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Enhancing Civil Military Integration for Strategic Sealift

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**RESEARCH
DEGREES
WITH
PLYMOUTH
UNIVERSITY**

**ENHANCING CIVIL MILITARY
INTEGRATION
FOR STRATEGIC SEALIFT**

by

GEORGE DIMITRI PATERAS

A thesis submitted to Plymouth University
in fulfillment for the degree of

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AUTHOR'S DECLARATION

At no time during the registration for the degree of Doctor of Philosophy has the author applied or been considered for any other University award without prior agreement of the Graduate Sub-Committee.

Work submitted for this research degree at the Plymouth University has not formed part of any other degree either at Plymouth University or at another establishment.

Relevant scientific seminars and conferences were regularly attended at which work was often presented; external institutions were visited for consultation purposes and several papers prepared for publication.

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ABSTRACT

Our political and military leaders consider the efficient deployment and maintenance of personnel and hardware to be of equal importance to the task of planning the military operation.

However, inasmuch as today's military budgets are under great financial strain the military needs to rely on the civilian merchant navy for the provision of additional sealift capability. NATO acknowledges that member countries' ability to meet the politically desired levels of strategic sealift could be inadequate. Without a basic knowledge of the workings of the merchant navy, the military transportation desk officer cannot make an informed decision concerning the sealift capabilities required for strategic defence, humanitarian aid or refugee evacuation.

This thesis reviews the range of militarily suitable commercial shipping and the different processes for chartering appropriate vessels while also considering the present state of civil/military synergies within NATO. It also examines the different types of insurance, including hull & machinery, third-party liability and commercial war-risks insurance and presents an overview of the problem of piracy. Its objective is to provide an introduction to the complex operational workings of the merchant navy for the military transportation officer.

It is hoped that such knowledge could improve the sealift project not only in terms of operational effectiveness but also through increasing financial efficiency over a broad range of military and civil emergency maritime transportation services.

Finally, two case studies are examined to demonstrate that there exists a plethora of solutions to the indicated challenges. A suggested handbook and flowchart are presented to assist in the implementation of this study's conclusions concerning the enhancement of acquired strategic sealift assets for defence, humanitarian aid or refugee evacuation.

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LIST OF ABBREVIATIONS

ACT	Allied Command Transformation
AHTS	Anchor Handling Tug Supply Vessel
AIS	Automatic Identification System
AMSCC	Athens Multinational Sealift Coordination Centre
AP	Additional Premium
BAM	Bab El Mandeb
Bbl	Barrels
B/C	Bulk Carrier
BMP	Best Management Practice
BST	British Standard Time
CAPC	Civil Aviation Planning Committee
CBRN	Chemical, Biological, Radiological or Nuclear
CDR	Commanders Required Date
CFSP	Common Foreign Security Policy
CIMIC	Civil Military Cooperation
COMPASS	Comprehensive Approach Specialist Support
CPA	Concerted Planning and Action
CSDP	Common Security Defence Policy
CTL	Constructive Total Loss
DCI	Defence Capabilities Initiative
DM	Deployment & Mobility
DoD	Department of Defence
DoT	Department of Transport
DR	Democratic Republic
EAPC	Euro-Atlantic Partnership Council
EC	European Commission
EDA	European Defence Agency
ESDP	European Security & Defence Policy
EU	European Union
EUNAVFOR	European Union Naval Force
FEU	Forty Foot Equivalent Unit
Flo/Flo	Float on Float off
GLR	General Liberty Replacement
GoA	Gulf of Aden
GP	Global Partners
GPS	Global Positioning System
GT	Gross Tonne
H&M	Hull & Machinery
HQ	Head Quarters
HRA	High Risk Area
HWR	Hellenic War Risks
ICI	Istanbul Cooperation Initiative
ICS	International Chamber of Shipping
IMB	International Maritime Bureau
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
INS	Immigration & Naturalization Service
IRTC	Internationally Recognized Transit Corridor
ISM	International Safely Management

JFC	Joint Force Commanders
JOA	Joint Operational Area
LNG	Liquid Natural Gas
LOC	Lines of Communication
LOI	Letter of Intent
LPG	Liquid Petroleum Gas
M3	Cubic Meter
MARPOL	Marine Pollution
MCC Europe	Maritime Coordination Centre Europe
MD	Mediterranean Dialogue
MMP	Multi-Purpose Ship
MOT	Ministry of Transport
MOU	Memorandum of Understanding
MSA	Marine Safety Advisory
MSC	Military Sealift Command
MT	Metric Tonne
M&TG	Movement & Transportation Group
NAMSA	NATO Maintenance & Supply Agency
NATO	North Atlantic Treaty Organization
NCAGS	Naval Cooperation & Guidance for Shipping
NC3A	NATO Consultation Command & Control Agency
NGO	Non-Governmental Organization
NITC	National Iranian Tanker Company
NYPE	New York Produce Exchange
OFAC	Office of Foreign Asset Control
OPC	Operations Planning Committee
PAG	Pirate Action Group
PAL	Passengers & Luggage
PASG	Private Armed Security Guards
PBIST	Planning Board of Inland Surface Transport
PBOS	Planning Board of Ocean Shipping
PCTC	Pure Car & Truck Carrier
P&I	Protection & Indemnity
RAP	Rapid Reaction Plan
RFA	Royal Fleet Auxiliary
RN	Royal Navy
RO/PAX	Roll on Roll off Passenger
RO/RO	Roll on Roll off Ship
RPG	Rocket Propelled Grenade
RSOM	Reception Staging & Onward Movement
R.TEU	Refrigerated Twenty Foot Equivalent Unit
SAT-COM	Satellite Communications
SCC Eindhoven	Sealift Coordination Centre Eindhoven
SCEPC	Senior Civil Emergency Planning Committee
SD14	Standard Design 14
SDN	Specially Designated Nationals
SDR	Special Drawing Rights
SMTD	State Maritime Transport Directorate
SNLC	Senior NATO Logistics Committee
SOLAS	Safety of Life at Sea
SPOD	Sea Port of Discharge

SPOE	Sea Port of Embarkation
STOPIA	Small Tanker Oil Pollution Indemnification Agreement
STUFT	Ships Taken out of Trade
SUV	Sports Utility Vehicle
TA	Technical Arrangements
TEU	Twenty Foot Equivalent Unit
TFG	Transitioned Federal Government
TG(OS)	Transport Group (Ocean Shipping)
TOPIA	Tanker Oil Pollution Indemnification Agreement
UK FO	United Kingdom Foreign Office
UN	United Nations
UNCTAD	United Nation Conference on Trade & Development
USN	United States Navy
VHF	Very High Frequency
VISA	Voluntary Intermodal Sealift Agreement
VLCC	Very Large Crude Carrier
WWII	World War II

CHAPTER 1

INTRODUCTION

1.0 Introduction

The fundamental structure of this thesis focuses on two main areas, namely the civil merchant navy and the military sealift capabilities. It researches the potential for the seamless integration of these two sealift capabilities for defence, humanitarian aid and refugee evacuation. There has been significant research carried out by the NATO strategic review in 2000 on the subject of sealift capability: The DM 5 review (LMI, 2001) demonstrated that the NATO Alliance has a strategic sealift shortfall which, given the world-wide cutbacks in military budgets, is expected to become more acute with time and may come to jeopardise the integrity of the collective defence of NATO allied nations.

The literature review demonstrates that there are a limited number of specialised studies that analyse the problem and propose solutions for the integration and use of civil/military synergies. Two such studies are the following:

- *Joint Strategy and Strategic Sealift for the next century*. This study looked at the commercial sealift available in 1998 for use in supporting the US Department of Defense, analysing the availability of the 1996 MSA passed by Congress and the VISA subsidy project managed by the DOT (Ernest and Bobby, 1998).
- *Strategic Sealift for Desert Shield not a Blueprint for the Future*. This study

examines the Strategic Mobility Policy of the US Department of Defense in the 1980's and suggests that the Strategic Mobility Policy should be modified by reducing the National Defense Reserve Fleet and revitalising the merchant marine industry (Bright and Hale, 1991).

Although both these papers refer to strategic sealift, neither addresses the primary and secondary topics of this thesis. Therefore, it is necessary to expand the literature review to incorporate key concepts that are directly and indirectly related to the topic at hand as well as new elements that form an integral part of the primary and secondary issues addressed in this thesis and whose interpretation will affect the answers to the questions under investigation.

Dictionary definitions provide a useful way of understanding the meanings of terms and concepts but they must be set in the appropriate context in order to demonstrate how they should be interpreted.

- **Cooperation**: *'The act of working together with someone or doing what they say'* (Cambridge Dictionary Online, 2015). The main idea of this thesis pertains to two totally independent forces, the merchant navy and the military navy, cooperating for mutual benefit. These are two bodies with fundamentally differing credos and *modi operandi*: one is rooted in a 'for profit' philosophy and the other considers cost to be a fairly minor consideration. The notion of working together transcends commercially-minded contracted operations and involves the military philosophy of: Follow orders, there are lives at risk! This kind of cooperation is therefore quite relevant to the proposed integration, inasmuch as the military needs to maintain command and control over all operations of a military nature whether it be defence or joint civil/military ventures sponsored by a nation.

- **Strategic**: *‘Helping to achieve a plan, for example in business or politics or used to provide military forces with an advantage’ (Cambridge Dictionary Online, 2015).* Within military transportation constraints, ‘strategic’ refers to any movement relating to the reception, staging and onward movement facility as opposed to ‘in theatre of operations’ movements. Therefore, strategic sealift can be performed by civilian assets as they are not directed into areas of direct conflict which would violate the insurance and employment conditions of the merchant navy.
- **Commercial**: (When used as an adjective) *‘A commercial product can be bought by or is intended to be bought by the general public’ (Cambridge Dictionary Online, 2015).* This stands in sharp contrast to the military’s conception according to which nothing is for sale and the cost is of low importance.
- **Shipping**: *‘The act of sending goods from one place to another, especially by ship’ (Cambridge Dictionary Online, 2015).*
- **Market**: *‘The people who might want to buy something or a part of the world where something is sold, [in our case, transport services]. In other words, a business or trade in a particular product including financial services. (Cambridge Dictionary Online, 2015).*
- **Ship**: The physical explanation to be expanded in later chapters but briefly: *‘A large boat for travelling on water, especially across the sea’ (Cambridge Dictionary Online, 2015).* Fully integrated transportation involves multi-modal combined forms of transportation such as the services offered by modern freight forwarders such as DHL and TNT; this thesis, however, concentrates only on that aspect of sealift which involves different forms of vessels (to be described in Chapter Two).
- **Merchant Ship**: *‘A ship used for trading rather than for military purpose’ (Cambridge Dictionary Online, 2015).* The merchant navy is made up of many different types of vessels, some of which are general cargo carriers and others that

are purpose-built for specific trades and cargoes such as livestock carriers and LNG gas carriers (both of these are irrelevant to the military; however, the type-specific of military-friendly vessels considered in this thesis are described in detail in Chapter Two).

- **Synergies**: *‘The combined power of a group of things when they are working together that is greater than the total power achieved by each working separately’* (Cambridge Dictionary Online, 2015). It could be therefore suggested that civil/military synergies or cooperation are not restricted to NATO, given that the concept is under constant review within the EU especially after the Lisbon Treaty (NATO, 2014e). The EU focuses on key issues and developments in the Union’s comprehensive crisis management planning, civil/military coordination and cooperation. In the period following the Lisbon Treaty the EU reviewed key changes in its external action capabilities, particularly the area of Common Foreign and Security Policy (CFSP) and Common Security and Defence Policy (CSDP). Furthermore, it looked into the impact of the European External Action Service on CSDP–CFSP cooperative planning and on the EU’s crisis management. The EU has assessed the civil–military coordination in its crisis management structures in order to contextualise the most recent transformations within the EU that demonstrate the basic concepts and terms and the evolution of civil–military coordination at the EU level (Hynek, 2011).

- **Civil/Military Cooperation**: It is useful to start with a civilian definition of civil/military cooperation as this will lead to a deeper understanding of the concept itself and the consequences (both advantages and disadvantages) from the integration of military and civilian operations to the extent that national and international legislation and common sense make possible. A plethora of definitions exist; one such definition is *‘Cooperation in peace or war between civil and*

military authorities, both NATO and national, with a view to ensuring an effective overall defence of the NATO area' (Free Dictionary, 2015).

The purpose of civil/military cooperation is primarily to enhance the safety of the area in question, but it can be expanded to include humanitarian aid and refugee evacuation both of which can benefit greatly from the integration and joint assistance of civilian and military entities. For example, the European Defence Agency suggests that military and civilian means both must be used in EU's crisis management operations as well as for ensuring the security of EU citizens. Often military and civilian capabilities overlap (European Defence Agency, 2011).

NATO has dedicated personnel for civil/military cooperation, known by the acronym CIMIC. It is recognised that close cooperation between civilian and military bodies can increase the chances for operational success (NATO, 2011a). By the use of dedicated CIMIC personnel one can obtain the appropriate expertise to bridge the gap between the different civilian and military bodies in a crisis situation. It is important that the civil/military cooperation continues post-conflict or post-crisis in order to rebuild the social fabric and normalise conditions amongst the population. The military alone cannot normalise civilian living conditions in peacetime or even after the stabilisation of a crisis is achieved without the assistance of civilian bodies (Franke, 2006). There are many ways in which cooperation can benefit a crisis situation and it is necessary for the operational commander to recognise the synergies between the military and civilian groups, but further to make use of, and benefit from these synergies (Serronha, 2011).

On the other hand, the military have their own definition as described in the NATO CIMIC doctrine:

The co-ordination and cooperation, in support of the mission, between the NATO Commander and civilian actors, including national population and local authorities, as well as international, national and non-governmental organisations and agencies (NATO, 2003d, p. 1-1).

The above definition must be qualified by no less than four additional considerations (NATO, 2003d):

1. The Joint Force Commanders' (JFC) plans form an integral part of CIMIC activities in support of the mission and overall strategy in order to achieve a stable and sustainable end-state.
2. CIMIC staff must be integrated within the Joint Commanders' Headquarters and be authorised to coordinate CIMIC activities in the Joint Operational Area (JOA) theatre or region.
3. The NATO forces should co-operate with a multitude of civilian bodies, and accommodate and support the civilian activities provided this does not compromise the mission.
4. One of the essential activities of CIMIC personnel is the transfer of military function to the appropriate civilian authorities.

Politicians have long debated the most effective, efficient and sustainable method of managing crisis situations. This debate focuses on when, where and how the military should be integrated with civilian entities within the overall political strategy (Kasselmann, 2012). Despite the political debate, there are two distinct perspectives: from the military standpoint, the focus is generally on determining the appropriate tactical approach, though from the civilian viewpoint, the resolution of any crisis situation should be achieved through civilian tools.

During the Italian presidency of the EU in 2013, the EU Civil Military Coordination focused on the establishment and role of the EU Civilian Military Cell (CivMil Cell). This is a subject of great interest in Europe, as well as within NATO, and deals with the obstacles to the creation of such an EU CivMil Cell in the current security-conscious European environment. As Khol (2008) argues, the CivMil Cell is entrusted with strategic contingency planning and with bringing together the views of EU actors from different member states, but also from both sectors (civil and military). In terms of crisis response, strategic planning by the CivMil Cell would enhance political-military strategic planning promoting civilian/military interface and possible civilian or military support (Shepherd, 2016).

Following the French-British Summit held at St. Malo in 1998, the newly developed European Security and Defence Policy (ESDP) came under review and remained a topic of discussion amongst EU leaders. This was further enhanced following the ‘Chocolate Summit’ in 2003, which created the ‘Tervuren Initiative’ (France, Germany, Belgium and Luxembourg) calling for an autonomous ESDP capability with an emphasis on civil/military cooperation (Grant, 2003). The EU CivMil Cell is designed to be flexible and thus suitable for handling a broad range of civilian and military challenges such as the preparation and deployment of the EUSEC RD CONGO (Vines, 2010), the Aceh Monitoring Mission (European Council, 2006) and the EUBAM Rafah (Kaya, 2012). Regrettably, the EU CivMil Cell will probably never be able to achieve its full potential due to political controversy between NATO and EU members.

On the other hand, civil/military cooperation is not just limited to crisis situations and political unrest; there are cases where the military must work jointly with or provide assistance to law enforcement agencies. A prime example of this is the US military

assistance to border law enforcement (Turbiville and Graham, 1999). In 1999, the US Border Patrol celebrated its seventy-fifth anniversary; however, the roles and duties of this distinguished federal enforcement organisation have changed dramatically since its formation. Its mission is no longer just the patrolling of the two thousand mile US/Mexican Border; it currently comprises twenty-two sectors and is responsible for the prevention of smuggling and unlawful entry of undocumented aliens into the USA, the apprehension of immigration law violators and the interdiction of drugs and contraband in US ports. However, this is not a stand-alone organisation inasmuch as it often acts as part of a joint task force with other federal agencies and organisations, the most controversial of which is the US Military. The involvement of the US Military as a augmentees of the US Border patrol sparked protest throughout the 1990s with charges that the border was being militarised and reaching a climax in 1997 with the death of Esequiel Hernandez at the hands of a US Marine near Redford, Texas. An interesting development was the US House of Representatives' amendment to the National Defense Authorization Act in 2000 that altered Title 10 rules governing military support to law enforcement. The amendment allowed the Secretary of Defense, together with the Attorney General and the Secretary of the Treasury, to 'assign' members of the armed forces to assist the Immigration and Naturalization Services (INS) and the US Customs Service with border protection, and explicitly extended the military support beyond drug control to include anti-terrorist activities (Turbiville and Graham, 1999).

This is just another example of how cooperation between the military and civilian agencies can enhance and control security.

However, debate over the form of crisis management within the EU and NATO is here to stay and this will remain a topic of discussion and negotiation especially after the

Lisbon Treaty (Hynek, 2011). It is not only NATO that is contextualising basic concepts and terms in order to outline the evolution of civil/military coordination, but also the EU which views this as the only way for the protection of the Union.

One of the major tools utilised by NATO is the Naval Cooperation and Guidance for Shipping (NCAGS), the revised policy document approved by the NATO Military Committee (NATO, 2015a), which was created to establish the policy of conducting NCAGS operations across the full range of maritime requirements in support of military operations involving merchant shipping. The purpose of this policy is to assist NATO or individual nations involved in a military operation to optimise the cooperation between military and merchant shipping and minimise the disruption to military activities. NCAGS operations are applicable both in peacetime and in time of conflict including civil emergencies which require an integrated Combined Joint HQ command. The NCAGS command structure is very flexible and inevitably has positive effects in maintaining maritime security as noted by NCAGS itself (NATO, 2015a).

Benefits for civilian shipping

1. Enhanced safety and security
2. Reduced delays when transiting through areas of military operations
3. Continued operation of commercial maritime transport system
4. Improved threat response
5. Enhanced understanding of military constraints
6. Potential for reduced war-risks premium

Benefits for military commanders

1. A more comprehensive picture of merchant shipping activity, movements and positions (MSA)
2. Reduced interference between commercial shipping and military operations (deconfliction)
3. Enhanced safety and security
4. Improved effectiveness of military operations
5. Enhanced understanding of commercial shipping constraints
6. Improved counter-terrorism capability

It must be recognised that NCAGS is used in an advisory manner only, and the information it disseminates is not an order or command (NATO, 2015a).

As mentioned earlier in this section, the cooperation between civilians and the military is not intrinsically natural and there are many hurdles and obstacles to be overcome (which, however, are beyond the scope of this thesis). Nonetheless, these need to be recognised and addressed in order to fully exploit potential benefits. Leaders of both civilians and the military are often conflicted as can be seen in several sources; to quote but one ‘...*the imperative need for military and civilian actors to adapt both culture and structure if mission success for all is to be achieved*’ (Bollen, 2008, p. XV). The authors argue that man-made and natural disasters are so complex in nature that they cannot be handled by a single-minded force regardless of funding and that most civil emergencies will have a military component requiring the participation of several agencies and institutions. This poses the question: *Why not secure the commitment of all players to the terms of cooperation before the disaster or civil emergency requirement arises?* In order to lay the foundation of such an agreement for integrated cooperation between the

civilian and military sealift agencies, it is necessary to fully understand the mind set and operational methodology of each so that the civil/military synergy can yield maximum benefits.

The International Red Cross recognises that in recent years, more and more civilian ‘peace keeping’ and humanitarian aid operations are being carried out by the military; to put it succinctly, there is ‘militarisation of humanitarian action’. On the one hand, this could be attributed to the efficiency of the military and the fact that no additional funding is required; on the other hand, it is true that since the end of the Cold War and the removal of the perceived threat from the East, the military have been searching for a purpose beyond defence. This trend, according to Rana (2004), was often opposed by NGOs and humanitarian aid agencies fearing lack of neutrality given the history of military involvement even in peacekeeping missions. The author goes on to examine the role of the military within humanitarian aid agencies and the effects of civilians embedded into the military on civilian operations; although both topics are beyond the scope of this thesis, the above goes to show that the world is changing and that the concept of civil/military synergies and cooperation is becoming a reality as opposed to just an idea.

The European Commission, DG Enterprise and a consortium led by ECORYS Nederland B.V. commissioned an investigation in the context of the Framework Contract on Security, ENTR/09/050, which produced the *Study on Civil-Military Synergies in the Field of Security* (ECORYS, 2012). This considered indirect benefits derived from civil/military synergies such as, for example, the anticipated transfer of technological knowledge that would otherwise be lost or never experienced. Additionally, the study looked at economic models relevant to either civilian or military

operations which could be performed to mutual benefit and finally suggested other areas where civil/military synergies could be exploited to strengthen the community.

It is becoming apparent that cooperation between a civilian agency and the military has the potential for providing advantages not only in terms of efficiency but also financially and even in the area of humanitarian aid as suggested in an ECORYS report (2012) prepared for the European Commission; furthermore, developments in the security environment are leading to increased overlap between the military and civil security domains and a blurred distinction between the two. In this context, there is a clear opportunity for developing and exploiting synergies between the military and civil security domains, and to forcefully promote convergence between the two sectors.

