتائج البحث لكم.

أتمنى أن يكون ملئ هذا الاستبيان ممتع . من فضلكم أرسلوا الاستبيان إلى أنا هشام المبروك القشاط قبل نهاية شهر **النوار/ فبراير 2010** وذلك على البريد الالكتروني h.ghashat@napier.ac.uk أو البريد المصور (الفاكس) **00441314552953**. و في حل لديكم أي استفسار آمل منكم عدم التردد مراسلتي أو الاتصال و هاتفي النقال رقم**00447832192404**

أشكركم على مساعدتكم
هشام المبروك القشاط

Part 1. Definitions of some terminology used in this questionnaire

تعريف بعض المصطلحات المستخدمة في هذا الاستبيان

- Stakeholders. Those who have an interest in the ports (including shareholders and non-shareholders)

  جميع الإطراف التي لها مصالح بالموانئ (ملاك الأسهم و غيرهم)
- Global Carrier. A carrier who operates their vessels internationally (between ports in different continents).

  الناقل الذي يقوم بتشغيل سفنه عالمياً (مابين موانئ قارات العالم)
- Regional carrier. A carrier who operates their vessels between specific ports in the same region (e.g. ports in Mediterranean region).

  الناقل الذي يقوم بتشغيل سفنه بين موانئ منطقة معينة (موانئ البحر المتوسط مثلاً)
- Shipping Company includes (agency, forwarders, shippers, etc)

  شركة ملاحة وتشمل في هذا الاستبيان كل من الوكلاء ، الشاحن، الخ من النشاطات الواقعة في نطاق شركات الملاحة
- Port Performance. This includes the port efficiency, effectiveness and productivity

  أداء الميناء شاملاً الكفاءة و الفاعلية و الإنتاجية
- Port Efficiency. Related to time efficiency; waiting time for berth, bureaucratic time, loading-unloading time, and cargo dwell time, etc.

  كفاءة الميناء وهي متعلقة بالاستخدام الأمثل للزمن (وقت الانتظار,زمن الإجراءات,الزمن المستغرق في عمليات الشحن و التفريغ, وزمن مناولة البضائع)
- Port Effectiveness. Related to port customer satisfaction; something more than efficiency (providing added-value services, treatment of the customer, the quality of the services provided, and etc.)

  الفاعلية متعلقة برضاء زبائن الميناء وهي أكثر من الكفاءة الزمنية (تقديم خدمات القيمة المضافة, معاملة الزبائن, جودة الخدمات)
- Port Productivity. As representing by aspects such as the cargo handling rate per hour/crane, the percentage utilisation of port capacity, the utilisation rate of port assets, and etc.

  الإنتاجية و تمثل معدل الشحن و التفريغ بواسطة كل رافعة خلال ساعة, نسبة استغلال القدرة الاستيعابية في الميناء في السنة, و بالإضافة لاستغلال معدات و تجهيزات الميناء الاستغلال الأمثل
- Landlocked Country. A country that has no seaport; A closed country with no coastline

  الدول المغلقة هي تلك الدول التي ليس لها موانئ بحرية , دول ليس لها سواحل
- Infrastructure. Breakwater, access channel, terminal and the draft

  البنية التحتية للميناء وتشمل حواجز الأمواج والقنوات الملاحية و الأرصفة و الغاطس
- Superstructure. Including fixed and mobile equipment, offices , and other facilities

  البنية الفوقية و تشمل المعدات الثابتة و المتحركة ,المكاتب, والتسهيلات الأخرى المطلوبة بالميناء
- Autonomy. The degree of independency of the port; in being a self financing, economic entity and working in a commercial manner

  الاستقلالية هي أن يكون الميناء مستقلاً مالياً و يكون وكيان اقتصادي يعمل بطريقة تجارية
- The sector Throughput. The volume of the cargo handled at a port, or the numbers of containers handled at a port during a certain period (year). In this questionnaire we are concerned with containers

  حجم أو كمية البضائع أو عدد الحاويات التي يتم مناولتها في الميناء خلال فترة زمنية معينة (عادةً خلال سنة)

Part 2. General Information الجزء2. معلومات عامة

2.1 What is the nature of your organisation? (please tick the appropriate box)
ما هي طبيعة عمل المؤسسة التي تعمل معها

☐ Port Authority ☐ Port Operator ☐ Global Carrier
Regional carrier

☐ Shipping Company Other entity, (Please specify.....)