Therefore, there is a serious demand for all forms of cooperation between the civilian/commercial sector and the military wherever money is not the prime consideration and the objective is of paramount importance. Combining these two distinct ideologies in maritime transportation is the foundation and central issue of this thesis: *How can a military transportation desk officer integrate the commercial shipping market assets and services into strategic sealift, in a practical and cost effective manner for strategic deployment, re-deployment, sustainment, humanitarian aid and refugee evacuation?*

1.1 Research Objective and Aims

That strategic sealift is an integral part of any military or humanitarian operation is an undisputed fact, whether it is for purposes of defence, humanitarian aid/relief or refugee evacuation.

Military leaders and planners have always considered the planning of deployment and

sustainment of personnel and hardware of equal importance to that of planning the military operation proper. The Naval Supply Systems have collected various leaders' views:

Because of my wartime experience, I am insistent on the point that logistics know-how must be maintained, that logistics is second to nothing in importance in warfare, that logistic training must be widespread and thorough, and that it is folly to waste time on mediocre talent

Vice Admiral Robert B. Carney, USN (Carney, 2005, p. 1).

Logistic considerations belong not only in the highest echelons of military planning during the process of preparation for war and for specific wartime operations, but may well become the controlling element with relation to timing and successful operation

Vice Admiral Oscar C. Badger, USN (Badger, 2005, p. 1).

During the last war, eighty percent of our problems were of a logistical nature

Field Marshall Montgomery (Montgomery, 2005, p. 2).

Historically, mass movement by air has assisted successfully in humanitarian aid in places with limited or no access to shipping. For example, at the end of the Second World War, U.S., British, and Soviet military forces divided and occupied Germany. Also divided into occupation zones, Berlin was located far inside Soviet-controlled eastern Germany. The United States, United Kingdom, and France controlled the western part of the city, while Soviet troops controlled the eastern sector. As the wartime alliance between the Western Allies and the Soviet Union ended and friendly relations turned hostile, the question of whether the western occupation zones in Berlin would remain under Western Allied control or whether the city would be absorbed into Soviet-controlled eastern Germany led to the first Berlin crisis of the Cold War. The crisis started on June 24, 1948, when Soviet forces blockaded rail, road, and water

access to allied-controlled areas of Berlin. The United States and United Kingdom responded by airlifting food and fuel to Berlin from allied airbases in western Germany. The crisis ended on 12 May 1949, when Soviet forces lifted the blockade on land access to western Berlin (*The Guardian*, 2015).

However, large, heavy objects and machinery for defence, mass movement of humanitarian aid and the mass evacuation of displaced populations can only be successfully and safely moved by sea. Any other methods of transportation, it is argued, namely airlift, train or road transportation, are not only disproportionately more expensive but constrained by the limitations of aircraft and the domestic infrastructure of participating nations. Aircraft are ‘weight limited’ when transporting heavy objects and ‘volume limited’ when transporting light objects. Trains are constrained by the direction of their tracks and a plethora of different rail gauges throughout the world, and road trucks are simply limited by traffic and cumbersome regulatory restrictions, not to mention the torment of border crossings that every traveller, tourist or businessman has experienced. Therefore, the slow moving ship essentially provides the fastest mass transportation method, tonne-mile for tonne-mile, given current technology (McCann, 2006).

Today’s military and civil budgets are shrinking at previously unheard-of rates in a number of countries (e.g., USA and Russia, both though for different reasons – see figure below - although this may not be the case globally), and as yet there is no end to the size of reductions that can be expected over the next few years. This, coupled with ever-increasing costs and the necessity to take advantage of civil/military synergies, raises concern about getting the desired results without compromising the military’s command and control of any strategic sealift operation be it military, humanitarian or

refugee evacuation.

Money may be in short supply but conflicts and natural disasters are not affected by any of the austerity measures taken in light of the world's financial woes.

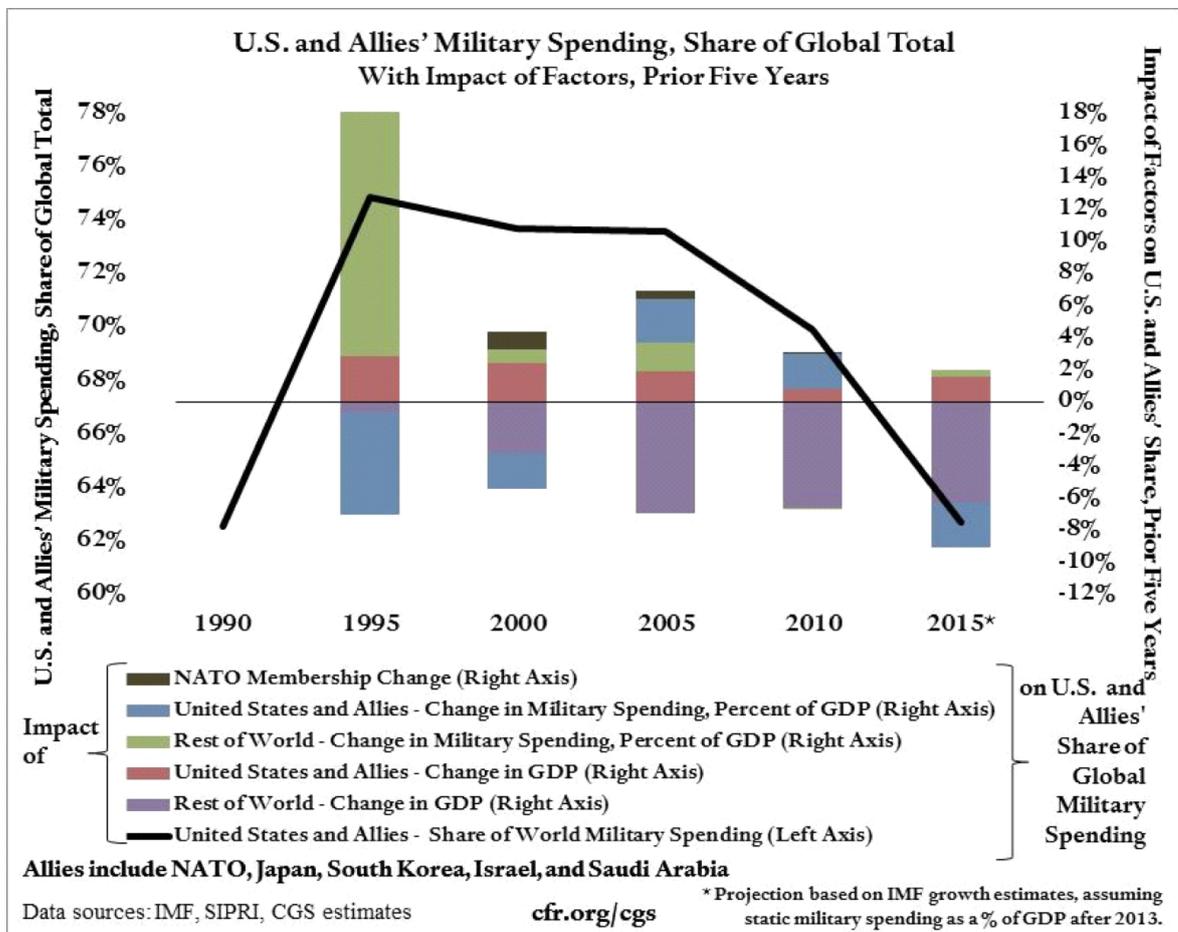


Table 1: Trends in US Military Spending, Walker (2014, p.4).

There are many physical, economic and natural constraints in strategic sealift that the military is either unwilling or unable to overcome. However, necessity being the mother of invention, the merchant navy has, for commercial reasons, found practical solutions to these problems. The question arises as to why nations should pay for modernising their costly grey hull sealift fleet when the merchant navy has had to annually undergo this modernisation in order to remain competitive? All the up-upgrades and modernisation of the commercial fleet come at no cost to the nations who choose to make use of this

modern commercial fleet.

An unnamed source in the commercial shipping market suggests that *'A ship is out of date as soon as she glides down the slip-way'*. Why should nations bear the financial burden of depreciation and problems of reduction in operability while the nationally owned grey hull sealift fleet ages and attains obsolete status?

In order to create the foundations for integrated civilian/military cooperation it is firstly necessary for the military, the ultimate 'end-user' of the service, to have a solid understanding of all aspects and advantages of the commercial shipping market and some appreciation of the potential benefits of these civil/military synergies.

Therefore, this thesis will introduce to the reader all the essential commercial elements that make up the merchant shipping market; its ultimate goal is to create a user-friendly tool for the military transportation desk officer and to assist in the appropriate utilisation of commercial sealift assets from the market for strategic and humanitarian sealift transportation.

With this in mind, the ultimate purpose of this study is to assist nations and the military with integrating the immense capacity, versatility and know-how of the commercial Merchant Navy with nationally owned sealift assets. The aim is not only to enhance the cost efficiency of strategic sealift in today's financially strained environment, but also to achieve modes of sealift that would not be possible through the use of current military sealift assets alone.

To recapitulate, the main aim of this study is to answer the question: How can a military

movement and transportation desk officer integrate the commercial shipping market assets and services into strategic sealift, in a practical and cost effective manner for strategic deployment, sustainment, re-deployment, and humanitarian aid?

In an attempt to investigate the above question, the researcher will pursue the following study objectives:

- i. To identify the issues at hand
- ii. To develop a theoretical framework that allows military sealift personnel to efficiently and cost-effectively procure shipping assets
- iii. To validate the theoretical framework, assessing its functional competence and
- iv. To evaluate the outcomes, process and theoretical framework

1.2 Research Design

To meet the indicated objectives this study will pursue an empirical investigation of the role of strategic sealift as an integral part of any military or humanitarian operation. Empirical research focuses on controlled observation and is the dominant element in a number of social and business research (Saunders, Lewis and Thornhill, 2009; Kumar, 2011). The majority of the studies in the field (NATO Reports, European Policy Papers but also a number of relevant studies such as: Schank, Mattock, Summer, Grenberg, Rothenberg and Stucker, 1991; Yang, Rodin and Amin, 1996; McKinzie and Barnes, 2004; Weber, 2006; Schoff and Travayiakis, 2007) have employed a phenomenological approach as part of their methodology (via participant observation, workshops and interviews). This study also employs a similar methodology which combines a number of research approaches. In the initial stage, data were collected based on personal observation and participation in a number of meetings and committees along with historical facts. The next stage involves the design of a theoretical framework, the

development of two relevant case studies and finally the testing, via interviews, of the proposed theoretical framework.

1.3 Study Limitations

There are a number of limitations given the nature of this study. Firstly, there is limited research in the field of civil/military integration for strategic sealift. Therefore, there is a lack of reliable data in previous studies which constitutes a significant obstacle to documenting trends and relationships. Another difficulty relates to the restricted access to confidential data available from NATO and government officials. In addition, small sample size hinders the interpretation of results and makes generalisations more difficult.

1.4 Sources of Information

A number of NATO reports and papers were utilised to access historical facts and information. Useful and valuable data were also obtained through personal participation in numerous maritime adventures, commercial ventures, seminars, lectures, working groups and committees. This included involvement in organisations such as NATO, HWR and others.

1.5 Outline of the Thesis

Chapter Two gives a detailed description of the commercial shipping market and appropriate insurance cover. Chapter Three describes the theoretical background and literature review of potential civil and military integration for strategic sealift. Chapter Four highlights the different research methodologies and the proposed research design. Chapter Five introduces the model of integrating commercial shipping market assets and services into strategic sealifts. Later in the chapter, two case studies are presented.

The findings are examined to contribute to knowledge in the field of civil/military integration for strategic sealift. Finally, in Chapter Six certain limitations of this study are discussed along with recommendation for further research and general conclusions.

CHAPTER 2

Merchant Shipping Assets Literature Review

2.1 Introduction into the Commercial Shipping Market

This chapter introduces the complexities of the commercial shipping market in basic terms reviewing the realm of the commercial shipping market and the ways in which it can assist or augment a military strategic sealift operation or a humanitarian aid operation. Without some knowledge of the economics and the terminology of this market, it would not be possible to take advantage of the civil/military synergies or the far-reaching capabilities and know-how of the commercial shipping market.

2.2 Trading Methods

In simple terms the commercial shipping market can be divided into two sections:

- The liner vessel
- The tramp vessel

These are common terms of the trade as suggested by the World Shipping Council (2015):

The Liner Vessel

The liner vessel trades on a fixed schedule, loading and discharging at pre-designated

ports. This creates the opportunity to advertise and offer a repetitive service with a known timetable and transportation cost. The cost may vary due to seasonal factors or fluctuations in the cost of fuel. Additionally, changes can occur in the port scheduling due to congestion, port closure, bad weather or acts of God. Any type of vessel can be employed on a liner run.

An example of this is the tanker shuttle service in the Persian Gulf (IMO, 2004b). Chapter 1, Regulation 2 (h) describes where Very Large Crude Oil Carriers (VLCC) load at Kharg Island and discharge at Sirri Island. This is a continuous ‘production line’ service, where ships follow a prescribed schedule to ensure the continuous flow of crude oil for international trade out of Sirri Island. From there other tankers, known as ‘tramp ships’ (see below) are individually chartered to carry the cargo all over the world. They may actually be identical to the shuttle tankers though they differ in the way they are commercially operated.

Another example of a liner service is a container ship (IMO, 2004b) calling on fixed dates at various ports around the world, in or out of geographical rotation, loading and discharging as mentioned in chapter one, regulation 2(g). These liner services are very popular today and their schedules can be easily found on the internet. These container vessels are usually referred to as mother ships and they load and discharge most of their cargo at ‘Hub Ports’ as analysed in the NATO Hub and Spoke concept analysis which will be discussed below (NATO, 2004b). From there, tramp container vessels, or feeder vessels, are chartered to collect and deliver cargo to smaller ports, or spokes, in the vicinity. In general terms, the mother ships are considerably larger than the feeder-vessels up to an order of magnitude of ten.

Bulk liner services also exist: for example, a power station, knowing its monthly coal consumption requirements, can charter a bulk carrier to deliver coal on a regular basis. The power station company has a regular, known, minimum requirement of coal on a monthly or annual basis. For obvious economic and operational reasons, the power station company procures the transportation of coal on a liner service basis. This guarantees a regular supply of coal and thus an economical and uninterrupted supply of energy to their customers. In the event of seasonal fluctuations when additional power is required, say, in the winter and summer months with the increased use of heaters and air conditioning units respectively, the power station will go into the spot commodities market and purchase additional coal and then to the spot shipping market and charter a tramp vessel to meet the additional demand. This is a convenient and economically sensible way of covering seasonal fluctuations in supply, without having to use stockpiles, which are expensive and, in the case of coal, can pose a fire hazard.

The Tramp vessel

Using the examples as above to describe the tramp vessel:

In the case of a shuttle tanker (e.g. from Kharg Island to Sirri Island) it may be that sometimes she is in dry dock for scheduled survey work or damage repair or otherwise not readily available for her prescribed trade; nonetheless, the transport of oil must continue. So, the oil shipper and/or trader will go to the open spot tanker market and charter a tramp ship, a tanker of very similar size and specification, to do a voyage or two, until the shuttle ship is back on line. This vessel is known in the market as a tramp vessel.

The same example applies to container ships (IMO, 2004b), specified in chapter one,

regulation 2(g), or even to RO/ROs (“Roll on/Roll off” vessels predominantly used for rolling stock) on a liner service, in that they can be replaced or the service augmented during high season by chartering a tramp vessel that happens to be uncharted, provided it is of similar size and specification, and suitably positioned, in order to avoid a large ballast voyage cost (the voyage without cargo using ballast water for stability).

In the case of the bulk carrier (IMO, 2004b) as discussed earlier, the power station will have a regular coal delivery for its nominal power requirements. In the event of an increase in demand, (i.e. caused by seasonal increases in electrical power requirements), a tramp vessel can be picked off the market to transport and supply the additional coal required.

This concept applies to almost all commodities, and the tramp vessel can be used to supplement the buffer shipping tonnage available as required.

One notable and final example of the shipper combining liner and tramp vessels in a single commercial venture is that of the oil majors. For the most part, large oil companies own their own tankers, or at least they are despondent owners (Packard, 1980; ICS, 2015) through long term period charters (to be discussed later). With this set-up they satisfy their standard supply requirements. Then, when more oil is required, (which may result from a seasonal increase in demand or general economic growth by an oil-consuming nation or even the closure of nuclear power stations), the oil companies can charter the services of tramp vessels to cover the sudden, and probably temporary, increase in the demand for oil. If the increase in demand tapers off, then they simply redeliver the tramp vessel by terminating the charter and retain the owned, or long period chartered, vessels, thus avoiding the expense of owning vessels that will be

seasonally idle (OECD, 2015).

Therefore, any customer (e.g. an emigrating family, a power station, a grain house, a rice trader or even the military) has several options vessel-wise and a wide range of contracts that they could use to satisfy their marine transportation needs. To the ship owner and ship operator (IMO, 2004b) any customer is just like any other customer provided they make payment on time and the cargo is legal and unsanctioned.

2.2.1 Changes in the Commercial Shipping Market

Over the past fifty years there have been few changes in the commercial shipping market more important than the introduction of the shipping container which revolutionised the transportation of finished products and general cargo.

The major changes identified by a number of studies are:

- Regulatory changes
- The RO/RO
- The container
- The Hub and Spoke concept
- The passenger ferry boat

Regulatory changes

The advent of the double skin tanker did not ostensibly change the oil trade but just made it more expensive, while conveying to the uninformed a false sense of safety against pollution. In fact, the double skin is only protection against very low energy

grounding and raking damage (Marineinsight.com, 2016).

However, the introduction of the International Safety Management Code, ISM (IMO, 2004a) and the auditing of procedures have resulted in the substantial reduction in the number of sub-standard ships sailing the oceans. It has gone a long way in levelling the competitive playing field, where unscrupulous owners created unfair competition by running their vessels with unqualified crews and sub-standard levels of maintenance, cutting corners in every department (IMO, 2004a). As a consequence, with reduced running costs and no substantial standardised international inspection regime, these owners could accept lower freight rates and still increase their profits. The sub-standard ship (not to be confused with old ship; age has nothing to do with the quality of a vessel or the service provided by its operator) is basically a thing of the past and, with the ISM and Port State Control inspections in place (IMO, 2004a), shipping is safer and probably the most environmentally friendly form of transport, tonne mile for tonne mile.

However, this auditing procedure has existed since before the Second World War: Greek flag vessels have, as part of their flag state requirements, a Safety Drill Log Book which is updated on a bi-weekly basis recording the condition of safety equipment such as the emergency fire pump, lifesaving appliances life boats and flares (IMO, 2004a). It also records dates in which safety drills are carried out (e.g. fire drills, abandon ship drills, etc.). These log books are audited by the Greek Consular Harbour Masters in ports all over the world.

The RO/RO

The development of the RO/RO (Roll on/Roll off) vessel made the transportation of

cars and trucks, the so called 'Rolling Stock', much faster and easier; this type of vessel was yet a further development of the ferry boat, which existed in one form or another all over the world from when man first took to the sea (IMO, 2004b). This type of ship has developed greatly over the years. For example, as more people preferred to drive SUVs, the car decks in RO/ROs had to be taller in order to accommodate the new type of car. Finally, the market was divided into two distinct ship types: the Car Carrier RO/RO that can also carry some trucks on its main deck but is mainly designed to carry commuter cars on its upper and lower fixed decks, and the Pure Car and Truck Carrier (PCTC) that has movable car decks and can carry any configuration of rolling stock, cars and trucks. This ship type, the RO/RO, in any of its forms, is the most military-friendly and practically useful vessel for the delivery of humanitarian aid (IMO, 2004b). There are, of course, certain other significant factors as to the suitability of these vessels for military and/or humanitarian purposes such as the speed, draft and configuration and load bearing capacity of the loading ramps.

The container

Before the development of the container, most general cargo (basically everything except bulk cargo, oil and gas) was carried on general cargo vessels, known in shipping terms as the 'Tween Decker' - the workhorses of the merchant navy (IMO, 2004). The configuration of these ships consists of the same basic design as a bulk carrier but with a horizontal second deck about two-thirds of the way up the hold, hence the name Tween Decker. These ships have developed over the years from the old wooden sail powered ships to the 'standard type' three-island ships (with forward, mid and aft accommodation) of the pre-war years to the ultra-modern self-discharging multi-purpose general cargo vessel. These modern ships can carry all sorts of general cargo including containers and rolling stock and, in certain cases, types of bulk cargo. The

greatest development along these lines was the wartime ‘Liberty ship’, which revolutionised shipbuilding and the shipping trade in general (Chambers, 2011).

The drawbacks of these ships were (a) delays in the loading and discharging of general cargo and (b) additional transportation costs to the end user from the port of discharge to the final destination. The cargo was generally in crates which were hard to keep together during shipping and were usually loaded and discharged with cranes or derrick with the lift on/lift off arrangement but this was becoming inefficient as trade requirements grew; therefore, efforts were devoted to developing an alternative solution and the container was developed.

At first, general cargo ships were converted to carry containers in addition to their general cargo, but as the customers began to be comfortable with the use and transportation of containers, products were designed to be containerizable and the specialized container ship was born. Its success meant that it gradually surpassed the general cargo ship in popularity. Nevertheless, several hundreds of these modern multi-purpose ships still exist and trade very successfully. They are very suitable for military or humanitarian aid especially when there are limited port or cargo handling facilities either at the loading or discharging ports. In fact, the Falkland Islands crisis witnessed a surge in the use of the ‘Tween Decker’ as the port facilities of the south Atlantic islands were practically non-existent (Koburger, 1983).

Containers made life much easier and more convenient for the shipper: an empty container would arrive at his premises, the container would be loaded (or ‘stuffed’ as it is known in the trade), and the standard container would then be transported by road to the port of embarkation and loaded by a computerized crane – with gradually

diminishing human input. The container ship would then sail at high speed (twenty knots plus) to a main hub port and the container would be discharged and delivered to the end user and ‘unstuffed’, and finally the empty container would either be used for the return trip or returned as an empty twenty to forty foot equivalent unit.

As containers became more popular, the container ships began to grow in size and container liner services, as described above, began to develop.

The standard container, known as the TEU, (Twenty foot Equivalent Unit), is twenty foot long, eight foot wide and eight foot six inches high. The width of a container is a limiting factor with respect to road transportation. There is also the FEU, the “Forty foot Equivalent Unit”. There are some other high volume containers which are taller but never wider. The container ship is fitted with corner container fittings allowing for quick lashing and unlashng. The containers are secured in place by rods as opposed to wires to prevent the loosening of the securing arrangements due to strain (IMO, 2004b).

Despite the speed designed into container transportation, the actual speed, from pick up to delivery, rarely exceeds one mile per hour, the fastest part of the transportation being the sea leg. The slowest-moving part of the arrangement is time spent in port waiting for customs clearance or available road transport, and the actual overland transportation, which entails all the hazards and delays of today’s congested road networks including the increase of vehicular air pollution (NABU, 2014).

The container and RO/RO liner service is a very competitive business, and most companies have to reduce the freight rates to maintain the necessary volumes of cargo to justify their line. Thus, the only additional service they can offer in order to attract

customers is a fast, regular and reliable schedule. Reputation is of the utmost importance in this highly competitive business.

The Hub and Spoke concept

Time is of the essence to the liner operator as they are constantly striving to perfect and fine-tune their service. Several years ago liner service operators developed the Hub Port concept. This meant that they could expand the number of ports that were serviced by the liner company. The large container 'mother' ship only calls at the main hub ports while the small 'feeder' vessels collect and deliver the cargo to and from the hub ports to a plethora of smaller ports around the hub port known as the spoke ports (to be discussed more expansively in a later chapter).

The passenger ferry boat

Another type of vessel suitable for military and/or humanitarian aid operations is the passenger ferry; this is turning out to be a very useful vessel for strategic sealift, humanitarian aid and refugee evacuation. The modern passenger ferry (IMO, 2004b) has several militarily useful features; many can accommodate and provide hotel services to over eight hundred personnel and at the same time have a garage space of about two thousand five hundred commercial lane meters, equivalent to about three thousand military lane meters. (The military save space by loading their vehicles end to end with ends almost touching, whereas a commercial shipper of new cars will have a pre-specified distance between vehicles to prevent costly bumps and scratches). Most passenger ferries are fitted with sophisticated communication systems allowing for support in command and control functions and most are fitted with helicopter and Medevac capabilities. These modern features are combined with high speeds, in excess of twenty knots, good maneuverability and high capacity loading ramps. Many of the

modern passenger ferries also have the ability to perform Mediterranean mooring, stern-to, as opposed to the conventional ‘alongside’ mooring, which allows the vessels to operate in ports that have been either damaged or are actually suitable for much smaller vessels. It is quite common for modern passenger ferries to have more than one access door and ramps, and be of a far shallower draft than the older passenger ferries, which further increases the versatility of this type of vessel as it is not restricted only to deep water ports (Shipping Guides LTD, 2017).

You will note that no reference has been made to specialized trades such a reefer vessel, liquefied petroleum or natural gas carriers and heavy lift vessels – this is because these types of cargo are not carried regularly by the military, nor used in humanitarian aid.

2.2.2 International Maritime Organization (IMO) Cargo Class

An important detail, which affects military as well as humanitarian cargoes, is the IMO cargo classification. The International Maritime Organization (IMO) has classified almost all cargoes carried by sea. These classifications are published in a series of books and allow the ship operator and the insurance underwriter to assess the risk and prepare the vessel for the maritime adventure by knowing the particulars of the cargo to be loaded (IMO, 2004b).

Dangerous goods are classified into different classes and subdivisions, with definitions and descriptions of the characteristics and properties of the substances, material and articles, which would fall within each class or division. General provisions for each class or division are given; individually dangerous goods are listed in the Dangerous Goods List, along with the class and any specific transportation requirements as

discussed above (IMO, 2004b).

In accordance with the criteria for the selection of marine pollutants for the purposes of Annex III of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, MARPOL 73/78, a number of dangerous substances in the various classes have also been identified as substances harmful to the marine environment, marine pollutants (MARPOL, 2006).

There are dangerous cargoes such as ammunition, which are Class 1 cargoes and are carried predominantly for the military. All such cargoes are required to be properly labelled, packed and transported in an approved manner as set out in the IMO (2012) guidelines. The classes of the IMDG code are:

1. Explosives
2. Gases
3. Flammable Liquids
4. Flammable Solids
5. Oxidizing Substances
6. Toxic and Infectious Substances
7. Radioactive Material
8. Corrosives
9. Miscellaneous Dangerous Goods

The above is a very brief introduction of the various types of vessels, trade and services offered in the commercial shipping market. However, such an introduction into the workings of the commercial shipping market would not be complete without an

explanation of how a customer can purchase the various services offered in the market.

2.2.3 Chartering Commercial Vessels

To charter a tramp ship of any description a customer will need to go to a ship broker (Packard, 1980; ICS, 2015), i.e., the middleman, and give his cargo and shipping requirements. These would include, but not limited to, details of the intended port of loading, port of discharge, cargo description and size, a range of possible loading dates, the terms of payment and the preferred standard contract of carriage to be used (Packard, 1980; ICS, 2014). There are of course other considerations such as who handles loading and discharging and who pays for the intended service and insurance costs, flag and draft restrictions, to name just a few (Packard, 1980; Latache, 2013). The broker would then go to the commercial shipping market or directly to an owner or operator that he knows and trusts, and offer the business with the expectation of a counter-offer (Packard, 1980; ICS, 2015).

Once the broker had collected suitable, available tonnage, he would return to the customer with the appropriate offers. This, would be invariably offered at a higher freight rate than that suggested by the shipper or cargo owner, with a range of dates within which the vessel could present a 'notice of readiness' at the port of loading along with various alterations to the standard preferred contract (to be discussed later). Of course, no ships may be forthcoming if the proposed payment is unattractive or the date range for presentation at the first loading port is too tight, or even if the customer or charterer has a reputation for unreliability (Coghlin, Baker, Kenny, Kimball and Belknap, 2014). The business can be concluded in one of the following ways; either on Time Charter (Packard, 1980; ICS, 2014) or on Voyage Charter (Packard, 1980; ICS,

2014) or on Bareboat Charter (Sharp, 2005):

- *The Time Charter*: The Time Charter contract is a common and user friendly contract of carriage by sea: basically it requires the customer or charterer to pay all port expenses including loading and discharging costs, tug boats, lines men etc. Also, the customer would pay for fuel and any canal fees and a rate of so many thousand dollars per day to the shipowner (Packard, 1980; ICS, 2014).
- *The Voyage Charter*: In the Voyage charter contract, the shipowner or ship operator pays for port, canal and fuel expenses and the customer or charterer makes a lump-sum freight payment, which is calculated in dollars per tonne of cargo carried (Packard, 1980; ICS, 2014).
- *The Bareboat Charter*: The term bareboat charter denotes an arrangement for the hiring of a boat or ship without a crew and the party chartering the ship from the owner is responsible for hiring the crew and making all other arrangements. Hence, a bareboat charter is a contract whereby the charterer is assigned the rights and obligations of “ownership” (Sharp, 2005). The fixed duration of this type of charter is typically extends over a number of years. The charterer pays in advance for the ship on a monthly or semi-annual basis even if the vessel is laid up or carries less than its full capacity. Under a bareboat charter, the charterer assumes total responsibility for operating the ship, including manning, provisioning, maintenance, navigation, and logistic support (Sharp, 2005).

Cargo handling expenses

The loading and discharging costs are not always paid by the customer or charterer, whether he be the charterer or the shipper or the provider of the commodity. There are various systems in place such as liner-in/liner-out, where the shipowner or ship operator pays for loading and discharge, and free-in/free-out, where the customer, shipper or

receiver pays the loading and/or discharging expenses (Packard, 1980; Latache, 2013).

There are, of course, various permutations and combinations of the so-called liner terms. But these are not relevant to the cargoes discussed in this thesis.

Practical understanding of different chartering methods

Liner and tramp vessels are often fixed on a long-term time charter, known as period charter, to an operator or even directly to the customer, charterer, shipper or receiver. The operator then becomes the disponent owner (Packard, 1980; ICS, 2015) of the vessel and assumes many of the shipowners' responsibilities and liabilities with respect to cargo and its carriage. He is responsible for the good, clean and timely delivery of the cargo according to the terms and conditions of the contract of carriage with respect to both quantity and quality. The operator looks in the market for business and assumes the commercial contractual obligations and responsibilities of the shipowner when sub-chartering the vessel. A simple way of understanding these different methods of chartering a ship is to imagine yourselves leaving your home to go to work. This is a very simple analogy: you are the cargo and the vehicle of choice is the ship.

1. Imagine that you own a car; this is equivalent to you being a shipowner or a nation owning a fleet of grey hulls. You will pay all capital costs of purchasing the car including any associated principal and interest payments, the broker's commission (rather like the car salesman's cut), insurance, parking, all maintenance, the road tax, the MOT, the driver qualification certificate, fuel, lubricants and chemicals (anti-freeze, etc.), any fines/tolls, all damage whether minor or catastrophic, third party accidents as well as your own, the expected wear and tear due to age and use, third party liabilities, modernization, tire changes, suffer the consequences of redundancy and finally the cost of

ecological disposal. The same arrangement applies to privately and nationally owned assets: the shipowner or nation pays for building or purchasing the asset on the second-hand market and for other expenses: insurance (hull and machinery, third part liability, loss of hire and war risks), berthing and port expenses, continuous maintenance, dry dock expenses every 2.5 years, classification inspection and certification, crewing expenses and their medical bills, victualling expenses for crew and visitors, fuel and lubricant costs, port and pilot costs, damage and wear and tear repairs, and, finally, incur the costs of unforeseen events e.g., if the military or any other customer needs a bigger tank that does not fit in your now out-of-date vessel. Lastly, there is the political and ecological cost of scrapping of the vessel (IMO, 2003) stated in guidelines on ship recycling. The main advantage of this is that you have the assured use of the asset at a moment's notice, provided, of course, you are prepared to pay the additional costs of maintaining the vessel at a one to five day notice of readiness.

2. If, however, you take a taxi to work, this is the equivalent of a time charter (Packard, 1980; ICS, 2014). You hire a means of transportation with a fixed capacity; it is available at the place of your choice, it collects you from your home and takes you directly to your destination without stopping elsewhere or picking up other passengers, basically a door-to-door service. You pay a fixed fee per mile travelled and an additional fee for any waiting time. You pay almost the same amount whether the travelling party consists of one or five persons (five being the maximum capacity of the taxi). Thus, if the taxi is not used to capacity, you inevitably pay for empty space. However, the customer is not involved in the choice of a driver, in paying for maintenance and insurance, for

tolls or parking expenses, MOT, fines or damage repairs, and most importantly if the taxi is too small or too old or just simply not up to date, then the cabby has to worry about purchasing a new taxi to satisfy the ever changing needs of his customers or changes in national and international road and safety regulations. In shipping terms, the customer charters (hires) a vessel of a known type, capacity, speed and fuel consumption. The vessel comes to load at the customer's preferred port and sails directly to the customer's preferred port of discharge. The fee paid amounts to thousands of US dollars per day and the customer also pays for port expenses, tugboats, pilots, canal dues and fuel whether the vessel is full or not. If, however, a particular vessel cannot accommodate the customer's cargo, he can simply go to the market and choose a better, bigger, faster or more modern ship without any additional costs. Finally, when the ship is too old to trade or too small to satisfy the customer's needs, the shipowner has to deal with this problem himself by disposing of the asset, and purchasing a new larger, faster, greener asset in the hope that his new acquisition will appeal to as many customers as possible. There is an additional up-side for the customer user: he may be able to take advantage of fluctuations in the charter market if he can wait for a slump when prices are lower whereas the shipowner must incur the risk of instability in the commercial charter market caused by the fluctuations in the global economy.

3. If, on the other hand, you take a bus to work, you are doing the equivalent of using a liner service. Ostensibly, you only pay for the space you occupy and you know the bus itinerary. You have to make your own arrangements for arriving at the bus stop, getting there on time, choosing the right bus, and making your own arrangements to get from the bus stop to your final destination. This method of

transportation is cheaper as you only pay for the seat you use and you don't get involved in the operational expenses of that bus or the route in question; however, there is the delay associated with several stops en route to your final destination and the sharing of the bus with other passengers. In shipping terms, the customer is aware of the published liner service schedule and can make arrangements for the cargo to arrive at the load port demarcation area prior to the vessel's departure. The departure and arrival dates are usually available online and are therefore known; furthermore, the customer is aware of the cost involved stated in dollars per tonne (\$/MT) or dollars per cubic meter (\$/M³) of actual cargo transported. Once the cargo arrives at the prearranged port of discharge, the customer must arrange for its onward transportation to the final destination or place of business of the end user.

The issue of sensitive cargo as well as the command and control capabilities required by the military can be easily solved in the liner business either by allowing the customer to accompany the cargo or by fitting GPS trackers to the cargo. Cargo sensitivity may also be easily addressed by either segregating the cargo or requesting a particular position for the cargo to be stowed. Again, when the ship becomes obsolete or not suitable in terms of size, speed and/or fuel consumption, it is the shipowner who must replace the vessel in order to retain customers and market share. As discussed above, the commercial success of this type of charter is heavily dependent on the liner service providers' reliability and reputation. In recent years the trend is that liner type business can be augmented to become a 'Door to Door' liner service with the liner operator arranging for the transportation of the cargo from the shipper's premises to the port of loading and also arranges customs clearance formalities and delivery of the cargo from the discharge port to the receiver's premises (Merckx and Notteboom, 2004).

Market rate fluctuations, rates availability and method of chartering

It can be seen that supply and demand affect the shipping market to such an extent that freight rates can, in extreme cases, increase ten-fold in a good market or even when the supply of a certain type of ship becomes scarce and the demand is high.

This is often the case, when, for example the US Great Lakes market opens in the spring of each year as the ice melts and the St Lawrence Sea Way and the Welland Canal become navigable, and the freight rate for “Lakers” (Great Lakes suitable ships) goes up as the demand for these ships rises (US Department of Defense, 2010).

Basically, the same thing happens when the military come into the market with their sealift transportation needs for a particular deployment whether military or humanitarian. This is because the military need to lift their cargoes on a specific date in order to arrive at the theatre of operation by the commander’s required date (CDR) and thus they cause a temporary increase in demand, which elevates the freight rates considerably in the particular geographical location. This is known as a positional rise in the market (Fekpe, Windholtz, Beard and Novak, 2003). The same outcome may occur when a nation enters the commercial market for humanitarian sealift requirements. These events are usually not planned and occur suddenly, thus requiring immediate and decisive action. Again, this may cause a spike in local freight rates.

When one takes a ‘snap shot’ of available ships on the market, the vessels that are on long-term time charter do not appear as free. This often leads to the wrong impression that there are few ships on the market and that the shipping market could not handle a sudden increase in demand, but this is not necessarily the case. Often, the supply of

certain types of ships is seasonally dependent; for example, car carriers are more readily available in the summer months when most car plants close for employees' vacations. On the other hand, tankers can obtain better employment and are less available before the winter months when heating oil requirements rise or even in the summer months when oil prices drop due to lack of demand and nations stockpile for their winter needs (Samuelson and Nordhaus, 1992).

It must be remembered that shipowners and ship operators are very secretive and quite reluctant to reveal the position and availability of their vessels (Zeng, Gong and Ye, 2007). This is the only way they can keep the supply side of the equation in check as the demand side is affected by so many global influences that remain beyond the control of market participants.

As freight rates increase, available ships will miraculously appear on the market to share in the increased revenues. These ships were always potentially available but the owners were just waiting for an improvement in rates before entering the market.

To charter a cargo on a liner vessel, either a RO/RO, a container ship or even the rapidly disappearing general cargo liner vessel, the customer would use one of two routes (Packard, 1980; Latache, 2013).

- Either go directly to the liner company or look it up on the internet and enquire about sailing dates from the port nearest to where the customer has his cargo, cost per container on lane meter, delivery time to the port nearest the indicated destination. Of course, today, most liner service companies provide a door-to-door service, offering to pick up the cargo from the customers' place of business, stuff the container and deliver it directly to the end user's place of business (Packard, 1980;

Latarche, 2013).

- Or, approach a Freight Forwarder and give his detailed transportation needs. The freight forwarder would then do the required market research and just advise the customer as to when the cargo would be collected and delivered, and the cost involved (Packard, 1980; ICS, 2014). It is understood that the freight forwarder would be entitled to a commission for services rendered. In many cases, despite the commission involved, it is more economical to use the freight forwarder than to enter the market individually, as he might be able to negotiate better terms and conditions with the liner companies by offering higher volumes of regular business.

Chartering contracts

As mentioned previously there is a variety of standard contracts, or, as they are known in the shipping world, 'charter-parties' pertaining to the carriage of goods by sea. The terms and conditions between shipowner and customer are standardised for ease of use. Most of the standard contracts can be readily modified concerning the features of vessel, charterer, voyage and terms of payment. As can be imagined there will be additional clauses and terms that are irrelevant or just not applicable; these can be deleted or modified subject to the agreement of both parties involved in the carriage contract. The governing UK Common Law is the Carriage of Goods by Sea Acts (Boyd, Burrow and Foxton, 1996).

Charter-parties govern the contractual relationship between the Owner and Charterer of the Vessel. The relationship between the Carrier of the Cargo and the interests in that Cargo are governed by the terms of relevant Bill of Lading for that Cargo. Carriage of Cargo is regulated by regimes wholly succinct from charter-parties: in English law, the

Carriage of Goods by Sea Act 1924 sets out the framework thereof, and several International Conventions (the Hague Rules, Hague-Visby Rules, Hamburg Rules, etc.) may apply depending inter alia on the jurisdictions within and between which the trade is made. The terms of a charter-party may be incorporated into a Bill of Lading (with express provision required to incorporate any arbitration provisions) such that the operational and liability parameters are like for both. Likewise, a charter-party may incorporate the provisions of one or more of the international conventions predominantly for the purpose of availing the parties of the exceptions from liability (Hill, 1989).

A popular charter-party used today for period charters is the New York Produce Exchange (NYPE 93: November 6th, 1913 - Amended October 20th, 1921; August 6th 1931; October 3rd, 1946; June 12th, 1981; September 14th, 1993). Ships are chartered based on a modified form of this contract which will currently include several additional clauses referred to as 'rider' clauses, or attachments, to allow for specifics of the particular trade, cargo restrictions, port restrictions, embargos, legal and commercial liabilities, more detailed description of the vessel and of course how disputes are to be settled (New York Produce Exchange, 2015).

The Baltic and International Maritime Council Uniform General Charter (as revised 1922, 1976 and 1994) code name: 'GENCON' is a popular contract to be used in those cases in which there is no specially approved charter-party for a particular trade. It is a contract of carriage where the freight is based on the quantity of cargo loaded as opposed to a daily rate of so many US dollars per tonne. Like other types of contracts of carriage, it also includes several additional clauses or 'rider' clauses to allow for specifics of the particular trade, cargo restrictions, port restrictions, embargoes, legal

and commercial liabilities, more detailed description of the vessel and how disputes are to be settled (BIMCO, 2017).

A final example, which does not, of course, exhaust the list of available contracts, is the one prepared by a grain house, known as the Continent Grain charter-party, adopted in Paris, 1957 (amended 1960, 1974 and 1990) by Syndicat National Du Commerce Extérieur Ded Cereales amended 1960, 1974 and 1990 in agreement with Comité Central Des Armateurs De France in cooperation with the French Chartering and S. and P. Brokers' Association, adopted by the BIMCO (Documentary Committee of The Baltic and International Maritime Conference) and otherwise referred to as the 'SYNACOMEX 90' (Syndicat National Du Commerce Extérieur Ded Cereales, 2017).

This is a very popular contract for the carriage of grain on voyage basis, and its popularity not only saves time during the stage of negotiation but also prevents many disputes, as most of the industry is familiar with terms concerning conditions and liabilities. Again, this is a contract of carriage that is not used for military or refugee evacuation but is mentioned as it may be used in cases of humanitarian aid.

This section is a brief introduction of the workings of the commercial shipping market and the ways in which the military or humanitarian aid agencies can access and utilise the various assets and facilities available in today's modern commercial market. This is not an exhaustive explanation as this thesis is not about chartering in particular, but about how the national user can reap the benefits of civil/military synergies available from the cooperation of the governmental customer and the commercial shipping market.

In order for such a maritime adventure to take place all parties need to feel safe and secure, hence the need for marine insurance. Even Shakespeare revealed the value of insurance in the *Merchant of Venice* (Skwire, 2007). Without insurance, a sizable commercial venture can face the risk of financial disaster, as the capital involved may amount to millions. Therefore, the next section introduces the basic concepts of marine insurance including the protection of third party liabilities.

Such insurances cover all aspects of the maritime transportation adventure from the value of the hull and cargo to the health and welfare of the crew and third parties and objects associated with the adventure.

2.3 Marine Insurance

Maritime adventures in general are a very costly business and risk immense potential liabilities associated with the entire enterprise ranging from personal injury to cargo damage or environmental pollution. It is essential that adequate and proper insurance be in place prior to the commencement of the adventure and, in fact, in some jurisdictions, it is a matter of law. This is the insurance of the maritime asset, what the automotive industry would refer to as ‘comprehensive’ insurance including ‘third party’ liability insurance. In the maritime trade the comprehensive insurance is known as ‘Hull and Machinery’ insurance and the ‘third party’ liability insurance is known as ‘Protection and Indemnity’ insurance (UK P & I Club, 2017).