2.2 What is your job title..... ما هي طبيعة عملك مع هذه المؤسسة

2.3 Which of Libya's major ports do you work at or your ships call at? (please tick the appropriate box)

مع أي من الموانئ الليبية التجارية الرئيسية تعمل / تتعامل / سفنك تتجه إلى (يمكنك اختيار أكثر من إجابة)

☐ Benghazi ☐ Misurata ☐ Elkhoms
Tripoli

Part 3. The aim of this part is to investigate the current situation and future prospects of Libya's port based on the experience of port stakeholders
الجزء3: يهدف هذا الجزء إلي اكتشاف الوضع الحالي و التوقعات المستقبلية للموانئ الليبية و ذلك بناءً على خبرة الأطراف ذوي العلاقة

3.1 Please indicate to what extent you are satisfied with the current performance of the Libyan port/ports you dealing with
من فضلك وضح إلى أي مدى أنت راضي عن الأداء الحالي للموانئ الليبية التي تتعامل معها

☐ Totally unsatisfied غير راضي كلياً ☐ Somewhat unsatisfied غير راض إلى حد ما

☐ Somewhat satisfied راض إلى حد ما ☐ Totally satisfied راض كلياً

☐ Natural محايد

3.2 The government aims to achieve the following goals in the future
تسعى الدولة الليبية إلى
تحقيق الأهداف التالية

- Rehabilitate the country ports إعادة تأهيل موانئ الدولة
- Increase the capacity of the country's ports زيادة السعة التشغيلية للموانئ
- Convert the country's ports to a hub تحويل بعض موانئ الدولة إلى مراكز توزيع
- Serve the trade of landlocked countries عن طريق الموانئ الليبية
  خدمة تجارة الدول المغلقة
- Increase containers throughput زيادة كميات تداول الحاويات

In your opinion, how important is it that each of the following areas are improved and developed in order to satisfy stakeholders and achieve government objectives. (Pleas tick the appropriate box in the table "1 to 5" for each of the Areas)

من وجهة نظرك ما مدى أهمية تطوير ورفع كفاءة المناطق و العناصر المدرجة بالجدول لغرض إرضاء زبائن الموانئ الليبية و تحقيق أهداف الدولة, من فضلك اختر إجابة واحدة لكل عنصر من 1 إلى 5

Not Important at all	Not Important	Neutral	Important	Very Important
1	2	3	4	5
غير مهم على الإطلاق	غير مهم	محايد	مهم	مهم جدا

Areas	1	2	3	4	5	العناصر
Infrastructure						البنية التحتية
Superstructure						البنية الفوقية
Allow the competition in the operation tasks						السماح بالتنافس في عمليات التشغيل
Autonomy of the sector						الاستقلالية
Administration and management system of the sector						إدارة و تسير القطاع
Labour and management skills						مهارات العمالة و الإدارة
Providing the added-value services						تقديم خدمات القيمة المضافة

3.3 Based on the answers you provide in Question 3.2, how the following functions should be provided / conducted in order to enhance the current situation and achieve the government's objectives? (Please tick your preferred answer)

بناءً على إجابة السؤال 3.2 كيف يجب أن تقدم/ تؤدى كل من الوظائف / العناصر المدرجة بالجدول حتى يتم تحسين أداء الموانى و تحقيق الأهداف التي تتطلع الدولة لتحقيقها (من فضلك اختر إجابة واحدة)

Functions	Central Port Authority (National government) سلطات الموانئ المركزية	Public Port authority at the port level سلطات الموانئ على مستوى الميناء	Corporatised entity مؤسسة مستقلة	Concession e.g. BOT Private قطاع خاص بنظام BOT	Joint venture between public and private sector شراكة بين القطاع العام والخاص	Private sector alone القطاع الخاص لوحده	الوظائف
Port Infrastructure							البنية التحتية
Port Superstructure							البنية الفوقية
Stevedoring / cargo handling							الشحن والتفريغ والمناولة
Services to vessels e.g.							الخدمات المقدمة

pilotage							للسفن (الإرشاد مثلاً)
Regulation and safety							التنظيم و السلامة
Planning and monitoring performance							التخطيط و مراقبة الأداء
Port dues and stevedoring charges							تعريفة الميناء وتسعيرة المناولة

3.4 Based on the answer you provided in Questions 3.2 and 3.3, how do you evaluate the future situation of the elements listed in the table? (Please tick the appropriate box in the table "1 to 5" for each of the Items).

بناء على إجابة السؤال رقم 3.2 / 3.3 كيف تقيم الوضع المستقبلي لكل من العناصر المدرجة بالجدول
(من فضلك إجابة واحدة من 1 إلى 5 لكل عنصر)

Will increase significantly	Will increase	No Impacts	Will decrease	Will decrease significantly
1	2	3	4	5
ستزداد بشكل كبير	ستزداد	لن تتأثر	ستتناقص	ستتناقص بشكل كبير

Items	1	2	3	4	5	البنود
Port efficiency						كفاءة الميناء
Port effectiveness						فاعلية الميناء
Port productivity						إنتاجية الميناء
Port dues						تعريفة الميناء
Stevedoring/ cargo handling charges						تكلفة الشحن والتفريغ و المناولة
Fright rate						النولون
Labour numbers						عدد العمالة
Labour wages						مرتبات العمالة
Competition within a port						التنافس داخل الميناء
Competition am1ong the country ports						التنافس بين موانئ الدولة
Ports international competitiveness						ميزة التنافسية العالمية
Sector throughput						تدفق البضائع
Government subsidiary						دعم الدولة
Sector contribution to national income						مساهمة القطاع في دخل الدولة

Please add any further comments يمكنك إضافة أي تعليقات أخرى

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Thank you very much for your time, valuable cooperation and assistance, and please accept my gratitude.

أشكركم جزيل الشكر على وقتكم و مساهمتكم الثمينة وتقبلوا خالص امتنا

Appendix III Stakeholders' data sheet

stak	JobTit	Bengh	Misura	Elkho	Tripol	Perfor	Infra	Super
1	2	1	2	1	1	5	5	5
1	2	1	2	1	1	5	5	5
1	2	1	2	1	2	5	5	5
1	2	2	2	2	2	2	5	5
1	2	2	2	2	2	4	5	4
2	2	1	2	1	1	2	5	5
3	4	2	1	2	2	4	5	5
4	1	1	1	1	1	5	1	5
4	1	1	1	1	1	5	5	5
4	1	1	1	1	1	5	5	5
4	1	1	1	1	1	5	5	5
4	1	1	1	1	1	5	5	5
4	1	2	1	2	2	1	4	5
4	1	1	1	1	1	5	5	5
4	5	1	2	2	2	2	5	5
4	1	1	1	1	1	5	5	5
4	1	1	1	1	1	5	5	5
4	1	1	1	1	1	5	5	5
4	1	1	1	1	1	5	5	5
4	3	1	1	1	1	5	5	5
4	4	1	1	1	1	2	4	3
4	1	1	1	1	1	4	5	5
4	1	1	1	1	1	4	5	5
4	1	1	1	1	1	5	5	4
4	3	1	1	1	1	5	5	5
4	4	1	1	1	1	5	5	4
4	3	1	1	1	1	4	5	4
4	1	1	1	1	1	4	5	5
4	3	1	1	1	1	5	5	5
4	1	1	1	1	1	4	5	5
4	1	2	1	2	2	4	5	5
4	3	1	1	1	1	4	5	5
4	3	1	1	1	2	5	4	4
4	3	1	1	1	1	4	4	4
4	1	1	1	1	1	5	5	5
4	1	1	1	1	1	5	5	5
4	3	1	1	1	1	4	5	5
4	1	1	1	1	1	5	5	5
4	1	1	1	1	1	5	5	5
4	3	1	1	1	1	5	5	5
4	4	1	1	1	1	5	5	5
4	3	1	1	1	1	5	5	5
4	1	1	1	1	1	5	5	5
4	1	1	1	1	1	1	5	5
5	5	1	1	1	1	4	5	5
5	5	1	1	1	1	4	5	5
5	5	1	1	1	1	5	5	5
5	5	1	1	1	1	5	5	5
5	5	1	1	1	1	1	5	5

AllowComp	AutonofSect	AdmiManaSys	LabandMana	AddedValue	PInfra	PSupe	StevCarHand	SertoVess
4	5	5	5	4	4	4	4	4
4	5	5	5	4	4	4	6	4
4	5	5	5	4	4	4	6	3
5	4	5	5	4	1	5	3	3
5	2	5	5	5	5	2	3	5
2	3	5	5	3	3	3	3	3
5	5	5	5	4	5	6	6	6
5	3	5	5	4	1	5	6	2
5	4	5	5	3	2	2	6	2
5	5	5	5	5	1	5	6	6
5	5	5	5	5	1	4	4	4
5	5	5	5	5	1	4	4	4
5	5	5	5	4	1	5	5	6
5	5	5	5	5	1	4	4	4
5	4	5	5	5	2	3	4	2
5	5	5	5	5	1	5	4	6
5	5	5	5	5	1	4	4	4
5	5	5	5	5	1	4	4	4
5	5	5	5	5	1	5	6	6
5	5	5	5	5	1	4	4	4
5	5	3	4	4	5	6	4	3
5	5	5	5	5	5	5	5	6
4	4	5	5	3	1	5	5	5
4	5	5	5	4	6	6	6	2
5	5	5	5	5	5	5	5	5
4	5	4	4	5	1	2	5	2
3	1	4	5	3	4	4	5	5
5	5	5	4	4	1	2	5	2
5	5	5	5	5	6	6	6	6
5	5	5	4	4	1	2	5	2
5	5	5	5	5	5	4	4	2
5	4	5	5	4	1	1	1	3
5	1	5	5	5	2	2	2	2
2	5	5	5	4	2	2	3	2
5	5	5	5	5	2	2	5	2
5	5	5	5	5	1	4	4	4
5	5	5	5	5	4	4	4	4
5	5	5	5	5	1	4	4	4
5	5	5	5	5	1	4	4	4
5	5	5	5	5	1	4	4	4
5	5	5	5	5	1	4	4	4
5	5	5	5	5	1	4	4	4
5	2	5	5	3	2	2	6	2
5	5	5	5	3	1	6	6	6
5	5	5	4	5	1	5	5	6
5	5	5	5	4	1	5	6	6
5	5	5	5	4	1	2	6	2
5	5	5	5	5	3	3	6	3
5	5	5	5	5	4	4	6	6