If the vessel is mortgaged to a bank or a financial institution, then the requirement for insurance will form part of the financial arrangement between the vessel’s owner and the lender. The perils of the sea are serious, making the uncertainty of maritime adventures - and by extension the risk to the financial institution funding the project -

high. If there were a catastrophic loss rendering the maritime asset unworkable and/or untradeable and thus economically unable to meet her financial commitments, insurance would be required to meet the financial obligations. The residual value, or 'scrap' value, of a maritime asset is often substantially less than the market value of a sound, tradeable vessel.

Regardless of whether the maritime asset is mortgaged or not, a prudent owner who is accountable to his partners and/or shareholders should insure the maritime asset against catastrophic loss, known in the shipping industry as 'total loss' insurance. It makes good business sense and will form part of any business plan to insure all acquired assets.

It is also practical to take out third party liability insurance; in fact such insurance is now required as a matter of law in most countries for international seaborne trade. This insurance protects the owner from a whole range of casualties/liabilities for which he might otherwise be liable (UK P & I Club, 2016a).

These can vary from damage to port facilities, injury and/or accident to crew or 'servants of the owners' employed for specific duties, errors in navigation leading to collisions, damage to the cargo carried by and entrusted to the vessel under the terms and conditions of the bill of lading or passenger ticket, legal expenses and fines and finally, what is potentially the most expensive liability of all, environmental damage and liability insurance for un-seaworthiness of the vessel. The proof of un-seaworthiness is difficult as it requires meeting three tests satisfactorily: First, an actual physical and identifiable fault, which can range from unlicensed crew to a hole in the hull of the ship; second, that fault be the 'proximate cause' of the casualty that the

owner seeks to claim.

Finally, proof that the owner was privy to the fault. The above are actually quite difficult criteria to satisfy (UK P & I Club, 2016a).

These two types of insurance will be discussed in generic terms so as to give the reader a basic understanding of the complexities surrounding the contractual obligations of the parties involved in a maritime adventure.

2.3.1 Hull and Machinery Insurance

The hull and machinery policy, as the name suggests, insures the owner for damages sustained by the actual asset and its machinery and is based on the principle of new for old. It is predominantly purchased through the marine insurance market such as Lloyd's of London.

The advantage of the maritime hull and machinery insurance policy is that it insures various degrees of casualty: In the first case, 'average damage' which is basically limited to damage that can be repaired at a cost less than the total insured value of the vessel. This value is known as the 'total loss' value and is based on the market value of the vessel. This value is agreed, upon at the inception of the policy, between the underwriter and the owner and must be 'reasonable' in the sense of not deviating too much from the market value of the vessel. This can be adjusted on the anniversary or upon the renewal of the policy (Cornah, 2005).

The second case concerns the 'Total Loss' whereupon the vessel is lost at sea ('sunk') and can no longer legally be called a ship. In this case the insurer will settle the owners' claim at the total loss value. The third case is the 'Constructive Total Loss' where the

repair cost of a ship that has suffered damage higher than the insured value. There is a variation of the above case known as the ‘Compromise Constructive Total Loss’ where the repair cost is too close to the insured value so that any small error in estimating the repair cost will result in excessive repair; thus settling the claim at or near total loss value would benefit all parties involved (Cornah, 2005).

Hull and Machinery insurance policies

There are two main hull and machinery insurance policies that a shipowner could purchase from the insurance market before the commencement of an adventure. Of course, there are ‘self-insurance’ schemes available through what are known as ‘captive’ insurance facilities but this is not relevant to the basic understanding of the commercial maritime industry. Most acceptable policies are governed by the internationally recognized ‘SOLVENCY’ regime, which regulates the policy underwriter, his financial ability to settle claims and his honesty in selling insurance policies.

There are two main internationally-recognized and accepted marine hull and machinery insurance policies, known as the ‘Institute Time Clauses Hull’ and the ‘American Institute Hull Clauses’. These policies constitute the bulk of the hull and machinery insurance policies in the case of ocean-going, military-suitable, merchant vessels. These policies could then be supplemented by additional clauses.

It is important to have a basic knowledge of these policies in order to understand the terms guaranteed by the owner inasmuch as these will affect the ability of the vessel to trade.

Institute Time Clauses Hull

The Institute Time Clauses Hull: this policy contains twenty-six clauses and is subject to English law. The main clauses that may be relevant to a civil/military maritime adventure are given below (Lloyds, 2016).

Clause 1: Refers to the navigation of the vessel and its ability to tow vessels in distress or be towed when in distress herself, including when to advise the underwriters of changes in the vessel's conditions.

Clause 3: Refers to breaches of warranty as to "cargo, trade, locality, towage, salvage services or date of sailing", when the vessel is considered covered, provided appropriate notice is given to the underwriter. This is quite relevant to civil/military operations for humanitarian aid, refugee evacuation and strategic sealift for defence. It is important to be able to complete the adventure in parallel with negotiations on modifying the insurance policy whether or not this will involve any additional premiums being levied against the vessel.

Clause 4.1: Refers to the cancellation of the policy in the event that the classification of the vessel is suspended or cancelled unless claims arising from damage are covered under a war-risks policy.

Clause 4.2: Refers to cancellation in the event of a change of ownership and/or management. However, if the vessel is requisitioned, for title or use, the policy cancellation is extended for a period of fifteen days. This is important for civil/military

use as vessels may be requisitioned in order to overcome commercial trading

restrictions.

Clause 6: Refers to the insured perils which include those of the seas, rivers, lakes or navigable waters, fire, explosion, violent theft by persons outside the vessel, jettison, piracy, breakdown of or accident to nuclear installations or reactors, contact with aircraft or similar objects, or objects falling therefrom, land conveyance, dock or harbour equipment or installation, earthquake, volcanic eruption or lightning; additionally, accidents in loading, discharging or shifting cargo or fuel, bursting of boilers, breakage of shafts or any latent defect in the machinery or hull, negligence of master, officers, crew or pilots, negligence of repairers of charterers, provided such repairers or charterers are not an assured, barratry of master, officer or crew. These above perils could result in average damage, that is, where the repair cost is less than the insured value; while other damage could cause total loss, that is, where the repair cost exceeds the insured value. In any event the claim by the owner or the policy holder will be adjusted according to the York-Antwerp rules, more specifically, York-Antwerp rules 1974 or 1994 as amended in 2004 (Comité Maritime International, 2004).

Clause 7: Refers to damage to a vessel caused in an effort to prevent a pollution incident or efforts made in order to mitigate such a pollution incident regardless of who gives the order.

Clause 8: Is known as the three-fourths collision clause, whereby the hull and machinery underwriter only assumes three-fourths of the collision liability, leaving the owner to cover the other one-fourth in alternative insurance markets. However, today, the majority of owners deletes this clause, and handles the indicated risk through a third party liability underwriter who assumes the entire four-fourths of liability.

Clause 12: Refers to the deductible assumed by the policy owner (known as the ‘excess’ in other forms of insurance) where the underwriter will only pay claims above this amount. In other words, the owner pays for the first amount of the repair cost, up to the deductible, say, one hundred thousand US dollars and the balance is paid by the insurance underwriter. (This arrangement has the effect of eliminating small nuisance claims for which the administrative cost can be higher than the actual repair cost.)

Clause 13: Known as the ‘sue and labour’ clause, refers to the obligation of the vessel’s owners to make every effort to mitigate and/or minimize the loss which would be recoverable under the policy. Sue and labour expenses are, for example, efforts made by the master and crew to refloat a grounded vessel or save a ship from sinking or efforts to extinguish an onboard fire.

Clause 18: Refers to any unrepaired damages. When damages cannot or need not be repaired at any particular time but have the effect of reducing the market value of a vessel, then, at the termination of the policy, the policy holder may claim the reasonable reduction in the market value of the vessel.

Clauses 23, 24, 25 and 26: Below, are the paramount clauses and are intended to eliminate inconsistencies in the policy under consideration.

Clause 23: War Exclusion: this clause basically excludes all losses incurred due to war or war like acts including civil war, revolution, rebellion or insurrection or any hostile act by or against a belligerent power including acts of rulers and princes against the

owner or the vessel.

Clause 24: Strike Exclusion: no claim arising from a loss will be entertained that arises from a strike or lockout of workmen, a terrorist act or any person acting from a political motive.

Clause 25: Malicious Acts Exclusion: excludes claims arising from the detonation of an explosive or weapons operated by persons acting maliciously against the owner or the vessel or from a political motive.

Clause 26: Nuclear Exclusion: In no case will a claim be paid for a loss which arises from any weapon of war and/or mass destruction employing atomic or nuclear fission and/or fusion or other like reaction or radioactive force or matter.

These four paramount clauses are covered by a separate policy known as War Risks Insurance and will be discussed in detail in Chapter 4.

Attached to the 'Institute Time Clauses Hull' is the 'Institute Additional Perils Clause – Hull' which, for an additional premium, will cover the cost of a defective part which may be the cause of a casualty which will result in a claim.

American Institute Hull Clauses

The 'American Institute Hull Clauses – 1977' by the American Institute of Marine Underwriters (1977) is not divided into separate clauses but consists of two hundred fifty-five numbered lines. There are few differences between this policy and the 'Institute Time Clauses Hull' that would affect a civil/military maritime transportation

adventure.

The 'perils' are arranged in a different format and include those: Of the sea; men-of-war; fire; lightning; earthquake; enemies; pirates; rovers; assailing thieves; jettisons; letters of mart and counter-mart; surprisals; takings at sea; arrests, restraints and detainment of all kings, princes and peoples of whatsoever nation condition or quality; barratry of master and mariners and all other like perils; loss and misfortunes that have, or shall come to hurt, detriment or damage of the vessel, or any part thereof, excepting, however, such of the foregoing perils as may be excluded by provisions elsewhere in the policy (Lines 70-74).

The American Hull policy also includes an additional peril known as the 'Inchmaree' clause; these additional perils include, amongst others, explosions on shipboard or elsewhere and include latent defects, excluding the expense of replacing or repairing the defective part. Interestingly, this policy includes the breakdown of, or accident to, nuclear installations or reactors not on board the insured vessel, contact with aircraft and rockets or similar missiles (Lines 75-86).

In the event that governmental authorities directly cause damage or loss to the insured asset in an effort to mitigate or prevent a pollution event or in the safeguarding of public interest this loss or damage is covered by this policy. (Lines 87-91).

As in Clause 13 of the Institute Time Clause Hull, the American Institute Hull Clauses policy also describes in detail the obligation, lawful and necessary, of the owner to make efforts, sue and labour, in order to mitigate and/or prevent the loss for which the assured can recover reasonable expenses. (Lines 144-157).

The American Clauses cover the entire four-fourths collision liability, in contrast to

Clause 8 of the Institute Time Clauses Hull. But it excludes: wreck removal and/or injury to real or personal property; oil pollution or other chemicals or other substances of any description whatsoever; cargo or other property on, or engagements of, the vessel; loss of life or personal injury (Lines 158-184). The wreck removal exclusion clause has caused great concern over the years as the cost of this was not covered by the third party liability insurance; however, this has been addressed by a new stand-alone Convention which was written at the IMO: The Wreck Removal Convention 2007 which came into force in 2016.

There is a whole paragraph pertaining to war, strikes and related exclusions: this is in fact a paramount clause similar to Clauses 23-26 of the Institute Time Clauses Hull. The main exclusions relate to war and war-like events, such as: capture; seizure; arrest, restraint or detainment; any potential threat related along with the taking of the vessel, by requisition or otherwise, whether in time of peace or war and whether lawful or not. The list of further exclusions covers damage sustained by weapons and/or acts of war including civil strife, riots, martial law, uprising, strikes, lockouts, usurped power, malicious acts or even vandalism. Also excluded under the American policy are: Hostilities or war-like operations whether there is a declaration of war or not. For such coverage the assured would turn to a War Risks underwriter as described in Chapter 4 (Lines 239-255).

There are several additional clauses that can be added to the indicated policy; three of these clauses that may be relevant to a civil/military adventure are described below.

The 'Institute Radioactive Contamination, Chemical, Biological, Bio-Chemical and Electromagnetic Weapons exclusion clause': This is another paramount clause and, as

the name suggests, excludes any liability of the underwriter from such damage caused by, or contributed to, such equipment, be it a weapon or not.

The 'Institute Cyber Exclusion Clause' excludes any liability for loss or damage to any computer, computer system, software program, computer virus, unless this is attached to a policy that endorses war-risks cover.

This gives the reader a basic understanding of the insurance cover of the hull of the vessel and its machinery. However, a civil/military venture will include substantial third party risks that should be covered by a prudent shipowner or manager. In most areas of the world several of these third party liabilities must be insured as a matter of law and evidence thereof must be available before a vessel can enter or trade in their territorial waters.

A complete section is dedicated in this chapter to the cover of war or war-like risks as it is assumed that most civil/military operations will inevitably require a vessel to enter danger zones irrespective of the type of strategic sealift involved, whether it be defence, humanitarian aid or refugee evacuation.

The shipping community, in its wisdom, decided that third party liability cover should be offered to its members on a mutual, non-profit, pay-to-be-paid basis; hence, the Protection and Indemnity (P+I) Mutual Insurance Clubs, all sanctioned by the EU competition commission, were established.

2.3.2 Third Party Liability Insurance

There are 13 member clubs in the International Group of P+I clubs:

1. American Steamship Owners Mutual Protection and Indemnity Association, Inc.
2. Assuranceforeningen Skuld (Norway)
3. Gard P and I (Bermuda) Ltd.
4. The Britannia Steam Ship Insurance Association Limited
5. The Japan Ship Owners' Mutual Protection and Indemnity Association
6. The London Steam-Ship Owners' Mutual Insurance Association Limited
7. The North of England Protecting and Indemnity Association Limited
8. The Shipowners' Mutual Protection and Indemnity Association (Luxembourg)
9. The Standard Club Limited
10. The Steamship Mutual Underwriting Association (Bermuda) Limited
11. Sveriges Ångfartygs Assurans Förening (The Swedish Club)
12. United Kingdom Mutual Steam Ship Assurance Association (Bermuda) Limited
13. The West of England Ship Owners Mutual Insurance Association (Luxembourg)

This does not mean that third party liability cover is not available on the open market, though a charterer or user of a vessel can feel much safer when chartering a vessel that is covered by an International Group P+I club, given their solid reputation.

The protection and indemnity cover is based on a set of rules issued by each of the above mentioned clubs. Cross liability can exist when a time charter is covered by the 'Inter Club' agreement as amended in September 2011, but this is not really relevant for a civil/military venture unless the charterer is an NGO that does not already have liability cover from its home country.

The rules are fairly similar between the clubs; thus, for the sake of simplicity, only the rules of the United Kingdom Mutual Steam Ship Assurance Association (Bermuda) Limited will be examined below (UK P+I Club, 2016a). The P+I Club divides its cover into two main sections; the first is the P+I Third Party Liability coverage and, the second is the freight demurrage defence coverage (UK Defence Club, 2016), the latter providing cover for legal expenses and fines that may be incurred by a vessel during normal operations.

Protection and Indemnity cover

The P+I cover is a mutual, not for profit, pay-to-be-paid cover and the premium levied is adjusted each year to reflect the owner's loss record and/or projected financial outcome of the previous year. The P+I year starts on the 20 February of each year. If total claims are less than the total income of the club then the annual premium call remains unchanged or, on rare occasions, may even be reduced; if total claims for the year exceed the total income for the club then all members will suffer a proportional increase to cover the loss. The premium is based on a US\$/GT (gross registered tonne) and this is in sharp contrast to the previously discussed hull and machinery cover where premium is based on the insured value of the vessel. It is a mutual arrangement as all members of the club contribute to the losses incurred by each and, in the long term, is a very efficient and economical insurance cover. The cover applies up to a maximum of two billion US dollars and claims are settled on a 'pay to be paid' basis. In other words, the club member is required to settle third party claim and then recover the payment outlay from their P+I Club (UK P+I Club, 2016a).

The main events that are covered by P+I insurance are: Damage to cargo; damage to

other vessels; damage to docks; wharves and ports and their facilities; accident, injury and illness to crew, contractors and visitors on board (UK P+I Club, 2016a).

For a basic understanding of the range and depth of P+I insurance the main items covered are listed below:

1. Liability to persons other than seamen
2. Injury and death of seamen
3. Illness and death of seamen
4. Repatriation and substitute expenses
5. Loss and damage to the effects of seamen and others
6. Shipwreck unemployment indemnity
7. Diversion expenses
8. Stowaways and refugees
9. Life salvage
10. Collision with other ships
11. Loss or damage to property
12. Pollution risks
13. Liability arising out of towage of, or by, an entered ship
14. Liabilities arising under certain indemnities and contracts
15. Wreck liabilities
16. Quarantine expenses
17. Cargo liability
18. Property on the entered ship
19. Unrecoverable general average contributions
20. Ship's proportion of general average
21. Special compensation to salvors

22. Fines
23. Enquiry expenses
24. Expenses incidental to the operation of ships
25. Sue and labour and legal costs
26. Expenses incurred by the direction of the association

There is a list of twenty-two conditions (A to V), exceptions and limitations (UK P+I Club, 2016a). There is some benefit from familiarity with this list and associated exclusions inasmuch as it may assist the civil/military planner to avoid issuing illegal orders pertaining to the indicated sealift asset, though further in depth analysis will not assist the military user of a merchant shipping asset:

- A. Payment first by the owner
- B. Limitation of the Association's liability
- C. Set-off
- D. Exclusion of sums insurable under hull policies
- E. Exclusion of war risks
- F. Exclusion of nuclear risks
- G. Exclusion of damage to entered ship, loss of hire, etc.
- H. Exclusion of certain liabilities, costs and expenses of salvage ships, drilling ships, dredgers and others
- I. Double insurance
- J. Contraband, blockade running, unlawful trade, imprudent or hazardous operations
- K. Classification and statutory requirements
- L. Rules subject to Marine Insurance Act

- M. Obligations to sue and labour
- N. Obligations with regard to claims
- O. Time bar
- P. Recoveries
- Q. Survey of ships
- R. Survey of ships after lay-up
- S. Electronic communication
- T. Interest
- U. Certificates and undertakings
- V. Sanction risks.

Civil/military operations will involve several third-party liabilities, five of which are of particular interest and fall under Section U, “Certificates and Undertakings”. These are the following (UK P & I Club, 2016a, p. 44):

The Association will discharge on behalf of the owner liabilities, costs [and] expenses arising under a demand made pursuant to the issue by the Association one of the following:

- *A guarantee or other undertaking given by the Association to the Federal Maritime Commission under section 2 of US Public Law 89-777, or*
- *A certificate issued by the Association in compliance with Article VII of the International Convention on Civil Liability for Oil Pollution Damage 1969 or 1992 or any amendment thereof, or*
- *An undertaking given by the Association to the International Oil Compensation Fund 1992 in connection with the Small Tanker Oil Pollution Indemnification Agreement (STOPIA), or except where such liabilities, cost or expenses arise from or are caused by an act of terrorism, the Tanker Oil Pollution Indemnification Agreement (TOPIA)*
- *A certificate issued by the Association in compliance with article 7 of the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001*
- *A non-war certificate issued by the Association in compliance with either Article IV bis of the Athens Convention relating to Carriage of Passengers and their Luggage by sea, 2002 and Guidelines for its implementation or Regulation (EC) No 392/2009 of the European Parliament and of the council which gives effect thereto.*

The last of these items is of particular interest to a civil/military operation as it involves the carriage of passengers and/or troops by sea which are not covered by the owners' other policies for acts of terrorism. Owners must, therefore, obtain specific cover from the market for this excluded liability.

Defence cover

The second section concerns defence cover which supports the shipowner and/or manager in the event that he needs to take legal action to protect his rights, whether to avoid paying a fine or to recover freight from a charterer (UK Defence Club, 2016).

The nature of such cover pertains to costs incurred by a member which arise from a member's interest in an entered ship and in connection with the building, sale, ownership, management, chartering or operations of that ship (UK Defence Club, 2016).

The extent of this cover includes costs that are incurred in order to investigate and/or protect a member's legal position or costs incurred in connection with legal proceedings. This also covers costs, including deferred interest, which a competent court or tribunal may order the member to pay to another party provided the board of the defence association has consented in writing to the indicated litigation to be pursued.

There are an additional fifteen (A to O) risks covered by the defence association to help with the basic understanding of such cover the main risks are listed below (UK Defence Club, 2016, pp. 4-5). They apply to claims and disputes or proceedings concerning:

- A. *Any charterparty, bill of lading, contract of affreightment or other contract, its existence, performance or cancellation and the exercise or enforcement of any right or remedy arising or in connection with it;*
- B. *The building, purchase or sale of the ship;*
- C. *The design, repair conversion or modification of the ship;*
- D. *The loss of, damage to, detention, delay to or loss of use of the ship;*
- E. *The supply of fuel, lubricants, material or equipment, or other necessities to the ship;*
- F. *Salvage or towage services rendered by or to the ship;*
- G. *The loading, lightering, stowage, trimming, storage or discharge of cargo;*
- H. *General and/or Particular Average contributions or charges;*
- I. *Claims by or against passengers intended to be, being or having been carried on a ship or their personal representatives or dependents;*
- J. *Officers, crew, stowaways and other persons on or about the ship;*
- K. *The classification of the ship;*
- L. *The representation of the member at official investigations, inquests, or other enquiries whatsoever in relation to the ship;*
- M. *Amounts due from or to underwriters and any other persons and/or companies conducting the business of insurance, other than the Association;*
- N. *Charges, disbursements, accounts received from agents, stevedores, chandlers, brokers, customs, harbour or other authorities, or other connected with the running, management and operation of the ship;*
- O. *Claims by or against revenue, customs or other government, municipal or local authorities in relation to the ship.*

This is to discourage a third party from thinking that because he possesses adequate financial backing and can intimidate the shipowner into submission because the shipowners' legal rights are protected by substantial insurance cover.