Reguand Saf	Planand Moni	PDuandSteCh	Effic	Effec	Produ	PorDues	StevHandCh	FriRate
1	1	1	1	1	1	2	3	5
1	2	1	1	1	1	2	3	2
2	2	1	1	2	1	2	3	3
2	5	4	1	2	2	3	2	4
6	5	5	1	2	4	4	4	4
2	1	1	1	1	1	2	3	2
6	2	1	1	2	1	2	2	3
1	1	5	1	1	1	4	4	5
2	1	6	1	2	2	3	3	4
1	1	5	1	1	1	4	4	4
1	1	4	1	1	1	4	4	4
1	1	4	2	2	2	4	4	4
5	3	1	2	2	2	3	3	3
2	1	2	1	1	1	4	3	4
2	2	1	2	1	1	3	3	4
2	2	5	1	1	1	4	3	4
1	1	4	1	1	1	4	4	4
1	1	4	1	1	1	4	4	4
3	1	1	1	1	1	4	4	4
2	1	4	2	2	2	4	4	4
5	6	3	3	2	2	1	5	4
6	6	5	1	1	1	1	3	5
5	3	1	2	2	2	4	4	4
2	3	1	1	1	1	5	4	5
5	5	1	1	1	1	3	4	3
3	2	2	2	1	1	2	4	4
1	3	5	1	1	1	3	2	4
3	2	2	2	2	2	4	4	4
6	6	6	2	2	2	2	2	2
3	2	2	2	2	2	4	4	4
1	1	4	2	2	2	3	4	5
3	3	1	5	5	5	4	4	5
2	2	2	1	1	1	1	1	1
1	2	1	2	2	2	3	2	3
2	1	1	2	2	2	2	3	2
2	2	4	2	2	1	4	4	4
2	1	4	2	1	1	4	4	4
2	1	4	2	2	2	4	4	4
2	1	4	2	2	2	4	4	4
2	1	4	2	2	2	4	4	4
2	1	4	2	2	2	4	3	4
2	1	4	2	2	2	4	4	4
1	1	1	1	1	1	4	4	4
6	2	1	2	2	2	5	5	5
1	1	1	1	1	1	4	4	5
1	1	2	1	1	1	4	4	4
2	2	2	1	1	1	4	4	4
2	3	5	2	2	2	4	4	4
5	5	5	2	2	2	4	4	4

LabNo	LabWa	CompinPo	Compbet Por	InterComp	Through	GovSub	SecConNatInc
2	1	1	1	1	1	2	1
2	2	2	2	1	2	4	1
4	2	2	2	1	1	4	2
4	2	2	2	1	1	5	2
4	2	2	2	2	1	5	2
2	2	2	2	2	4	4	2
4	2	2	1	2	2	4	2
1	1	1	2	2	1	5	1
2	2	2	2	3	1	3	2
2	2	2	2	2	1	3	2
2	2	2	2	2	1	3	2
2	2	2	2	2	2	3	2
3	3	3	2	2	2	3	2
2	2	2	2	2	2	4	1
2	2	2	2	2	1	4	5
3	2	2	2	1	1	4	2
2	2	2	2	1	1	4	2
3	2	2	1	1	1	5	2
1	1	1	2	2	1	5	1
3	2	2	2	2	1	4	2
2	2	3	2	3	2	3	3
2	3	1	1	1	1	2	1
3	3	2	2	2	2	2	1
4	2	2	2	2	1	4	4
2	2	2	2	2	2	2	2
2	2	2	1	2	2	4	1
3	3	2	2	2	3	3	2
2	2	2	2	2	2	5	1
2	2	2	2	2	2	2	2
2	2	2	2	2	2	5	2
4	2	2	2	1	2	5	1
4	4	3	5	5	4	2	2
1	1	1	1	1	1	1	1
3	2	2	2	2	2	2	2
3	2	2	2	3	2	4	3
2	2	2	2	2	1	4	2
2	2	2	2	2	2	4	2
2	2	2	2	1	1	4	2
2	2	2	2	1	1	4	2
2	2	2	2	1	1	4	2
3	2	2	2	2	2	3	2
3	2	2	2	2	1	4	2
2	2	2	2	2	1	5	1
4	2	2	2	2	2	4	4
2	1	1	2	2	2	3	2
2	1	1	2	2	2	4	1
2	2	2	2	2	1	4	2
4	2	2	2	2	1	5	1
1	2	2	2	2	1	5	1