As in the P+I third party liability cover, there are exclusions from the cover, which include:

1. *Minimum dispute amount (usually US\$ ten thousand)*
2. *Unlawful trading*
3. *Exclusion of hull and machinery, and charterers liability risks*
4. *Exclusion of war risks*
5. *Exclusion of P+I risks*
6. *Exclusion of specialist operations and certain passenger ship risks*

7. *Exclusion of hotel, leisure or entertainment risks*
8. *Exclusion of certain nuclear risks*
9. *Double insurance*
10. *Time bar*
11. *Joint members*

Again, war risks are excluded from the defence cover as from the third party P+I cover (UK Defence Club, 2016). War-risks defence insurance is covered later on in this chapter.

A basic understanding of commercial marine insurance is essential to any charterer or operator of a vessel whether they be a commercial freight forwarder or a military movement officer. Unless all parties involved in such operations are aware of the possible liabilities, their consequences and available insurance cover, they will not be able to discharge the operation efficiently which could elevate costs and even lead to the termination of the operation.

So far our discussion has been limited to the insurance of the asset, *per se*, and has touched briefly on third-party liability and defence cover, all of which specifically excluded war risks and war-like acts of rulers and princes and/or belligerent powers (UK Defence Club, 2016).

In peace-time, as well as during war, separate insurance is available that covers the asset and provides third party liability and defence coverage specifically related to war risks. This is known as War Risks Cover and is described in the next section in this chapter. No shipowner or his mortgagee bank will allow a vessel to undertake a

maritime adventure for military or national service requirements if either the loading or the discharge port is in the vicinity of military conflict or war-like acts without the protection afforded by war risks insurance for the crew, cargo and asset.

2.4 Commercial War Risks Insurance

Next section provides an introduction into the workings of the war-risks insurance market, the next step towards understanding the essentials of the commercial shipping market. It should be clear that most maritime adventures of the type considered in this thesis will be geographically located in an area where there is risk of unrest and/or actual conflict of varying degrees of severity. Therefore, a basic knowledge of war-risks insurance is not just useful, but indispensable.

The Oxford Online Dictionary (2016) provides the following definitions of ‘war’:

1 A state of armed conflict between different countries or different groups within a country;

1.1 A state of competition or hostility between different people or groups; and

1.2 A sustained campaign against an undesirable situation or activity.

Moreover, Miller (1994) in *Marine War Risks* quotes Halsbury’s *Laws of England* contained in volume forty-nine, paragraph one hundred and one, which gives the following definition:

At common law, there is no state of war between the United Kingdom and a foreign State unless the Crown has declared war or hostilities have commenced by the Crown’s authority

(Miller, 1994, p. 41).

However, Miller (1994) expounds how, over a series of cases, the courts have made it

clear that when they are considering a commercial document such as a war-risks policy, they are not going to be bound by narrow definitions. According to Miller, they are inclined to consider the intention of the parties, as disclosed in the documents, and then to interpret the documents in the spirit which the parties had originally intended.

In addition, the Joint War Committee, JWC, includes various authorized representatives from Lloyd's and insurance markets, representing the interests of underwriters who write marine hull war business in the London market (Lmalloyds.com, 2016). It usually meets on a quarterly basis and receives input from the security advisers it employs to advise as to areas of heightened risk. Based on this advice, the JWC draws up a schedule of 'listed areas'. These are used by most, if not all, war-risks underwriters to determine which areas of the world should attract an 'additional premium' (AP) or 'breach' (of trading warranty) premium which is usually expressed as a percentage of a vessel's insured value. The JWC has no authority to determine AP areas or the rates that should apply for calls/transits to/from such areas. Individual underwriters are free to set whichever areas should be subject to APs and applicable rates are determined by individual negotiation (Lmalloyds.com, 2016).

Satisfactory war-risks insurance cover is essential for the procurement and trading of quality commercial-sealift assets. However, if a chemical, biological, radiological or nuclear, (CBRN), device is detonated by a belligerent power or terrorist group, commercial war-risks cover will be cancelled giving a military customer or a nation, providing humanitarian aid, only seven days in which to find satisfactory substitute war-risks cover (Hellenic War Risks, 2016).

It is necessary to elaborate on the phrase 'satisfactory war risks coverage': This means

that cover satisfactory to all interested parties must be in place at the commencement of the maritime adventure. Interested parties may include the shareholders of the vessel, whether they are individual owners or stock-holders, mortgagees, cargo owners, crew, charterers or sub-charterers and general financiers of the maritime adventure.

Basic war-risks cover is not insurance cover to enter a war zone but provides cover for war-like risks outside a war zone (Hellenic War Risks, 2016). The basic war-risks cover purchased enables a vessel to trade worldwide outside areas of conflict but the adventure is insured against unforeseen war or war-like activities.

There are different places from which to purchase war-risks insurance cover, either from the commercial market (such as at Lloyd's and other insurance companies) or from a pool or mutual society such as the Hellenic, Norwegian and Canadian War Risks clubs. Generally, the commercial market offers war P+I cover (third-party liability coverage) up to the current hull value total sum insured. The clubs however, generally offer higher war P+I limits from US dollars one hundred to four hundred million per ship, per incident (Hellenic War Risks, 2016).

War-risks insurance covers three main areas of risk: (a) Concerning hull and machinery up to the full value of the insured asset; (b) Detention and deviation expenses in the event that the scheduled Port of discharge is inaccessible due to war or war-like events; (c) P+I cover for third-party liability risks (Hellenic War Risks, 2016).

Most war-risks policies are primarily purchased to cover risk posed by war to the hull and the machinery (which risk is usually excluded from (marine) hull and machinery policies). In addition, war P+I cover is usually provided up to the insured value of the

vessel in question. Mutual clubs such as the Hellenic Mutual War Risk Club typically provide higher war P+I limits as standard and at no additional charge – for 2017, this limit has been set at US dollars four hundred million. The war P+I cover provided by both commercial and mutual war risks insurers is adjusted to reflect the P+I clubs perception of war risks and assessed costs/benefits. For example, Rule 5E in the UK P+I Club’s Rules (2016a, p. 35) reads as follows:

Exclusion of war risks:

The Association shall not indemnify an owner against any liabilities, costs or expenses (irrespective of whether a contributory cause of the same being incurred was any neglect on the part of the owner or on the part of the owner’s servants or agents) when the loss or damage, injury, illness or death or other accident in respect of which such liability arises or cost or expense is incurred, was caused by:

i. War, civil war, revolution, rebellion, insurrection or civil strife arising therefrom, or any hostile act by or against a belligerent power, or any act of terrorism.

ii. Capture, seizure, arrest, restraint or detainment (barratry and piracy excepted) and the consequences thereof or any attempt thereat;

iii. Mines, torpedoes, bombs, rockets, shells, explosives or other similar weapons of war (save for those liabilities, costs or expenses which arise solely by reason of the transport of any such weapons whether on board the entered ship or not), provided always that this exclusion shall not apply to the use of such weapons either as a result of government order or with the written agreement of the directors or the managers where the reason for such use is the avoidance or mitigation of liabilities, costs or expenses which would otherwise fall within the cover given by the association.

Provided always that:

a) In the event of any dispute as to whether or not an act constitutes an act of terrorism, the decision of the directors shall be final;

b) The directors may resolve that special cover be provided to the owner against any or all of the risks set out in Rule two notwithstanding that those liabilities, costs or expenses would otherwise be excluded by this paragraph; and

c) that such special cover should be limited to such sum or sums and be subject to such terms and conditions as the directors may from time to time determine.

Mutual war risks insurers in particular usually provide the same coverage as that of the P+I clubs (for example liability to crew/third parties/pollution clean-up costs etc.) would cover, but for the operation of the war risks exclusions. In practice, it is not always easy to determine with absolute certainty whether marine P+I or war P+I cover should respond to all aspects of a particular claim though a pragmatic approach is usually taken to ensure a member is covered by one or the other insurer either in full or in part to avoid shortfalls in the recoverability of claims.

The war P+I cover in excess of that provided by war risks insurers is accepted by P+I clubs – with reference to ‘...*the Risks set out in Rule 2*’ which suggests the P+I clubs give US dollars five hundred million of excess war risks P+I cover in excess of the ‘proper value’ of the entered ship or whatever sum is recoverable from war risks insurers, whichever is the greater (UK P+I Circular, 2016).

For its purposes this thesis utilizes the UK Club’s P+ I definition of war.

2.4.1 Hull and Machinery

The ship is covered against total loss or partial damage together with general average and salvage charges, where applicable, under the rules and bye laws of Hellenic War Risk (2016).

This part of war risk insurance is in effect hull and machinery insurance, as discussed in previous sections. In this context, claims can arise as a result of:

1. War, civil war, revolution, rebellion, insurrection or civil strife arising there from, any hostile act by or against a belligerent power
2. Capture, seizure, arrest, restraint or detainment and the consequences thereof or

any attempt thereat

3. Mines, torpedoes, bombs or other weapons of war (derelict or otherwise)
4. Strikes, locked-out workmen, or persons taking part in labour disturbances, riots or civil unrest
5. Any terrorist or any person acting maliciously or out of political motives
6. Piracy and violent theft by outsiders
7. Confiscation or expropriation

It can be seen from the above list that many of the insurable risks are not part of what most people would consider war risks. There is a lot more to war-related risks than mines, bombs and missiles. It is important to note that piracy, strikes and labour disputes are also covered inasmuch as such risks are common in most civil/military maritime adventures.

War like Perils

Examples of risks covered in the case of war, what one might call a real war, can be seen in *Table 2* below. (One may recall the many ships partially or totally destroyed in the Iran/Iraq War of the 1980s.)

Table 2: Gulf War List of Casualties, Miller Insurance (1999), unpublished/confidential

Name	Type	Flag	GT/Built	Casualty Details
LOUISE 1	B/C	Panama	10.836 / 1963	Struck by missile during air attack and sank in Bandar Khomeini channel. Total loss.
VOLERE	VLCC	Italian	254.891 /1975	Struck by missiles. Off Kharg island causing damage to prow, Nos. 1 and 2 cargo tanks – small fire load poured into sea.
SMIT MASTAS	TUG	Greek	979 / 1971	Missile attack 55 miles north of Saudi Arabia. Fire damage to engine room and accommodation.
AVOCET	TANKER	Cypriot	34.662 / 1966	Hit by Iranian missile. Caught fire. Total loss.
ARISTOTLE S. ONASIS	VLCC	Liberian	273.900/ 1976	Ablaze after being hit by 6 Iranian missiles.

Source: Personal access to source

Terrorist perils

Terrorist acts are exemplified by what happened aboard the passenger ship *Achille Lauro* (Pallardy, 2011) and the passenger ferry *City of Poros* (Anastasi, 1988) both boarded by terrorists in the Mediterranean. Also, on 6 October 2002, the *MT Limburg*, a French flagged oil tanker carrying three hundred ninety-seven thousand barrels of crude oil from Iran to Malaysia was rammed on her starboard side by suicide bombers in a dinghy carrying explosives in the Gulf of Aden off Yemen (Smith, 2002). The *MT Limburg* caught fire and ninety thousand barrels of oil were spilled into the Gulf of Aden. Terrorist attacks are not common in marine adventures, as ships are slow and attract little media coverage. On the other hand, aircraft and the aviation industry attract heavy media coverage and seem to be a favoured target of terrorists.

Piracy perils

Piracy will be discussed in a later section, but it should be noted that there are many different forms of piracy. In the western Indian Ocean during the year 2014 there were one hundred forty-two confirmed incidents of piracy; varying motivations prevailed:

seizure of the crew for ransom, theft of cargo, use of high jacked ship for other nefarious purposes (Oceans Beyond Piracy, 2015). While planning a marine adventure, the risk of piracy must always be considered.

2.4.2 Detention and Deviation

The second main area of war-risks insurance cover is for ‘detention and deviation’ expenses.

Detention occurs when a ship is blocked. That is to say, the ship is prevented from moving; a good example is the blocking of the Suez Canal after the ‘Six Day War’ in 1967 when ships were trapped by vessels sunk at either end of the canal (Brenchley, 2005). More recently, in the Shatt al-Arab waterway during the Iran/Iraq conflict, hostilities prevented the authorities from removing wrecks so that free passage was blocked and vessels were trapped (Lewis, 1988). If a ship becomes detained for more than a year, the owner can put a claim of total loss to his war-risks underwriters, as per the above mentioned rule (Hellenic War Risks, 2016).

Deviation expenses are covered by the war-risks insurers in cases where the ship cannot complete its intended voyage by reason of war or orders given by its insurers, its flag state or any other government having the right to issue such orders (Hellenic War Risks, 2016). In other words, the vessel is given orders contrary to its contract of carriage under the bill of lading. In essence, this means that if the vessel is ordered to discharge her cargo in a port other than that stipulated in the bill of lading for the cargo loaded then this is considered a deviation, and the associated financial liabilities and consequences are both covered by war-risks insurance.

Claims can arise as a result of:

War, war-like operations, civil war, revolution, rebellion, insurrection, civil strife, any hostile act by or against a belligerent power, or by conditions brought about as a result of the foregoing;

Caused by compliance with an order, prohibition or direction; and

Caused by any government department or military authority of a country in which the ship is owned managed or registered or any government department or military authority of a country having the right, de facto, to do so

(Hellenic War Risks, 2016, pp 15-16).

2.4.3 Protection and Indemnity

The third area of war-risks insurance under the war-risks policy is the P+I Risk. The main relevant risks are the ship's crew's contractual liabilities for example, injuries, illness, death and wages.

Also covered under the P+I cover are collision, dock damage, oil pollution and wreck removal and all these can be classified as third party liabilities (Hellenic War Risks, 2016).

In reality, these risks are remote because the owner must be deemed responsible for the occurrence in order for there to be a claim.

These can arise as a result of:

Personal injury, illness or death of: any member of the crew whether on board or not, any person engaged to handle cargo whilst it is the responsibility of the vessel, or any other person by whom such liability is incurred (Hellenic War Risks, 2016):

- Expenses reasonably incurred in relation to personal injuries, illness or death,

such as: hospital, medical and funeral expenses. Expenses of repatriating an injured or ill crew member, owner's representative or consultant, and sending a substitute to replace him. Expenses of diverting the ship for the purpose of securing treatment of an injured or sick person or while waiting for a substitute. Fuel, insurance, wages, stores, provisions and port charges can also be claimed.

For example, in the Hellenic Mutual War Risk Club (2016) the limit of cover for P+I risks, such as passenger liability is US dollars four hundred million. In certain cases, where passengers are high net worth individuals, and liability claims exceed the indicated amount, the shipowners' standard P+I cover (Chapter 3) provides an additional layer of cover in the amount of US dollars five hundred million effective as of 20 February 2005. The provider of standard shipowner P+I insurance will always avoid being the primary war-risks liability insurer.

The P+I war-risks cover under the rules of, for example, the Hellenic Club, refers to cover provided under the UK P+I Club rules. Typically, the P+I rules of war-risks cover follow the rules of one of the mutual P+I clubs in the international group of mutuals.

Currently, all vessels trading globally are required by law to have P+I insurance cover. This covers a variety of third-party liabilities to which the shipowner might be exposed. These range from collision, dock damage, oil pollution and wreck removal to crew liabilities and cargo damage (Hellenic War Risks, 2016).

Cover under Rule 2 Section 1 provides the owner with cover concerning liabilities to third parties and passengers on board in the event of a marine accident.

However, if the owner has a liability to anyone on board, that liability is covered, up to the limit of the club cover, subject to any international contract for their passage (Hellenic War Risks, 2016).

For example, if the troops have been issued a passenger ticket then the contract is the ticket and, most likely, the Athens Convention will apply: Athens Convention relating to the Carriage of Passengers and their Luggage by Sea (PAL) Adoption: 13 December 1974; Date it went into force: 28 April 1987; 2002 Protocol: Adoption: 1 November 2002; Date it went into force: 23 April 2014 (IMCO, 1974). It is not always certain that troops would be issued a passenger ticket but for the Athens convention to apply a fare must have been paid and there must be a contract of carriage and a ticket issued.

In the event of the accidents on account of war-like acts with the risk falling on the war-risks club/underwriter the above stipulations apply and there is nothing in most P+I club rules that excludes or qualifies this liability.

There is no indication in the Athens Convention or its Protocols (whether in force or not) that it would cease to apply in time of war (IMCO, 1974).

This contrasts with the exclusion of liability following a nuclear incident. Instead, the 2002 Protocol of the Athens convention, which came into force in 2012 and the protocol of April 2014 make specific provision for incidents resulting from an act of war.

The fact that the International Maritime Organization (IMO) felt it necessary to exclude carrier liability in such circumstances suggests that the convention would ordinarily

continue to apply. Consequently, until the 2002 Protocol came into force the convention would determine a carrier's war and peacetime liabilities in the same way.

As far as the carriage of service personnel and equipment is concerned, the key issues are whether there is a 'carrier' and a 'passenger', whether a 'fare' was paid to a shipowner or 'the carrier' and a 'ticket' issued (IMCO, 1974, Article 1).

Fundamental to each of these is whether there is a contract of carriage. The convention defines this broadly as '*a contract made by or on behalf of a carrier for the carriage by sea of a passenger...*' (IMCO, 1974, preamble of Convention).

As a matter of English law this must be a contract for reward, i.e. there must be a benefit to the carrier for performing the service specified in the contract. The details may vary but, as a general rule, if service personnel receive tickets from the carrier, in the carrier's usual form and the carrier is paid by the nation concerned for its service then there would be a contract of carriage for reward. The terms of the convention would then apply (IMCO, 1974, Article 1).

However, if the vessel were to be requisitioned by the flag state, according to the requisition laws of that state, then there would be no remuneration and consequently no contract of carriage, hence the convention would not apply.

Depending on the circumstances of the maritime adventure and the cover that the owner has selected, other P+I risks can be recovered for a casualty, covered by a war-risks incident. Generally an owner will opt for 'all-risks' coverage and err on the side of caution.

2.4.4 War Risks Insurance Rates

The basic rate for war risk insurance fluctuates according to market conditions. Prior to 11 September 2001, it was very low - approximately 0.0075 percent; the rate is always stated as a percentage of the ship's hull and machinery value - this is equivalent to US dollars seventy-five per US dollars one million of value (Hellenic War Risks, 2017).

Since the 11 September 2001 attack on the Twin Towers in New York, U.S.A., the rate for basic war-risks insurance has gone up to about 0.03% gross, that is, US dollars three hundred per US dollars one million of the ship's value (Hellenic War Risks, 2017). Of course, as stated before, this rate can fluctuate as the insurance market 'softens' or 'hardens'. There are also other factors that influence this rate. For example, if the shipowner is offered an all-inclusive cover from his basic hull and machinery underwriter, the war-risks rate as a percentage of the whole may be negligible.

2.4.5 Additional Premium Areas

So far this chapter has dealt with insurable risks and the events which can trigger a claim in areas of the world which are not 'additional premium' areas – in other words, incidents that may occur in areas considered at war and/or not experiencing war-like activities.

Additional premium areas are regions of the world where war-risks insurance underwriters consider claims arising from the war-risks policy to be likely. Intelligence indicates that an incident of the indicated type may occur, has already occurred or is in the process of occurring. Most war-risk underwriters follow the advice of Lloyd's Joint

War Committee, but this is not compulsory.

After 11 September 2001, war-risk insurance underwriters identified several new additional premium areas. Rates for additional premium areas vary according to the insurers' perceived risk of each area and the frequency and size of any claims that may have occurred.

If a ship enters such high-risk areas the owner must pay an additional premium if he wishes to maintain his war-risks insurance coverage. He must declare his intention to enter before entering any such area and agree as to the rate to be paid, and the period the ship will remain within the additional premium area (Hellenic War Risks, 2016).

This additional premium could conceivably be rated at zero, but the underwriter must be advised, in writing, 48 hours in advance that the vessel is scheduled to enter an additional premium area. In peaceful times the underwriter may quote a rate up to one week before the ship enters the additional premium area (Hellenic War Risks, 2016). However, in times of high risk and financial volatility, such as after the 11 September 2001 incident, when national and international security are in doubt, the underwriter may only quote a rate forty-eight hours before the ship enters the additional premium area. The additional premium cover is, initially, usually limited to between seven and fourteen days, which can be extended at further cost. If the vessel is quoted an additional premium rate, expressed as a percentage of the ship's insured value, this will be payable over a seven day period, but if the vessel violates this even slightly, a further seven-day premium payment must be made. However, for Gulf of Aden and Indian Ocean transits where the average transit time is over eight days, the piracy additional premium coverage is not limited to seven days but covers the entire transit (Swedish

Club, 2010).