Appendix IV One Way ANOVA test, Assessment of the difference between the groups responses

ONEWAY Stake BY Perfor

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.132	3	1.711	1.658	.189
Within Groups	46.419	45	1.032		
Total	51.551	48			

ONEWAY Stake BY Infra

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.392	2	.196	.176	.839
Within Groups	51.159	46	1.112		
Total	51.551	48			

ONEWAY Stake BY Super

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.432	2	.216	.194	.824
Within Groups	51.119	46	1.111		
Total	51.551	48			

ONEWAY Stake BY AllowComp

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.151	3	4.050	4.626	.007
Within Groups	39.400	45	.876		
Total	51.551	48			

ONEWAY Stake BY AutonofSect

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.509	4	1.377	1.316	.279
Within Groups	46.042	44	1.046		
Total	51.551	48			

ONEWAY Stake BY AdmiManaSys

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.225	2	.112	.101	.904
Within Groups	51.326	46	1.116		
Total	51.551	48			

ONEWAY Stake BY LabandMana

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.206	1	1.206	1.125	.294
Within Groups	50.345	47	1.071		
Total	51.551	48			

ONEWAY Stake BY AddedValue

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.284	2	2.642	2.627	.083
Within Groups	46.267	46	1.006		
Total	51.551	48			

ONEWAY Stake BY PInfra

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.384	5	2.077	2.169	.075
Within Groups	41.167	43	.957		
Total	51.551	48			

ONEWAY Stake BY PSupe

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.944	5	.189	.160	.976
Within Groups	50.607	43	1.177		
Total	51.551	48			

ONEWAY Stake BY StevCarHand

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.751	5	2.750	3.129	.017
Within Groups	37.800	43	.879		
Total	51.551	48			

ONEWAY Stake BY SertoVess

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.808	4	2.452	2.585	.050
Within Groups	41.743	44	.949		
Total	51.551	48			

ONEWAY Stake BY ReguandSaf

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.894	4	.723	.654	.627
Within Groups	48.657	44	1.106		
Total	51.551	48			

ONEWAY Stake BY PlanandMoni

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.128	4	1.532	1.484	.223
Within Groups	45.423	44	1.032		
Total	51.551	48			

ONEWAY Stake BY PDuandSteCh

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.008	5	1.002	.925	.474
Within Groups	46.543	43	1.082		
Total	51.551	48			

ONEWAY Stake BY Effic

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.733	3	1.911	1.877	.147
Within Groups	45.818	45	1.018		
Total	51.551	48			

ONEWAY Stake BY Effec

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.198	2	.099	.089	.915
Within Groups	51.353	46	1.116		
Total	51.551	48			

ONEWAY Stake BY Produ

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.714	3	2.905	3.051	.038
Within Groups	42.837	45	.952		
Total	51.551	48			

ONEWAY Stake BY PorDues

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.819	4	3.955	4.870	.002
Within Groups	35.732	44	.812		
Total	51.551	48			

ONEWAY Stake BY StevHandCh

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.972	4	2.493	2.638	.046
Within Groups	41.579	44	.945		
Total	51.551	48			

ONEWAY Stake BY FriRate

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.630	4	1.658	1.624	.185
Within Groups	44.921	44	1.021		
Total	51.551	48			

ONEWAY Stake BY LabNo

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.763	3	2.254	2.265	.094
Within Groups	44.788	45	.995		
Total	51.551	48			

ONEWAY Stake BY LabWa

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.507	3	.169	.149	.930
Within Groups	51.044	45	1.134		
Total	51.551	48			

ONEWAY Stake BY CompinPo

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.386	2	.193	.174	.841
Within Groups	51.165	46	1.112		
Total	51.551	48			

ONEWAY Stake BY CompbetPor

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.146	2	.573	.523	.596
Within Groups	50.405	46	1.096		
Total	51.551	48			

ONEWAY Stake BY InterComp

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.659	3	2.553	2.618	.062
Within Groups	43.892	45	.975		
Total	51.551	48			

ONEWAY Stake BY Through

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.866	3	.622	.563	.642
Within Groups	49.685	45	1.104		
Total	51.551	48			

ONEWAY Stake BY GovSub

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.736	4	.434	.383	.819
Within Groups	49.815	44	1.132		
Total	51.551	48			

ONEWAY Stake BY SecConNatInc

Oneway

ANOVA

Stakeholder

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.599	4	.150	.129	.971
Within Groups	50.952	44	1.158		
Total	51.551	48			

Appendix V The first round of the Delphi Survey

Dear.....

First of all I would like to thank you for your participation in the Libyan ports stakeholders' survey. Secondly, I have attached a document which contains a very brief description of the finding of the survey, however, the result of the survey needs to be further confirmed, therefore, the technique of Delphi survey was introduced which aims to explore the opinions of industry experts, thus, questions that needed to be answered by you as an Expert of Libyan ports and shipping industry are listed in the mentioned document as well.

Please feel free to make any suggestion or comments even if your comments are about the design of the questions.

Hopefully there is no bother.

Note, I will send you the result of this survey as well, to confirm your answer. (this questions sent to different experts)

Thanks in advance for valuable contribution in the research

Best regards

Part I. Summary of the Stakeholder Survey.

As you are aware, the researcher has conducted a survey targeting all Libyan ports' stakeholders. The initial analysis of that survey suggested that, in order to enhance the overall performance of Libya's ports sector, all of the ports' functions need to be improved and developed. In addition, the analysis of the responses to the stakeholders' survey suggested that the methods of managing and operating the ports should be changed. Based on a statistical analysis, the assumed changes will have a positive impact on port performance, labour conditions, the competitiveness of the ports and container throughput. Moreover, the sector's contribution to Libya's national income will also increase. The analysis of the stakeholder survey has suggested three possible scenarios for managing and operating the sector. Therefore, this Delphi survey has been developed and despatched to a small group of Libyan Port and Shipping Industry Experts, in order to determine the most reliable scenario for the future of Libya's Ports Industry.

Part II. Clarification of Some Terms

- **BOT, Build – Operate – Transfer** an arrangement used to build new facilities and operate them for an agreed period of time, usually between 20 and 60 years, before transferring them back into the hands of the government.
- **Strategy** includes the goals and aims which the government would like to achieve by adopting specific policies.
- **Global Carriers,** Shipping Lines operating their vessels globally and engaged in containers, terminals, operations and investment.
- **Global Port/terminal Operator,** companies whose main business is operating and managing ports / terminals and engaging in port investment across the world (e.g. DPW and SPA, etc...)

Note. Please read the questions carefully before you start answering them.

Part III. The Survey

QUESTION ONE: In your opinion, please indicate how appropriate each one of the following scenarios is for Libya's Ports:

Scenario One: the most preferable scenario

The Responsibilities of Libya's Maritime Transport and Port Authority	The Responsibilities of the Port Authority at the Port Level	Functions Provided Via Concession arrangement BOT
- Provide Ports Infrastructure - Planning and Monitoring Performance - Controlling Port Dues and Stevedoring Charges	- Enforcing and implementing the safety standards and regulations	- Provide Ports Superstructure - Stevedoring and cargo handling - Provide services to vessels

1	2	3	4
Not appropriate at all	**Less appropriate**	**Appropriate**	**Most appropriate**

Scenario Two: the second most preferable scenario

The Responsibilities of Libya's Maritime Transport and Port Authority	Functions Provided Via Concession arrangement BOT
- Provide Ports Infrastructure - Planning and Monitoring Performance	- Provide Ports Superstructure - Stevedoring and cargo handling - Provide services to

- Enforcing and implementing the safety standards and regulations	the vessels - Controlling Port Dues and Stevedoring Charges

1	2	3	4
Not appropriate at all	**Less appropriate**	**Appropriate**	**Most appropriate**

Scenario Three: the third preferable scenario

The Responsibilities of Libya's Maritime Transport and Port Authority	Functions Provided by Private Sector alone	Jointly Between Libya's maritime transport, Port Authority and the Private Sector
- Provide Ports Infrastructure - Planning and Monitoring Performance - Enforcing and implementing the safety standards and regulations - Provide Ports Superstructure	- Stevedoring and cargo handling - Provide services to vessels	- Controlling Port Dues and Stevedoring Charges

1	2	3	4
Not appropriate at all	**Less appropriate**	**Appropriate**	**Most appropriate**

QUESTION TWO. To what extent do you agree that the preferred scenario will help in achieving the following goals and strategies? (Please put one of the numbers from the following table between the brackets in each of the eight possibilities).

1	2	3	4
Totally agree	**agree**	**Disagree**	**Totally disagree**

1- Enhancing the overall performance of the ports ( )
2- Enhancing the competitiveness of the ports ( )
3- Improving the general conditions of port labour ( )
4- Decreasing user costs ( )
5- Increasing the container throughput ( )
6- Increasing the sector contribution to national income ( )
7- Reducing the financial burden on government in modernising the ports ( )
8- Converting **Benghazi** and **Elkhoms** Ports to become hubs in the Mediterranean region ( )

QUESTION THREE. As you can see, the three scenarios consist of the involvement of the private sector or another investor. In your opinion which of the following is the most suitable entity for implementing the preferable scenario effectively and helping to achieve the objectives listed in question two (**please select one answer?**)

1	2	3	4
Global Carriers	**Global Port/Terminal Operator**	**Domestic Investor, please specify.....**	**Other, please specify .....**

QUESTION FOUR. To what extent do you agree that the entity selected in **question three** should be involved in other services listed below. (Please put one of the numbers from the following table between the brackets in each of the seven possibilities).