For purposes of illustration, in mid-March 2011 the AP rates quoted by the market were approximately as follows (Hellenic War Risks Association, 2013):

Table 3: Additional Premium AP Rates – Mid March 2011

Premium AP Rates	Area	AP Area Classification
0.00%	FOR THE SUEZ CANAL AND RED SEA TRANSIT	Not an AP Area
0.12%	FOR SAUDI ARABIAN PORTS (\$1,200 FOR \$1 M INSURED)	AP Area
0.10%	FOR UM QASR IN THE ARABIAN GULF (\$1,000 FOR \$1 M INSURED)	AP Area
0.0125%	FOR ISRAEL (\$125 FOR \$1 M INSURED)	AP Area
0.075%	FOR BASRAH (\$750 FOR \$1 M INSURED)	AP Area
0.02 to 0.175%	FOR NIGERIAN PORTS (\$100 - \$175 FOR \$1 M INSURED)	AP Area
0.00%	FOR STRAITS OF MALACCA	Not an AP Area
0.0825%	FOR GULF OF ADEN TRANSIT (\$825 FOR \$1 M INSURED)	AP Area
0.25% to 0.5%	FOR LIBYAN PORTS (\$2,500 - \$5,000 FOR \$1 M INSURED)	AP Area
5.00% +	FOR SOMALI PORTS. (VIRTUALLY UN-INSURABLE) (\$50,000 FOR \$1 M INSURED)	AP Area

These figures vary continuously depending on the political conditions around. For example, the figures for early 2013, as quoted by Hellenic War Risks Association were:

Table 4: Additional Premium AP Rates – Beginning 2013

Premium AP Rates	Area	AP Area Classification
0.00%	FOR THE SUEZ CANAL AND RED SEA TRANSIT	Not an AP Area
0.012%	FOR SAUDI ARABIAN PORTS, 7 Days (\$120 FOR \$1 M INSURED)	AP Area
0.05%	FOR UM QASR IN THE ARABIAN GULF, 7 Days (\$500 FOR \$1 M INSURED)	AP Area
0.0125%	FOR ISRAEL, 7 Days (\$125 FOR \$1 M INSURED)	AP Area
0.05%	FOR BASRAH, 7 Days (\$500 FOR \$1 M INSURED)	AP Area
0.01 to 0.175%	FOR NIGERIAN PORTS, 7 Days (\$100 - \$1750 FOR \$1 M INSURED)	AP Area
0.00%	FOR STRAITS OF MALACCA	Not an AP Area
0.024750 to 0.041250%	FOR GULF OF ADEN TRANSIT, 14 Days (\$247.5 - \$412.5 FOR \$1 M INSURED)	AP Area
0.015%	FOR LIBYAN PORTS, 7 Days (\$150 FOR \$1 M INSURED)	AP Area
5.00% +	FOR SOMALI PORTS, 7 Days (VIRTUALLY UN-INSURABLE) (\$50,000 FOR \$1 M INSURED)	AP Area

Please note: these are rates offered by the Hellenic War Risks Mutual to its members and actual market rates are generally higher.

2.4.6 Cancellation of Policy

A war-risks insurance policy is very unusual in two respects (Hellenic War Risks, 2016):

First, the policy is subject to automatic termination:

1. Upon the outbreak of war (whether there be a declaration or not) between any of the five permanent members of the U.N. Security Council: The United Kingdom, The United States of America, France, the Russian Federation and the People's Republic of China
2. In the event of the insured ship being requisitioned either for title or use
3. In the event of nuclear, chemical, biological or radiological war (CBRN) or detonation of such devices.

Requisition

If a ship is requisitioned by its flag state, or in fact by any flag state, the owner is no longer insured by his war risk insurer. He must therefore look to the government or state organization that has requisitioned his ship for compensation if the ship is destroyed or incurs losses and liabilities which would normally have been covered by his Hull and Machinery, war-risk or other insurance (Hellenic War Risks, 2016).

The financial ability and willingness of the requisitioning government or state organization to pay compensation in such cases is obviously of prime concern to the ship owner. This explains why policies such as the UK's 'Queen's Enemies' insurance are so valuable. This long-standing policy covers war risks for vessels requisitioned by Her Majesty's Government as well as for vessels simply chartered for national, military and humanitarian sealift transportation requirements, regardless of whether they are for military deployment, sustainment or redeployment and regardless of whether war has been declared or not.

Policy cancellation re-instatement

The second unusual feature of war-risks insurance policy as well as the way the insurers impose additional premium areas, is that the insurance underwriter can cancel the policy at any time after giving a seven-day notice of cancellation (Hellenic War Risks, 2016). The usual clause in the policy will read as follows:

Such cancellation shall be effective on expiry of seven days from midnight of the day on which notice of cancellation is issued by the insurer. The insurer agrees to reinstate any insurance cancelled in accordance with this provision subject to agreement between the insurer and the owner prior to the expiry of such notice of cancellation as to the premium to be paid and/or the terms and/or conditions and/or warranties of insurance

(Hellenic War Risks, 2016, p 38).

Further, because most things nuclear are always taken as an ‘exclusion’, the clause may also read as follows:

Caused by ionizing radiation from or contamination by radioactivity. From any nuclear fuel or from any nuclear waste or from the combustion of nuclear fuel; the radioactive, toxic, explosive or other hazardous or contaminating properties of any nuclear. Installation, reactor or other nuclear assembly or nuclear. Component thereof; any weapon of war employing atomic or nuclear. Fission and/or fusion or other like reaction or radioactive force or matter
(Hellenic War Risks, 2016, pp. 27-28).

In the past decade, due to changes in technology, a new clause, known as the CBRN clause (Chemical, Biological, Radiological or Nuclear), has been introduced. This clause has already been incorporated to all war-risks policies and stipulates that if a CBRN device is detonated then coverage is automatically cancelled.

As can be easily understood, this cancellation clause can create immense problems for any strategic or humanitarian seafaring operation because the detonation of a small chemical, or more importantly radiological, device can destroy computers or communication equipment and at the same time adversely affect war-risks cover (Hellenic War Risks, 2016).

To illustrate, let us assume that an operation for humanitarian aid to a nation hit by a natural disaster has been agreed upon. Let us also imagine that a small group of separatist terrorists in that nation wish to take advantage of the confusion brought about by the natural disaster. If they decide to detonate a small CBRN device then war-risks coverage in that area will be automatically cancelled and any maritime adventure must automatically cease unless a suitable alternative is found. Otherwise, both owner and charterer will not be able to assume the risk of prosecuting the adventure.

The above applies to a military operation in which, for example, half the equipment has arrived at the sea port of discharge (SPOD) while the troops have arrived by air they are awaiting the arrival of their equipment by sea. If a CBRN device were then to be detonated at the SPOD, the vessel carrying the balance of equipment would not be able to approach the SPOD to discharge her cargo unless suitable additional premium war-risks insurance cover were to be first in place. Such cover must satisfy the owner the charterer but also the vessel's mortgagee and those responsible for any personnel onboard whether they be troops or supercargoes.

Maritime and aviation war risk comparison

Since most military, humanitarian aid and refugee transportation involve both sea and air elements, it is interesting to note the differences between the aviation and maritime perceived risks and liabilities.

As a matter of contrast, the war risks involved in marine adventures are quite different to those war-risks for the aviation industry. Firstly, aircraft go in and out of war-risk areas much faster and can leave a potential war-risk area much faster than a vessel. Secondly, there are many more 'additional premium areas' in the aviation market, because it has to consider risks in inland as well as coastal areas.

In the case of aviation, war-risk cover is also considered particularly relevant when flying into Third-World countries such as nations in Central and South America. Confiscation and seizure are considered to be major perils in the aviation industry whereas they are almost non-existent in the commercial maritime industry.

The liability of passengers in aircraft is governed by the Warsaw convention, (Convention for the Unification of Certain Rules Relating to International Carriage by Air, signed at Warsaw on 12 October 1929; International Civil Aviation Organization, 1929) which covers passengers up to US dollars seventy-five thousand. On the other hand, ticket holding passengers on vessels are covered by the Athens Convention. This cover was set at one hundred seventy-six thousand (SDR) Special Drawing Rights in 1996 and has been recently raised to two hundred thousand SDR per passenger, but this figure has not been ratified by all nations. According to the International Monetary Fund (2016) 1SDR=US\$1.344330.

Marine war-risk insurance covers particular average damage as well as total loss but even though the aviation war-risks policy also covers particular average as well as total loss, the frequency of particular average claims in aviation is very low whereas, regrettably, there is a higher frequency of total loss. It is in the nature of the aviation industry that when there is an accident it is usually catastrophic.

A vessel may be hit by a missile causing immense damage and preventing the vessel from completing its intended voyage but with no loss of life or damage to the cargo, in which case the vessel will be diverted to a safer port, the cargo discharged and finally the vessel will be repaired and the underwriter will pay a finite particular average claim.

On the other hand, if a commercial airliner is hit by a missile whilst in flight the chances are that the plane will be a total loss, all the lives on board will be lost and the cargo will be destroyed. In this case the underwriter will pay a massive total loss claim in addition to a huge personal accident liability claim.

When assessing the risk there are several factors which vary between marine and

aviation:

1. Time scale: A vessel is within an additional-premium war-risk area for a period of days; it may take days for a ship to approach a port and during which she could be in an additional-premium war-risks area. It takes days to discharge and days to leave the port or area. For example, to go to the Persian Gulf port of Kuwait where the additional-premium war risk begins crossing the twenty-fourth parallel North (Hellenic War Risks, 2014). This is a distance of about seven hundred miles, which at fifteen knots would take about two days. An aircraft would fly in, discharge and fly out all in a matter of hours.
2. Values: A modern RO/RO vessel has a value in excess of US dollars seventy million (Horizon Ship Brokers, 2017); the cargo on board may have a value of US dollars ten million (which is the approximate value of cargo in Case Study 1, Chapter four, below). With about one thousand passengers on board their liability would be, according to the Athens convention, roughly US dollars three hundred million. Summing it all up makes the total war-risks potential liability of the adventure about US dollars three hundred eighty million. A modern Jumbo jet has a value of over US dollars two hundred million with a cargo value of, say, US dollars ten million. With four hundred passengers on board there is a liability of US dollars thirty million according to the Warsaw Convention (International Civil Aviation Organization, 1929), bringing the total war-risks value of the adventure about US dollars two hundred forty million. This smaller overall value is also at risk for a shorter amount of time. However, most major airline carriers purchase between US dollars one million five hundred thousand and US dollars two billion worth of liability cover to allow for high value passengers (International Union of Aerospace Insurers, 2012).

3. Frequency: An entire conventional strategic sealift operation will require, say, a total of one hundred vessel-voyages to move the larger, heavier equipment that cannot be handled by aircraft, whereas there may be as many as one hundred flights in a single day for troops and lighter and more urgently required cargoes.
4. Pollution: The pollution from an aircraft is minimal because most of the jet fuel will evaporate and the maximum capacity of an aircraft's fuel tanks is in the order of one hundred fifty tonnes for a long haul flight. On the other hand, a modern RO/RO will burn about fifty to sixty tonnes a day and will have a capacity of over one thousand five hundred tonnes of Intermediate fuel oil, 380 centistokes. A spillage would require a major, multi-million dollar clean up plus litigation defence, and also would also incur a multi-million dollar fine (Wickham, 2012).

This brief explanation of the differences between marine and aviation risks and liabilities is meant to demonstrate that all such considerations must be taken into account before choosing a mode of transportation; it is also meant as an introduction of what to expect before embarking on the business of contracting a sealift asset in order to perform a sealift maritime adventure.

2.4.7 CBRN Devices and Detonation

As mentioned above, the new CBRN exclusion clause was introduced as recently as ten years ago and implies that when chemical, biological, radioactive or nuclear agents are used then commercial marine war risks cover is automatically cancelled.

If there were an imminent threat of CBRN weapons being detonated, the radioactive

contamination/nuclear exclusion clause would not apply, on the grounds that there would not be any loss or damage unless the weapons were actually detonated or used (Hellenic War Risks, 2016). The deployment or arming of such weapons would not trigger the exclusion clause for the same reason. However, any 'sue and labour' costs would not be recoverable, because they would be incurred in relation to loss and/or damage that was subject to an exclusion from the policy; 'sue and labour' costs are, as the words imply, expenses incurred by the shipowner acting as a 'prudent' uninsured shipowner to mitigate and minimise the total exposure to casualty of the insured incident (Hellenic War Risks, 2016).

If, on the other hand, the CBRN weapons were detonated, causing loss or damage to a ship or ships, again that loss and damage would not be recoverable, because it would be subject to the same exclusion. It is possible, however, that the detonation would render certain areas in the proximity prohibited or uninsurable so that war-risks cover would not be available for ships in that area. Thus, unless a suitable alternative insurance was found that was satisfactory to the ship owner, and his financiers and all those involved in the maritime adventure, then it would be obliged to cease.

If only a threat persisted, cover would not be cancelled, but would remain available; the question would then be, at what rate? This is where the underwriter's risk assessment would come into play. It can be assumed that, even if the situation stopped short of 'absolute mayhem', the general situation would be tense and there could well be overt or covert operations afoot. In those circumstances, the financial cost of maintaining the insurance cover, presumably ultimately by the charterers of the vessel, would have to be weighed against the military/political need to deploy forces or equipment in the particular area or to pursue the adventure. The dilemma is far easier to answer in the

situations where the maritime adventure is predominantly for humanitarian aid or refugee evacuation as other political factors are prominent (Chakravarty, 2011).

To summarise, there are some circumstances and possible scenarios in which commercial war-risks cover would not be available at all and others where it would only be available at rates that would be potentially prohibitive.

A possible scenario to consider is as follows:

A military or humanitarian force is set to move to a particular hot spot, either to deliver military hardware, medical supplies or to evacuate refugees. Ships and aircraft are chartered, not requisitioned, and are on their way to the sea port of discharge (SPOD). There will most likely be staggered arrival of both aircraft and vessels, since this is not only financially sound but also practical because airport aprons and seaports have finite storage and demarcation capacity. In the event that a CBRN device is detonated after the arrival of the first wave of ships and aircraft, then the cover will be cancelled by the war-risks underwriter within seven days, as described previously, and the balance of ships and aircraft will be unable to go to destination and deliver their cargo, unless alternative satisfactory war-risk cover is made available. In most circumstances the market will impose additional-premium rates dependent on the perceived threat and predicted future threat, hopefully within the budget restrictions of the adventure. As mentioned above, an alternative open to most nations would be the requisition of the sealift asset so as to order the adventure to be prosecuted to completion; under such circumstances the requisitioning government or state organization will assume all risks and liabilities.

It should be noted that on many occasions, a shipowner must obtain the approval of his

financial backers, shareholders and/or partners and the consent of the crew to pursue the adventure with regard to his choice of war-risks underwriter or alternative war-risks cover. In the event that commercial war-risk cover is not available, some nations have created alternative arrangements. For example, the Hellenic Republic has contracted the Hellenic Shipping War Risks Insurance S.A (Ellinikai) to handle such situations (Karamanglis, Papaligouras, Rallis, Mpitsios, Averof-Tositsas, et al., 1975).

Having understood this brief introduction to the basic concept of war-risks insurance and the fundamental reasoning behind purchasing such cover, it is also important to understand the practical aspects and use of this specialised form of insurance. Piracy is a crime that has been perpetrated from the time that man took to water and transported goods by sea; regrettably, piracy is still rife all over the world and adversely affects many maritime adventures. It has become such an important factor in any maritime transportation requirement, regardless of it being civil or military, that armed protection of ships is often the norm as opposed to the exception.

2.5 The Issue of General Average

Ships carrying cargo and the masters who operated them were protected by a maritime system dating back to the unwritten *Lex Maritima*. This early type of coverage was developed on the island of Rhodes, an important maritime centre, around the ninth century BC. Due to the international nature of shipping and the differences in the law's application, however, as a means to introduce international uniformity, the concept of general average was formally codified into the York-Antwerp Rules in 1890. The rules have been updated numerous times, most recently in 2004 (Comité Maritime International, 2004, Rule A, p.4). The rules state:

There is a general average act when, and only when, any extraordinary sacrifice or expenditure is intentionally and reasonably made or incurred for the common safety for the purpose of preserving from peril the property involved in a common maritime adventure.

The law of general average is a principle of maritime law according to which all parties in a sea venture proportionally share any losses resulting from a voluntary sacrifice of part of the ship or cargo to save the whole in an emergency, for instance, when the crew throws some cargo overboard to lighten the ship in a storm (Maloof Browne & Eagan, 2013).

General average is a method that allocates the costs of marine casualties among the parties who benefit from the cargo and ship being saved. Claims generally fall into two categories (Maloof Browne & Eagan, 2013):

1. Losses and sacrifice for the common benefit of the ship, cargo and property involved in the adventure and
2. Expenses of common safety to complete the voyage which would include ports of refuge costs, port dues, wages and maintenance along with repairs of accidental damage.

The four essential prerequisites for a general average declaration are (Johnson, 2013):

1. Incurrence of an extraordinary sacrifice or expenditure
2. Occurrence of an intentional or voluntary, but not necessarily inevitable, act
3. Presence of a real and substantial, but not necessarily imminent, peril
4. Resolution must be for the common safety and not merely to salvage part of the property involved

Johnson (2013) also stated that the calculation of general average contributions is a complex task. Given the rather piecemeal development of the rules, correct interpretation continues to be a task for experts who specialise in general average adjusting. General average security usually takes the form of a General Average Bond signed by cargo owners, together with either a cash deposit for the amount determined by general average adjusters or a General Average Guarantee provided by the cargo insurers.

Guarantees are usually only accepted from reputable insurers with a strong financial backing. Where the insurer does not meet the minimum financial strength criteria, additional security may be required before release of cargo. Therefore, cargo owners and their brokers, in the current global financial climate, are advised to deal with a reputable marine insurer with a healthy solvency margin and a strong international credit rating (Johnson, 2013).

According to Johnson (2013), the following are some examples of events and expenditures that are likely to be involved in a general average loss:

- Grounding/stranding (such as: Damage to vessel and machinery through refloat

efforts; loss or damage to cargo through jettison or forced discharge, cost of discharging, storing and reloading of discharged cargo and port of refuge expenses)

- Fire (e.g., Damage to ship or cargo due to efforts to extinguish a fire on board, jettison of cargo and port of refuge expenses)
- Cargo shifting in heavy weather (i.e., jettison of cargo and port of refuge expenses)
- Heavy weather collision or machinery breakdown (port of refuge expenses)

2.6 How to Move it

Heavy and bulky military and humanitarian aid hardware can best be moved by sea although there are alternatives such as heavy lift aircraft - for example, the Andonov 124. However, economies of scale *versus* high fuel consumption and cost together with the aircraft's weight restrictions make transportation by sea the preferred mode of transport for oversized and heavy cargoes.

It is clear that virtually anything can be transported by sea in the appropriate type of ship, and what is vital in any operation, be it military or civilian, is the ease and speed that the particular cargo can be loaded, transported to its destination and discharged. A further consideration is cost which is of paramount concern given today's fiscal difficulties and budgetary restraints. Tonne-mile for tonne-mile, shipping is the most economical and environmentally friendly means of transportation (NATO, 2008e).

Obviously, when it comes to refugee evacuation and in some humanitarian aid situations, the greater speed of aircraft is attractive and more practical; however,

airports are often the first area to be under belligerent siege during a conflict and are usually not as reliably operational as a sea port. Consequently, suitable ships will be required to carry the refugees out of harm's way and for these situations passenger car ferries are ideal.

The choice of ship type is not only dependent on the cargo but also the constraints of the maritime adventure, beyond the obvious restrictions that liquid such as diesel fuel and fresh water should be transported by tanker, and containers should be transported on container ships. Cargo handling equipment on the vessel, making her self-sufficient, is desirable. Even these apparently obvious choices of a tanker for liquids and a container ship for containerised cargo can impose operational constraints which will preclude the use of tankers and container ships. For example, in the situation that there is no available means to further transport the liquid to the theatre of operations, such as available tanker trucks and such, then the sea transportation of the diesel fuel may need to be done in tanker trucks or containers thus affecting the choice of vessel type from early on in the planning stage. When cargo handling equipment is required, the choice of vessel is affected (NATO, 2008e).

The appropriate vessel can also be determined by the loading and discharging port facilities, their non-existence or even their condition post-conflict, including their draft restrictions, the berth availability and the existence or condition of the port cargo-handling equipment. These are all criteria that must be examined early on during the planning stage and prior to the selection of vessel type.

2.6.1 Choice of Vessel

There are many variables that should be examined at the planning stage when selecting

the ship type, and below is a non-exhaustive list of the variables:

- Ease of loading and discharging
- Speed of loading and discharging
- Capacity of the vessel (availability and space efficiency)
- Physical dimensions of the vessel
- Speed of the vessel
- Cost of the vessel
- Availability of the vessel
- Flag and crew nationality

This will then lead to the consideration of the ship type as discussed above. The basic generic ship types are listed below together with their basic description (NATO, 2008e):

- RO/RO: with stern and quarter ramps
- PCTC: with movable decks
- General cargo ship: with military suitable cargo gear
- Heavy lift cargo ship
- Bulk carrier: with military suitable cargo gear
- Container ship: gearless with or without cell guides
- Container ship: geared
- Container feeder
- RO/PAX: ferry boat
- Cruise ship: passenger carrier
- Float on/Float off: for specialized use
- Reefer
- Tanker: all sizes, all products

- Tug: off shore supply

In order to assess the suitability of ship type for various maritime adventures, the researcher has conducted on-site inspections. A list of the visits is cited in Appendix 1.

A brief description, as provided by the IMO (2004b), of the main details of each vessel type will help the user in selecting the appropriate vessel for a particular maritime adventure (Kendall, 1979); even a small change in the operational parameters or port facilities and equipment can affect the suitability of a particular ship type.

The RO/RO: with stern and quarter ramp

This type of vessel is the most suitable for military use, as it is specifically designed for rolling stock. The roll-on/roll-off (RO/RO) has fixed or moveable flat unobstructed car decks to accommodate the rolling stock, usually cars or small SUV's. Access is predominately through a stern ramp, but this requires 'stern to' mooring - for 'side to' mooring the vessels require a quarter ramp. Most RO/ROs sail at the higher speed range for ocean-going vessels of between fifteen and twenty-five knots. The majority of modern RO/ROs are fitted with bow and stern thrusters thus increasing their manoeuvrability and their suitability to serve semi-operational ports or ports where tug assistance is unavailable. Their versatility also includes the ability to carry containers. For military consideration the vessels' ramps must have the strength to accommodate a battle-ready tank, which can be in the order of seventy tonnes; most modern RO/ROs are built to this standard or higher (Croatian Shipbuilding Corporation, 2014).

The researcher visited a RO/RO; see Appendix 1.

Since the RO/RO can accommodate most shapes and sizes of military cargo, including

containers that are on trailers or lifted on by crane to topside decks, this is the most sought after vessel for military maritime transportation operations. Yet there are many other vessels that can do the job and are often far more economical to hire in the open market.