1	2	3	4
Totally agree	**agree**	**Disagree**	**Totally disagree**

1- Modernising the current superstructure ( )
2- Installing a new superstructure that help the ports handle containers ( )
3- Providing training programs for port labourers ( )
4- Computerising the ports ( )
5- Providing Inland transportation Services ( )
6- Controlling container storage areas ( )
7- Increasing working hours at the ports ( )

QUESTION FIVE. Please indicate the most important factors that will help the successful implementation of what you feel to be the most appropriate scenario.

1- .....
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2- .....
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3- .....
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4- .....
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5- .....
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QUESTION SIX. Any further comments you would like to make, please do so here:

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THANK YOU VERY MUCH FOR YOUR TIME AND YOUR VALUABLE CONTRIBUTION TO THE RESEARCH

Appendix VI second round of the Delphi Survey

Second Round of the Delphi Experts Survey

Dear .....

As you are aware, the researcher conducted a Delphi survey targeting Libyan port experts that you were a part of. The initial analysis of that survey confirmed that the operational function of Libya's container and general cargo ports should be devolved to the private sector. However, no clear-cut answers emerged about what the most suitable scenario would be for the Libyan case. In general, the first round of the survey indicated that a policy of devolution will have a positive impact on Libya's container port industry. However, as indicated by many of you, there were certain factors that would play an important role in the success of the implementation of the devolution policy in Libya's ports; these factors need to be further confirmed and reassessed. Therefore, this second round of the Delphi survey has been developed and despatched to you (Libyan Port and Shipping Industry Experts) in order to provide you with an opportunity to further consider, or reconsider, the answer provided in the first round; in consideration of such, answers should be in light of the overall analysis from the first round and the answers of other experts.

This round was developed in a slightly different way from the previous one for two main reasons; (1) to find out which of the scenario will lead to maximum benefit for the ports and the government, (2) allow you to reassess your answers in the light of each scenario.

Please, find the summary of the first round of the Delphi survey are listed in this survey and clearly written in **red** to help you with selecting the right answer. You need to read the answers to find the percentage (%) of each response for each choice and then write your answer in the specified place attached. It is important to read the answers to the previous round before beginning answering this round.

Many thanks for your participation thus far; in the event that we need to address another round could you possibly confirm your availability?

Part I. Instructions for answering the second round

(i) Please answer all the questions again (**you may like to reconsider the answer you provided in the first round**)
(ii) Circle the preferred answer (this option is for Questions ONE and THREE)
(iii) Put one of the numbers from the table between the brackets (this option is for Questions TWO, FOUR and FIVE)
(iv) Please feel free to make any comments about any question in the space provided at the end of each question.

Part II. The Survey

QUESTION ONE: **In your opinion, please indicate how appropriate each one of the following scenarios is for Libya's Ports**:

Scenario One: the most preferable scenario

The Responsibilities of Libya's Maritime Transport and Port Authority	The Responsibilities of the Port Authority at the Port Level	Functions Provided Via Concession arrangement BOT
- Provide Port Infrastructure - Planning and Monitoring Performance - Controlling Port Dues and Stevedoring Charges	- Enforcing and implementing safety standards and regulations	- Provide Port Superstructure - Stevedoring and cargo handling - Provide services to vessels

1	2	3	4
Not appropriate at all	**Less appropriate**	**Appropriate**	**Most appropriate**
17.6 % chose this answer	**11.8 % chose this**	**41.2% chose this answer**	**29.4% chose this answer**

Scenario Two: the second most preferable scenario

The Responsibilities of Libya's Maritime Transport and Port Authority	Functions Provided Via Concession arrangement BOT
- Provide Port Infrastructure - Planning and Monitoring Performance - Enforcing and implementing safety standards and regulations	- Provide Port Superstructure - Stevedoring and cargo handling - Provide services to the vessels - Controlling Port Dues and Stevedoring Charges

1	2	3	4
Not appropriate at all	**Less appropriate**	**Appropriate**	**Most appropriate**
0%	**35.3% chose this answer**	**17.6% chose this answer**	**47.1% chose this answer**

Scenario Three: the third preferable scenario

The Responsibilities of Libya's Maritime Transport and Port Authority	Functions Provided by Private Sector alone	Jointly Between Libya's maritime transport, Port Authority and the Private Sector

- Provide Port Infrastructure - Planning and Monitoring Performance - Enforcing and implementing safety standards and regulations - Provide Port Superstructure	- Stevedoring and cargo handling - Provide services to vessels	- Controlling Port Dues and Stevedoring Charges

1	2	3	4
Not appropriate at all	**Less appropriate**	**Appropriate**	**Most appropriate**
17.6% chose this answer	**29.4 % o chose this answer**	**35.3% chose this answer**	**17.6 % chose this answer**

comments

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QUESTION TWO. To what extent do you agree that your preferred scenario will help in achieving the following goals and strategies? (Please put one of the numbers from the following table in each scenario column in each of the eight possibilities).