The PCTC: with movable decks

The pure car and truck carrier (PCTC) is almost identical to the RO/RO with the only difference that these ships are usually designed for longer voyages and have vertically moveable car decks so that they can accommodate taller vehicles, trucks, SUV's or, in the case of the military adventure, tanks and armoured cars. Most people have seen these vessels plying the seas and remark that they look like floating boxes. Speed is important in the car transportation trade therefore, these ships tend to be highly powered and can attain the same speeds as the RO/RO (MOL, 2017).

This is a new breed of ship and is usually quite large and purpose built for a specific trade, so it is unlikely to be readily available or for that matter necessarily suitable for military use. The researcher visited a PCTC; see Appendix 1.

The General Cargo Ship: with military suitable cargo gear

A dying breed of vessel (Drewry, 2016b), this was the transport workhorse of all major conflicts until the development of the container in the 1960's. This vessel type saved Europe during WWII, and the most famous and archetypical general cargo ship is the

'Liberty' ship (Kendall, 1979), designed in the USA by Keiser, pre-fabricated inland to be built in less than a month on the US slipways during the conflicts in Europe. The Liberty ship was ostensibly built for a one-off voyage to accompany a convoy across the north Atlantic to deliver humanitarian aid to the British Isles. It is often referred to as the 'Tween-Decker' because it has an intermediary deck between the tank top (bottom) and the weather deck (top) so to secure more deck space to carry all types of general cargo, including containers, as opposed to bulk cargoes. The success of the 'Liberty' ship led to the development of its more modern counterparts: The UK designed and built 'SD14' and, likewise Germany had its own 'GLR' ,German Liberty Replacement. Currently, the more modern version has heavier cargo handling gear and is thus suitable for lift-on/lift-off operations handling the sort of heavy equipment transported by the military. It can also carry tanks, trucks, helicopters, boxes, containers and refrigerated containers. Nevertheless, this is not the military's first choice of vessel type as the lift-on/lift-off loading and unloading of the general cargo ship is much slower than the RO/RO. Yet some conflicts are unable to handle the RO/RO as the ports were never designed to cater to this type of vessel or type of cargo handling; an example of this was in the Falkland conflict where most of the UK strategic sealift transportation and sustainment was carried out by general cargo vessels (Koburger, 1983). The researcher visited a general cargo ship; see Appendix 1.

The Heavy Lift General Cargo Ship

As the name implies, these are basically the standard general cargo vessels with the addition of exceptionally heavy cargo handling equipment. These ships may be fitted with derricks that can handle lifts upwards of three hundred metric tonnes. Although

they may not be so useful for the military, they can be of tremendous value in humanitarian aid operations when entire food processing factories or complete desalination plants need to be transported directly to an area in need. Their most common trade is large industrial items such as nuclear reactor core chambers (Tuscor Lloyds, 2014).

Though not often sought out by the military, they could be appropriate for specific situations requiring the transportation of over-sized cargoes. The researcher visited a heavy lift general cargo ship; see Appendix 1.

The Bulk Carrier: with military suitable cargo gear

The bulk carrier is currently one of the most commonly used vessels (Drewry, 2016a). It is designed to take bulk cargoes (Kendall, 1979), as the name implies, and can vary in size from less than one thousand metric tonnes to over two hundred thousand metric tonnes (MT). It can also be fitted to take containers in which case it is known in the trade as a con-bulker; this would make it more attractive for military use except that it usually has cargo handling gear of around twenty-five to thirty-five metric tonnes per lift, insufficient for most military equipment cargoes. However, the smaller bulk carriers are convenient as a stop-gap solution in a situation where a more militarily suitable ship is not readily available. Furthermore, the mere fact that they are more economical to charter due to the sheer volume of available tonnage should make them a candidate for serious consideration by the military transportation planner. The researcher visited a bulk carrier ship; see Appendix 1.

The Container Ship: gearless with or without cell guides

The container ship has become one of the main workhorses of the ‘finished product’ industry. Most items that can be packaged can also be containerized so the possibilities are limitless (thus the dream of all the large container companies must be to containerize everything that needs to be transported). Container ships have two main configurations: firstly, those with container shoes on the tank tops and hatch covers requiring additional fittings and locking devices to keep them together and prevent them from falling overboard and secondly, the open hatch type with ‘cell guides’ that simply guide and lock the cargo into position. An important feature, of use to the military, is that if the cargo (for example, a tank) does not fit into a container twenty foot equivalent unit (TEU) with dimensions of 20’ x 8’6” x 8’, then the vessel can be reconfigured to take open ‘flat beds’ that can have the surface area of up four TEUs or 40’ x 8’6” x 16’ and can carry a weight of over eighty metric tonnes (Drewrey, 2016b).

Large container ships are known as mother ships, and can be as large as fifteen thousand TEUs, but these type of ships, however, are not suitable for direct military use although they have a use in the liner service trade. Smaller container ships are more appropriate for military use. Predominantly, the large container ship is gearless and requires shore facilities to load and discharge her cargo (Shipping Guides LTD, 2017). The researcher visited a container ship, gearless; see Appendix 1.

The Container Ship: geared

The geared container ship is smaller in size than the ‘mother’ ships as her maximum

beam is limited by the length of her crane booms. To be considered and marketed as geared, this vessel must be totally self-sufficient and able to handle all containers in her holds and on her decks. This type of container ship is suitable for direct charter by the military; it is also suitable for humanitarian aid and can trade to ports with limited facilities, because of its self-sufficiency (Shipping Guides LTD, 2017).

The usual cargo handling gear is in the region of forty metric tonnes per lift, which allows for the standard TEU with a weight of twenty-two metric tonnes and the longer FEU (Forty foot Equivalent Unit) with a weight of forty metric tonnes. Geared container ships also have the advantage of good speeds in excess of eighteen knots. The researcher visited a container ship, geared; see Appendix 1.

The Container Feeder

The container feeder vessel is usually small, rarely more than one thousand TEU's, and should be geared in order to be self-sufficient, unless, of course, she is purpose built for a particular trade where the ports are fitted with the appropriate cargo handling facilities. These vessels are highly suitable for military and humanitarian use and are very versatile (Shipping Guides LTD, 2017).

The container feeder vessels are mainly used in the hub and spoke trade configuration (NATO, 2004) where they take the containers (delivered by the mother ships to the hubs) and deliver them to the spokes. Most of the container feeder vessels are not fitted with cell guides and are therefore able to also load non-containerized cargo hence making them ideal for military and humanitarian aid use. The researcher visited a container feeder vessel; see Appendix 1.

The RO/PAX: Ferry boat

The passenger ferry is a very familiar sight to holiday-goers as they ply the Mediterranean and Caribbean waters on a regular basis. The standard design principle makes them a particularly useful vessel for all forms of maritime transportation from strategic defence sealift to humanitarian aid and refugee evacuation. With the addition of the garage decks, a passenger ferry can carry a whole battalion together with their rolling stock and equipment, retaining unit integrity and command and control. The modern passenger ferry is designed to cater to all types of trade and is very flexible when it comes to speed and loading axle weight, both features that are useful for military sealift. Indeed, today most modern Mediterranean passenger ferries boast Medevac facilities together with satellite communication (NATO, 2008e).

The usefulness of this type of vessel for maritime transportation cannot be over-stated if one considers the convenience of having passenger cabins and catering facilities when evacuating refugees and also having garage space so that they can bring their personal belongings. This analogy is also valid for humanitarian aid deployment and sustainment, and a valid scenario might be the arrival of a humanitarian team with their equipment and, in the event of inadequate or insufficient facilities ashore to house the arriving personnel, the passenger ferry can remain in the most convenient port and provide accommodation. The researcher visited a RO/PAX; see Appendix 1.

The Cruise ship: passenger carrier

The cruise ship is very similar to the passenger ferryboat without the luxury of the

garage decks. Historically, they have been employed as troop carriers and are ideal for refugee evacuation. Obviously, their military uses are limited by the fact that they do not have the ability to carry rolling stock.

One disadvantage is the cost, as cruise ships tend to cater to the luxury market and their fittings are more expensive than the average passenger ferry. However, in 1982 the *Queen Elizabeth II* took part in the Falkland Islands conflict, carrying three thousand troops and a six hundred fifty volunteer crew to the South Atlantic. She was refitted in Southampton; works included the installation of two helicopter pads, the conversion of public lounges into dormitories, the installation of fuel pipes to allow for re-fuelling at sea and the covering of the carpets with two thousand sheets of hardboard (Koburger, 1983). The researcher visited a cruise ship; see Appendix 1.

The Float on/Float off: for specialized use

The float on/float off (Flo/Flo) vessel is a very specialized ship. It has limited military use save for the transportation of damaged vessels such as the *USS COLE* which was struck by terrorists at the anchorage of Yemen and could not sail home for repairs (Burns, 2000).

The operational principle of this vessel is to flood her ballast tanks until her flat, open cargo deck is submerged sufficiently to load another vessel, in piggy-back fashion. A potential use could be in the event that an operation is taking place up a shallow river which would necessitate the use of shallow draft river boats. Since these latter boats are not classed for blue water sailing they could be transported on a Flo/Flo vessel with great ease (Global Security Institute, 2017). The researcher visited a Flo/Flo vessel; see Appendix 1.

The Reefer Ship

The reefer vessel is basically a general cargo vessel where the cargo compartments are refrigerated. The temperature depends on the cargo being transported, obviously colder temperatures for the transportation of fish and meat and less cold for the transportation of fruit and vegetables. This is a very useful vessel for operational sustainment and humanitarian aid in particular where the theatre of operations is near the sea port of discharge (SPOD) and no further transportation over substantial distances is required. In the alternative situation where there is a long onward movement to the theatre of operations then it is preferable, logistically speaking, to make use of refrigerated containers (R.TEU).

The refrigerated configuration of these vessels requires all the deck openings to be much smaller than those of an equivalent general cargo vessel, as it is of paramount importance to maintain the desired temperature and smaller hatch openings help to limit thermal loss (Shipping Guides LTD, 2017). The researcher visited a reefer vessel; see Appendix 1.

The Tanker: all sizes all products

The tanker is a vessel that everyone is familiar with, designed to carry fluids ranging from fresh water to diesel oil or even bitumen (tar). Essentially, the tanker can carry any flowing cargo, even grain. The smaller tanker, one thousand to twenty thousand tonne-cargo capacity, can be very practical for military use and sustainment by supplying

fresh water and all forms of fuels for tanks and aircraft to the SPODS near to the theatre of operations where further inland transportation can be performed by tanker-trucks (Shipping Guides LTD, 2017).

The modern tanker is self -sufficient in loading and unloading and is easily able to carry and deliver many different grades of fuel simultaneously, as it has many sub-divisions to enhance stability and increase versatility.

The much larger tankers are neither logistically practical nor useful for the type of operation under consideration as they require greatly enhanced port facilities, far deeper drafts. Furthermore, they entail very high insurance premiums and are basically a moving and vulnerable target for hostile action or piracy (SIGTTO, 2011).

All rapid deployment forces and sustainment forces require the use of tankers to supply much needed fuels for equipment ranging from aircraft and tanks to generators for hospital and hotel services. The researcher visited a tanker; see Appendix 1.

The Tug/Off Shore Supply

The tugboat is not mentioned here as a vessel to carry out sealift transportation but rather as a means to assist other vessels. In situations where, for example, the SPOD has been attacked and compromised, then tugboats will be required to assist in entering and leaving port and with berthing and un-berthing, especially where port channels are dangerous to navigate (Shipping Guides LTD, 2017). The researcher visited a tug; see Appendix 1.

There is a variety of other vessel types that have not been discussed in this chapter but they are not applicable to military or humanitarian aid sealift transportation.

This chapter has given the reader a sufficient understanding of how the commercial shipping market works to be able to take advantage of what is available in the commercial shipping market and identify the potential for civil/military synergies.

CHAPTER 3

A CIVIL MILITARY INTEGRATION FOR STRATEGIC SEALIFT FRAMEWORK

3.1 Introduction

This chapter discusses the theoretical background of this study and presents information extracted from various reports and existing studies in the field of civil and military integration for strategic sealift.

Prior to examining the strategic cooperation for sealift operations between military and civil organisations, this thesis considers various cases where numerous countries have deployed strategic sealift in a number of military operations. Logistics capabilities are indispensable in determining where, when, how and for whom operational plans are executed. Logistics systems support the delivery of the assets required to fight and sustain. This involves strategy, operations and tactics. In earlier days, war efficiency was only limited by the endurance of crews and armaments. Wars used to be relatively limited in duration and geographical extent. With the passage of time, the ambition for maritime dominance resulted in the territorial extension of military operations. Consequently, the concept of logistics has gained importance and gradually became a predominant factor in the waging of wars.

3.2 Historical Examples of Civil/Military Cooperation

Since World War II, the world has experienced two wars where logistical factors were crucial. In 1982 the UK went on a mission to recapture the Falkland Islands following an Argentine invasion some eight thousand nautical miles away. Then, in 1991 a Coalition Force led by the U.S.A. operated in the Middle East, some seven thousand five hundred nautical miles away from US shores, to free Kuwait from Iraqi occupation. From the British point of view, the Falkland Islands war was fought thousands of miles away from home where there was no infrastructure for logistic build-up and support. Yet the British managed to project their power with remarkable success. Of course, maritime supremacy and technological know-how were also crucial in that war (Koburger, 1983). On the other hand, the Gulf War is said to have been a logistical miracle. The coalition developed a huge logistics build-up during both the ‘Desert Shield’ and ‘Desert Storm’ operations. Projecting a force to a theatre of operations thousands of miles away depended on the strategic triad of airlift, sealift and pre-positioned war materiel. Once a robust strategic triad was in place, the next important step was the reception and distribution of capabilities on the spot. The coalition forces had no problem as they received support from several other countries around the globe (Gustafson, 1992).

The Case of the Military Sealift Command (MSC)

The replenishment and military transport ships of the US Navy are known as the United States Military Sealift Command and they are tasked with providing sealift transportation for US military services in addition to other US government agencies.

The MSC was founded in July 1949 to replace the US MSTs (Military Sea

Transportation Service), and became solely responsible for the maritime transportation requirements of the Department of Defense, renamed Military Sealift Command in 1970.

The MSC vessels are made up of a fleet of ships, some owned by the US Navy and others are on long and short period chartered in tonnage, and manned by civilians. Depending on operational requirements they may carry Navy or Marine Corps personnel to perform communication and specialised duties including force protection.

The Military Sealift Command is made up of five units: Sealift, Service Support, Special Mission, Prepositioning and Combat Logistics Force. The Sealift unit is the largest of the five and is responsible for the transportation of equipment, vehicles, helicopters, ammunition, and supplies by means of tankers, cargo ships and RO/ROs (US Navy, 2015).

The Special Mission unit supports military and government operations, such as submarine support and missile tracking. The Prepositioning unit supports US military global operations by deploying supply vessels before they are actually needed. The Combat Logistics Force unit replenishes US Navy and MSC vessels at sea, enhancing the combined naval fleet's sustainment and independence.

The Case of the Royal Fleet Auxiliary (RFA)

The UK's Ministry of Defence owns a fleet of vessels, manned by civilians, designed to support the Royal Navy (RN). By supplying the RN vessels at sea, RAS (replenishment at sea), provides an array of services from fuel, victuals and ammunition to spares and repairs thus enabling the RN vessels to carry out global operations over extended periods of time without port calls. The RFA vessels further assist by supporting training

exercises, anti-piracy and anti-drug operations in addition to transporting Royal Marine and Army personnel (Heyman, 2006).

An example of the use of RFAs is provided during the war in the Falkland Islands, a small archipelago situated in the South Atlantic Ocean. They have been under British rule since 1842 but have been a bone of contention for British and Argentina. Possession of these islands enabled the British to extend their reach into the Atlantic. On the other hand, Argentina had been claiming the islands since the early nineteenth century. In April 1982 Argentine forces occupied the Falklands Island and South Georgia. By mid-June the islands had been returned to full British sovereignty after a bloody war. Logistics played the key role in this war. The British government ultimately assembled twenty-eight thousand men, forty-four warships, twenty-two Royal Fleet Auxiliaries (RFAs) and forty-five merchant ships including two hundred aircraft in the area of operation. Logistic support was significantly constrained by long distance from the UK and harsh, unpredictable weather. With long lines of support and a campaign of uncertain duration the logistical challenges became inevitably the overarching concerns of operational and tactical commanders. In addition, with the nearest supply base three thousand eight hundred nautical miles away from the theatre of operations, the RFA could not have been expected to single-handedly cope with the support requirements. In the event, some forty-five vessels named STUFT (Ships Taken from Trade) were allocated to the task. Two of them were from Royal Marine Auxiliary Services (Koburger, 1983). These ships carried more than one hundred thousand tonnes of freight, nine thousand personnel, one hundred thousand man-months of food plus over a million man days of combat rations, one hundred eighty thousand metric tonnes of fuel per month and ninety-five assorted aircraft (Koburger, 1983). All merchant ships were modified to carry helicopters, provisions and troops in the shortest possible time.

The RFA workforce are all Ministry of Defence civil servants, and in 2003 became Royal Naval sponsored reserves: civilians who in some capacity, became part of the UK Armed Forces. However, the RFA is not military and its officers wear merchant navy insignia though they are under naval command when their vessels participate in military operations. Military functions such as medical facilities or operating and maintaining military hardware or weapons are performed by RN, either regulars or reserves (Royal Navy, 2017).

The Case of Operation Passage to Freedom

In 1954 to 1955 the Navy transported about three hundred thousand civilians, soldiers, and non-combatants (both Vietnamese and non-Vietnamese and members of the French Army) from communist North Vietnam to South Vietnam. Roughly five hundred thousand were transported by the French forces. The US operation was augmented by a humanitarian relief effort, paid for by the US government (Frankum, 2007).

Between six hundred thousand and one million people moved south whereas only about one hundred fifty thousand people moved north, both military and non-military and both French and Vietnamese. This mass migration southward was made possible by the French Air Force and Navy. US naval vessels supplemented the French efforts in evacuating northerners to the capital, Saigon. The movement between north and south went on for more than three hundred days ending on 18 May 1955 when the border was closed (Frankum, 2007).

The fortunes of French Indochina were sealed by the Geneva Accords of 1954 after the defeat of French forces and their coalition partners by the Viet Minh in the battle of

Dien Bien Phu. The Geneva Accords ostensibly divided Vietnam at the seventeenth parallel. The north was controlled by Ho Chi Minh's communist Viet Minh and the South Vietnamese government was backed by the French (Frankum, (2007).

3.3 Introduction to the Thesis

The next section develops the researcher's theoretical framework, to be tested by means of case studies. It will pose the questions of the thesis concerning the integration of the commercial shipping market into the movement and transportation capabilities of the nation and its military, not only for strategic sealift but for humanitarian aid and refugee evacuation. Is the integration of the commercial shipping market into the military workable? Will this integration provide benefits commensurate to the sacrifices that may need to be made, with respect to stealth, security, availability, reliability, confidentiality and command and control?

These questions will be examined in the context of the requirements of the NATO alliance for security and defence within the level of ambition prescribed in the NATO Comprehensive Approach introduced during the Bucharest Summit (NATO, 2008b).

3.3.1 Existing Theoretical Framework

The main question being asked on the subject of strategic sealift for defence, humanitarian aid or refugee evacuation is based on the Heads of State decision in the NATO Comprehensive Approach, as approved at the Bucharest Summit in 2008 (NATO, 2008c).

As a result of operational experience, NATO has concluded that it cannot meet all of the complex challenges associated with the level of ambition to maintain the alliance's

security. Therefore, members of the alliance must include other assets, from both within and outside the Euro-Atlantic alliance, in all aspects of the alliance's security, defence, humanitarian aid and refugee evacuation and on all levels, be it political, military or civilian (NATO, 2008c).

3.3.2 The development of the NATO Comprehensive Approach

To understand the reasoning behind the development of the NATO Comprehensive Approach it is necessary to go back in history. In 2004 the government of Denmark, with the support of like-minded NATO nations, took the initiative to put the concept of the Comprehensive Approach on the alliance's agenda (Petersen and Binnendijk, 2007). It was initially referred to as 'Concerted Planning and Action' (CPA). Even then it was clear that although NATO had no capabilities for purely civilian use, pragmatic steps had already been taken in that direction. Experience had shown that conflict resolution required the application of all elements of national and international power: political, economic, diplomatic, social, commercial and military. NATO had to adopt a comprehensive approach, making use of civil and military elements and take advantage of civil/military synergies, not only to end the hostilities and restore order but to start reconstruction. In order to achieve this goal, the Danish embassy in Washington, DC held an informal workshop in which experts from alliance members to explore the options for creating an international comprehensive approach for post-conflict stabilization and reconstruction (Petersen and Binnendijk, 2007).

At the Bucharest NATO summit, the Heads of States took the opportunity to move forward in their relationship with those organizations and partners willing and able to deploy civilian resources, conceding that military means alone were not enough to meet

the many complex challenges to the common security (NATO, 2011d).

3.3.3 Implementation of the Comprehensive Approach

In March 2011 the Secretary General, Anders Fogh Rasmussen, wrote to the NATO permanent representatives requesting, under silence procedure, the updated list of tasks for the implementation of the Comprehensive Approach Action Plan and the Lisbon summit decisions on the Comprehensive Approach (NATO, 2011c).

This action plan, describing NATO's ability to deliver stabilisation and reconstruction targets, was agreed upon at the Lisbon summit in November 2010 along with political guidance on ways to improve NATO's involvement in stabilization and reconstruction.