1	2	3	4
Totally agree	**Agree**	**Disagree**	**Totally disagree**

The Items	**The first round response rate for each items**				**Please put your answer for the second round for each items in each scenario column**		
	Totally agree	**Agree**	**Disagree**	**Totally disagree**	**Scenario 1**	**Scenario 2**	**Scenario3**
Enhancing the overall performance of the ports	**58.8%**	**41.2%**	**--**	**--**			
Enhancing the competitiveness of the ports	**41.2%**	**35.3%**	**23.5%**	**--**			
Improving the general conditions of port labour	**23.5%**	**70.6%**	**5.9%**	**--**			
Decreasing user costs	**5.9%**	**76.5%**	**17.6%**	**--**			

Increasing the container throughput	41.2%	58.8%	--	--			
Increasing the sector contribution to national income	23.5%	70.6%	5.9%	--			
Reducing the financial burden on government in modernising the ports	17.6%	47.1%	35.3%	--			
Converting Benghazi and Elkhoms Ports to become hubs in the Mediterranean region	23.5%	52.9%	11.8%	11.8%			

Comments

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QUESTION THREE. As you can see, the three scenarios consist of the involvement of the private sector or another investor. In your opinion which of the following is the most suitable entity for implementing the preferable scenario effectively and helping to achieve the objectives listed in question two (please select one answer by circling it?)

1	2	3	4
Global Carriers	**Global Port/Terminal Operator**	**Domestic Investor, please specify.....**	**Other, please specify ....**
35.3 % chose this answer	**47.1% chose this answer**	**17.6 % chose this answer**	**0%**

Comments

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QUESTION FOUR. To what extent do you agree that the entity selected in question three should be involved in other services listed below? (Please put one of the numbers from the following table in the each scenario column in each of the seven possibilities).

1	2	3	4
Totally agree	Agree	Disagree	Totally disagree

The Items	The first round response rates for each item				Please put your answer for the second round for each items in each scenario column		
	Totally agree	Agree	Disagree	Totally disagree	Scenario 1	Scenario 2	Scenario 3
Modernising the current superstructure	58.8%	41.2%	--	--			
Installing a new superstructure that help the ports handle containers	58.8%	29.4%	11.8%	--			
Providing training programs for port labourers	52.9%	47.1%	--	--			
Computerising the ports	52.9%	47.1%	--	--			
Providing Inland transportation Services	11.8%	58.8%	29.4%	--			
Controlling container storage areas	41.2%	52.9%	5.9%	--			
Increasing working hours at the ports	41.2%	47.1%	11.8%	--			

QUESTION FIVE. As indicated by most of you, the important factors that will help with the successful implementation of the most appropriate scenario are listed below in red. To what extent do you agree that these factors are important for the successful implementation of what you feel to be the most suitable scenario for the Libyan case? Please put one of the numbers from the following table between the brackets for each of the factors.

1	2	3	4
Totally agree	Agree	Disagree	Totally

			disagree

6- Establishing a legislative framework which should cover the following areas:
   (i) Allows the involvement of different entities in the ports' operational tasks ( )
   (ii) Makes the terms and conditions of such involvement clear ( )
   (iii) Secures the freedom of price and charge setting ( )
   (iv) Governs the workforce in a way that copes with such changes ( )
7- Setting clear and documented policies for the port sector, the policies should be considered within the country's economic' policies which should clearly identify:
   (i) The strategic objectives of the country in respect of the country's ports ( )
   (ii) The function of each port (e.g. hub, gateway or local) ( )
   (iii) The role of the government and the private sector ( )
8- Transparency in the bidding process and that equal opportunities should be available to all ( )
9- Coordination and cooperation between different entities involved in the ports (e.g. customs, port authority and operators). ( )
10- The financial system and bank services need to be further improved to manage such policies and facilitate loans for newcomers ( )
11- For the purposes of the BOT arrangement the port infrastructure should be rehabilitated and developed to facilitate the bidding process ( )

Comments

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THANK YOU VERY MUCH FOR YOUR TIME AND YOUR VALUABLE CONTRIBUTION TO THE RESEARCH