The updated list of tasks, issued by the Secretary General, is divided into four sections and is in part quoted below in order to understand to what extent NATO was willing to co-operate with civilian players in order to achieve the desired level of ambition (NATO, 2011e, pp. 2-4):

Action

- *Enhance integrated civilian-military planning throughout the crisis spectrum.*
- *Continue to promote consultations with possible relevant players (partners, international actors, indigenous national authorities and relevant local actors) as needed prior to launching operations.*
- *Continue to develop options to support, upon request, the operational planning of other international actors involved on the ground, and exchange officers on a temporary basis to support such assistance.*
- *Develop and discuss with other actors proposals to fully and continually engage the local actors, where possible, in the preparations and the conduct of an overall agreed plan for the resolution of a crisis, including with respect to*

stabilization and reconstruction, drawing upon experience from existing models such as the Joint Coordination and Monitoring Board (JCMB) and other models in Afghanistan or similar models from the Balkans.

- *Continue to refine the non-military expertise overseen by NATO's Civil Emergency Planning Committees and enable their better use and provision to the NATO Military Authority.*
- *Identify and train civilian specialists from member states, available for rapid deployment by Allies for selected missions, able to work alongside our military personnel and civilian specialists from partner countries and institutions.*
- *Develop the capacity to train and develop local forces in crisis zones, so that local authorities are able, as quickly as possible, to maintain security without international assistance.*
- *Address, through the NATO Defence Planning Process, the specialized capabilities that are required for potential stabilization and reconstruction activities.*
- *Develop and propose to the Council guidelines and mechanisms for leadership and coordination within NATO of future operations with a civilian dimension, with a view to optimising the role in theatre of the civilian officials alongside NATO commanders, taking into account the experience with the concept of the NATO Senior Civilian Representative, NATO's civil military assessment and liaison team in the recent Pakistan flood relief operation, NATO gender advisers and other appropriate experiences and lessons learnt.*
- *Develop doctrine for stabilization and reconstruction, based on the Political Guidance on ways to improve NATO's involvement in stabilization and reconstruction.*
- *Form an appropriate but modest civilian crisis management capability to interface more effectively with civilian partners, building on lessons learned in NATO-led operations. This capability may also be used to plan, employ, and coordinate civilian activities until conditions allow for the transfer of those responsibilities and tasks to other actors.*
- *In the NATO command structure, an appropriate but modest number of civilian planners, commensurate with operational needs, should be closely integrated with existing military planning staff.*

Lessons Learned, Training, Education and Exercises

- *Reinvigorate the collection and analysis of stabilization and reconstruction-related best practices and lessons learned from operations and reflect them in operations, exercise and training activities; encourage Allies to contribute national lessons identified to relevant NATO bodies and databases.*
- *Ensure adequate and effectively trained staff within NATO Headquarters who are competent to contribute to a Comprehensive Approach, by jointly training civilian and military personnel.*
- *Make effective use of Periodic Mission Review (PMR) process as a vehicle for lessons learned.*
- *Enhance training opportunities for civilian and military personnel from Allied, partner and contact countries, local authorities and civilian and military staff of NATO, other IO's and NGO's with particular focus on planning of operations, lessons learned, sharing of best practices.*
- *Exchange best practices and lessons learned with other international*

organizations on the respective organizations' operations training and exercises, including on interoperability standards.

- *Continue to develop proposals for participation of other international actors in NATO's crisis management exercises, and subsequently assess the feasibility of joint exercises relevant to our requirements.*
- *Successfully implementing our exercise policy with the EU.*

Enhancing Cooperation with external actors

- *Recognising the respective mandates and roles of international actors, as well as their respective decision-making autonomy, ensure that NATO, when appropriate, as one of those actors, can make an effective contribution to the development of a coherent strategic design for addressing specific crisis situations.*
- *Continue to develop modalities for practical cooperation with relevant organizations and NGO's, where necessary.*
- *Continue to conduct regular staff talks, in flexible formats, with relevant international organizations and NGO's.*
- *Continue to exchange regular early warning and assessment information with international actors.*
- *Within the relevant international organisations of which they are members, Allies should, on an individual basis, indicate their support to expanded interaction, in pursuit of a Comprehensive Approach between NATO and these organisations.*
- *Hold regular consultative seminars and conferences on the broad context of operations with the participation of local actors, partners, non-governmental actors and other international actors.*
- *Further strengthen cooperation with the UN through effective use of the NATO Liaison Office and promote more regular consultations on political and operational issues.*
- *Upon request and subject to Council agreement, establish arrangements with relevant entities.*

Public Messaging

- *Substantiate the overall international efforts in an operation by systematic and updated information, documenting progress in relevant areas.*
- *Where possible, share information strategies and campaigns regularly to ensure complementary and mutual reinforcement with other involved international organizations, and local actors.*
- *Facilitate greater coherence in messaging between NATO, the local authorities and the international communities.*
- *Carry out active public diplomacy activities to overcome misperceptions about the Alliance; encouraging Allies to do the same.*

NATO has recognised the need to integrate civilian capabilities with those of the

military, and this thesis examines the non-governmental or commercial sealift players. Within the NATO framework this is achieved through the NATO subcommittee: Transport Group, (Ocean Shipping) formerly known as PBOS Planning Board of Ocean Shipping, one of the oldest advisory committees in NATO's civilian arsenal (NATO, 2011e).

3.3.4 NATO COMPASS programme

To further enhance this integration NATO created the COMPASS programme, 'Comprehensive Approach Specialist Support' (NATO, 2013).

This document is NATO unclassified and was communicable to EAPC, MD, ICI, Afghanistan, Australia, Iraq, Japan, the Republic of Korea, New Zealand, Pakistan, Mongolia, Malaysia and Tonga.

Since 2011 the COMPASS programme has been open to all partners including the Euro-Atlantic Partnership Council (EAPC: Armenia, Austria, Azerbaijan, Belarus, Bosnia and Herzegovina, Finland, FYROM, Georgia, Ireland, Kazakhstan, Kyrgyz Republic, Malta, the Republic of Moldova, Montenegro, Russia, Serbia, Sweden, Switzerland, Tajikistan, Turkmenistan, Ukraine and Uzbekistan), the Mediterranean Dialogue Countries (MD: Algeria, Egypt, Israel, Jordan, Mauritania, Morocco and Tunisia), the Istanbul Cooperation Initiative countries (ICI: Bahrain, Qatar, Kuwait, United Arab Emirates), the Global Partners (GP: Afghanistan, Australia, Iraq, Japan, Pakistan, the Republic of Korea, New Zealand and Mongolia) and other operational partners contributing to current NATO operations (NATO, 2006).

The COMPASS programme is an important tool in fulfilling the strategic concept and was devised to:

identify and train civilian specialists from member states, made available for rapid deployment by Allies for selected missions, able to work alongside our military personnel and civilian specialists from partner countries and institutions (European Union, 2015b, p. 62).

The training and familiarization of experts (or in layman's terms, commercial partners) is essential to ensure the effectiveness of civil/military synergies in the NATO crisis management toolkit.

The NATO COMPASS programme was established in 2009 based on a decision taken by Heads of State at the Bucharest summit (NATO, 2008d). Experts' profiles are stored and managed through the COMPASS database which is in turn managed by the NATO international staff. Currently the database is staffed with more than one hundred fifty experts from various allied nations, namely: Canada, Czech Republic, Denmark, Germany, Hungary, Latvia, Lithuania, Turkey, United Kingdom, United States and Finland (NATO, 2009a).

The COMPASS programme is facing a number of challenges, the most significant of which is, predictably, funding. This is in addition to the problems of location and availability of experts in the relevant fields: political, stabilization and reconstruction and media. Finally, there is the need to increase the visibility and availability of the database to all existing and potential customers (NATO, 2013).

3.3.5 Civil/Military Synergies

Great efforts are being made within the corridors of the NATO alliance to integrate all aspects of civilian assets to the benefit of military operations. This effort pertains to all planning and operational levels given that civilian expertise is vast, continually being updated and readily available.

This thesis examines a certain aspect of the use of civil/military synergies not only in regard to the military role of NATO and the security of the Euro-Atlantic Alliance, but also civil/military integration in individual member states and/or other military or in political alliances, such as the European Defence Agency and the United Nations. All of these international institutions are involved in military defence to a certain degree, whether it be a peace-keeping mission or the defence of sovereign territory, the evacuation of civilians in a civil emergency scenario or an international humanitarian aid program. This is by no means an exhaustive list. Nevertheless, there seems to be enough information both to provide an answer to the question at hand and to test for its validity.

Since many of the possible scenarios available for study may be of a nationally sensitive nature or even classified as restricted on a national and alliance level, it will be prudent not to analyse individual case studies in too much depth for the response to the thesis that will be developed and proposed. In the event that a case study is analysed, limited sensitive information may be divulged in order to test the thesis.

The NATO Alliance and the military in general, often plan, operate and train on the basis of generic scenarios. In many cases, however, to give credence to an exercise

scenario, fictitious nations and territories will be created to assist in obtaining the maximum benefit and ‘lessons learnt’ without creating political friction within and outside the alliance.

This thesis will apply a generic scenario proposal in order to cover a greater exposure of the civil/military integration and then compare the individual benefits from the available synergies that could be applied in Strategic sealift for defence, humanitarian aid and refugee evacuation.

The case study section of this thesis will examine two diverse maritime transportation case studies.

Lisbon Summit

The use of strategic sealift is only a small part of the conclusions from the Bucharest NATO Summit in 2008, but it was considered significant enough to be mentioned in the NATO Lisbon Summit in 2010 (NATO, 2010c).

This thesis will study the methodology of questioning how to integrate the civilian commercial sealift fleet with the military sealift fleet and obtain the benefit of the synergies without the drawbacks of duplication of effort. This will include all available ship types, from the military’s favoured ship type – the RO/RO that carries rolling stock, wheeled or tracked vehicles - to the militarily essential small tanker that is capable of carrying a full range of products from motive diesel fuel and jet fuel to fresh water. Let us not forget the very popular and tested vessel, the passenger ferry, the workhorse of the sea borne tourist industry both in the English Channel and the Mediterranean. This versatile ship type is fast, maneuverable and has the capacity to

carry large quantities of rolling stock together with passengers (or in military terms armoured cars and troops). This type of vessel is versatile enough to berth alongside and stern to; the latter is often referred to as Mediterranean mooring, and this increases the number of ports available for reception, staging and onward movement of deployable hardware (NATO, 2008e).

Integration of civil/military synergies does not just mean the ability of the military sealift fleet to work in parallel to the civilian commercial fleet but the ability and know-how of the military movement coordinator to make the most efficient and cost-effective use of acquired civilian sealift assets in achieving the level of ambition prescribed in the operation and meeting the commanders' required dates.

Wales Summit

The Wales Summit (2014g) took place in September 2014 against the backdrop of serious economic woes amongst the European members of NATO and the prospect of worsening conditions caused by the intransigent position of Greece and the prospect of an extreme left wing party winning the Greek elections the following year (NATO 2015c).

The NATO transportation requirements of the summit were discussed extensively and were given to the three Transportation Group committees for discussion, evaluation and proposals. The core of the discussions was based on the realization that speed was of the essence in any operation undertaken by NATO, be it for defence, humanitarian aid or refugee evacuation. The conclusions of the meeting, in transportation terms, can be summarized as a need for 'speed, speed and speed' (NATO, 2015c). The summit concluded that the Rapid Action Plan (RAP) was a reality and considered all the

collateral effects and requirements associated with the RAP requirements and the desired deliverables for the required level of service to be provided by the NATO allies. The summit gave a desired time frame for the reaction time of the RAP on all levels and not only for transportation (a small but important part of the whole picture, as the success of an operation can turn on the timely transportation on either the deployment or sustainment). The RAP requires a five to seven day notice to move. That ostensibly means that whatever the form of the operation, it must be in motion towards the theatre of operations within the five to seven days prescribed by NATO leaders (NATO, 2015c).

This is a far more complicated requirement than originally anticipated or assumed. It may be easy to activate dormant aircraft contracts within such time frames but ships move and react at speeds on a different scale to aircraft. Aircraft can be contracted, loaded, flown, unloaded and returned to base in a matter of hours, whereas ships and trucks need days to satisfy the same transportation requirement. This puts a different responsibility and complexity on the NATO concept of 'Assured Access' especially for the slower forms of transport such as sea, road and rail.

One can understand the necessity for rapid reaction to the requirements of operations such as humanitarian aid and refugee evacuation (NATO 2015c), but this will be reflected in the cost. A small but efficient reaction force is the desired conclusion of the summit. This concept together with the comprehensive approach described above is facilitated by utilizing civil/military synergies to their maximum potential. The commercial market already has to operate efficiently within tight time restrictions comparable with those implicit in the desires and conclusions of the Wales summit.

NATO funding definition

The North Atlantic Treaty was signed in Washington in 1949 and created an Alliance for collective defence as defined under article 51 of the United Nations Charter. The treaty is of indefinite duration. According to the rules of the alliance spelled out in the handbook (NATO, 2006) and more specifically in Chapter 4 ‘Common-funding Resources, Budgets and Financial Management’, strategic sealift is financially covered by the nation providing the sealift, while NATO does not own any sealift assets nor does it budget for sealift contributions by participating nations.

In the first years of the new millennium, funding was not an issue, the world economy was booming, nations were prosperous, sealift freight rates were high and the problem was actually the availability of scarce sealift assets. When the freight market is high it is difficult to secure the services of any vessel that is enjoying the security of reliable and substantial financial returns from the open commercial freight market (Drewry, 2016a); in such a situation the military often has to pay a premium to have a vessel released from a long-term contract to perform a military sealift requirement.

3.3.6 NATO Defence Capabilities Initiative (DCI)

In 1999, at the Washington Summit, the Heads of States approved the Defence Capabilities Initiative (DCI) where nations pledged to take a number of actions, although this thesis will examine only the enhancement of rapid force deployment. The DCI involved five decisions. One of these was for the NATO Alliance to undertake an analysis of the available nationally-owned transportation assets. This was presented in the unrestricted NATO, DM 5 Feasibility Study, *Defence Capabilities Initiative-*

Deployment and Mobility Decision 5 (LMI, 2001). The relevant extract from the DM5 report states:

The Alliance and Nations should explore the feasibility of options for acquiring multinationally owned or leased sea and airlift assets for rapid deployment forces. Multinational acquisition of airlift and sealift is of considerable interest because, in theory, it should save costs and, when combined with centralized allocation of lift assets, help to deploy forces more efficiently than national approaches (LMI, 2001, p. 21).

The summary conclusion further states:

In response to DM5, the Movement and Transportation Advisory Group (MAG) of the Senior NATO Logisticians Conference identified six options for multinational lift acquisition to analyze. The options were not to be ranked against each other, but were to be evaluated relative to a number of quantitative and qualitative criteria. The options are: (1) ship and air lists; (2) civil and reserve air fleet; (3) voluntary intermodal sealift agreement; (4) multinationally owned and operated assets; (5) multinationally leased and operated assets; (6) multinationally chartered, carrier operated airlift and sealift assets (LMI, 2001, p. 24).

To further support this analysis NATO sent out the 'Bi-Annual Questionnaire' to all alliance member states to list nationally owned sealift assets (LMI, 2001). For reasons known only to individual nations, the response to the questionnaire was not entirely satisfactory. However, one unmistakable conclusion was reached: the alliance had a noticeable sealift shortfall based on the level of ambition at the time.

This analysis was carried out by the consultants LMI based on information supplied by the NATO International Staff. One major finding was concerned with the requirement to modify the operational methodology traditionally employed by NATO as the ownership of the potential assets was sometimes unknown and quite varied. The relevant major finding of the DM5 study states, that to be operationally effective, multinational lift arrangements require a centralized command-and-control organization to allocate lift assets in support of NATO's deployment plans and it suggests that this kind of authority

would require a major revision in the balance of responsibility between nations and NATO.

This major finding led to several desk-top exercises in co-operation between NATO's PBOS (Planning Board of Ocean Shipping), CAPC (Civil Aviation Planning Committee), PBIST (Planning Board of Inland Surface Transport) and NATO's NC3A (Consultation, Command and Control Agency) under the auspices of the NATO SCEPC (Senior Civil Emergency Planning Committee), [Note: all the above committees have since changed name] which concluded that a central chartering and operational committee was not the appropriate way to go.

European Defence Agency

This study was considered of great significance and relevance for the members of alliance in order to be prepared for defensive asset movements and this was reflected by the European Defence Agency (2009) in their report *European Third Party Logistics Support (TPLS) Platform for Crisis Management Operations*. Its conclusion showed that there was a requirement for a logistics platform to be created to take advantage of third part logistics, i.e. commercial assets.

3.3.7 Other Transportation Solutions

Various solutions were proposed and others implemented by individual nations or by groups of willing nations with similar requirements. As freight rates rose and military budgets shrank due to the worldwide financial crisis and credit shortage late in 2010, it was logically concluded that the sharing of these scarce sealift assets was a logical step in the right direction.

Allied Movement Co-ordination Centre in Eindhoven

This reasoning led to the creation of the Allied Movement Co-ordination Centre in Eindhoven, whose original participants were Norway, the Netherlands and the United Kingdom (NATO, 2002). This Centre was based on the correct assumption that sharing space on a sealift asset was economically more sensible than hiring the entire asset and not fully utilising it. Problems arose due to the nations having many and varied procurement procedures and the lack of trust and understanding involved when using a commercially owned asset (or even only part of a commercial asset) and these delayed the full use and benefit of a truly remarkable tool (NATO, 2002).

However, the fundamental procurement problem, i.e., how to locate and acquire the elusive sealift asset in the first place remained unresolved.

Athens Multinational Sealift Co-ordination Centre

The next attempt to deal with this was behind the creation of the Athens Multinational Sealift Co-ordination Centre, later up-graded to the Athens Multimodal Strategic Lift Co-ordination Centre, AMSCC. The capabilities of this centre were presented to nations at the NATO Istanbul Summit, free of charge to the users (NATO, 2004a). The centre uses existing national and European Union Procurement legislation in order to acquire predominately militarily suitable sealift assets. Nations can approach the AMSCC with their sealift requirement and stipulate the procurement legislation necessary to satisfy their national requirements; this could be national, European Union or direct acquisition in the event that the cargo to be moved is either classified either as 'strategic' or 'restricted' as most military cargoes are (NATO, 2013).

Danish ARK project

In addition to the above solutions, the Danish government created and sanctioned the ‘Danish Ark Project’; the Danish government procured two militarily suitable sealift assets from the commercial shipping market on long-term timecharter. These, they used, mainly for their own requirements of deployment, sustainment and redeployment for their own national activities. This project was introduced by the Danish Navy in 2003, at a presentation to NATO PBOS (NATO, 2003c). When this venture became very expensive due to the tremendous rise in the cost of fuel, the Danish government offered the free space to these vessels to the Eindhoven Centre, mentioned above.

The Eindhoven Centre advises its members of available space on the Ark Project ships and, for a fee, offers other nations the possibility to use the spare capacity on these assets to satisfy their limited requirements.

When one considers the development of defence and civil emergency requirements in sealift movements, the obvious conclusion is the question of how best to integrate the civilian Merchant Navy into the military’s sealift requirements, thereby gaining the benefits from synergies.

The benefits of these synergies come from usage. In order to be made available to and used correctly by nations and their military movement officers, a basic understanding and knowledge of the very complex workings of the civilian commercial shipping markets is essential.

This thesis has already introduced the reader to the basic workings of the commercial shipping market, though only in matters that can affect the selection, procurement,

management and contracting of the sealift asset, since the military is not required to have a knowledge of ship financing nor crewing or national and international regulations.

Further, it has examined alternative ship types that are available and suitable for military sealift requirements beyond the traditional doctrine as to what constitutes suitable militarily-useful asset.

Having posed the question, it may be useful to examine two non-classified examples of actual sealift requirement. Each of these is considered step by step, from the initial request by the nation to the contractual procurement, use and monitoring of the commercial shipping asset in a militarily approved and sanctioned sealift movement.

Notice that our investigation will be of a generic form so as to avoid disclosing sensitive military and commercial information.

3.4 Conclusion

This chapter discussed a number of previous research and official reports with the purpose of assisting the researcher to highlight the civil and strategic integration for strategic sealift operations. Chapter 4 discusses the research methodology and data collection methods. A theoretical framework is proposed in Chapter 5 and will examine the methodology and investigate the applicability of the proposed theoretical framework.

CHAPTER 4:

METHODOLOGY AND RESEARCH DESIGN

4.1 Introduction

The previous chapter provided an investigation and analysis of the relevant literature in the field studied. This chapter outlines the research questions to be tested, the variables to be analysed, the methodological approach selected, and finally the research design employed to address the issues raised by the critical analysis.

4.2 Measures of Study

The theoretical framework presented in Chapter Two highlights a simple and straightforward guide for the marine transportation planner that could assist him in deciding which assets from the transportation toolbox should or could be used to perform and/or enhance a sealift operation where the benefit of the civil/military synergies has been recognised and approved for use.

The usefulness of our theoretical model must be assessed in terms of answering the following questions:

- Is it applicable for NATO sealift operations?
- Is it suitable for NATO military operations?
- Is it relevant to NATO led operations?

- Can it be used also for humanitarian aid and refugee evacuation?
- Does it assist in locating more assets?
- Will it be also of financial benefit?

4.3 Research Questions/Aims

To investigate the above questions, the researcher sets the following objectives:

- To identify the issues in the aim at hand
- To develop a model that allows military sealift personnel to efficiently and cost-effectively procure shipping assets
- To validate the model, assessing its functional competence and
- To evaluate the outcomes

The main objective of this study is to examine how a military movement and transportation desk officer should integrate the commercial shipping market assets and services into strategic sealift, in a practical and cost effective manner for strategic deployment, re-deployment and humanitarian aid.

4.4 Methodology

To meet its objectives and research questions, this study will undertake an empirical investigation of the role of strategic sealift as an integral part of any military or humanitarian operation. Empirical research focuses on observation, occasionally in experimental settings, and constitutes the dominant element in much social and business research (Saunders et al., 2009).

There are two broad methodological positions in social sciences: positivism and

phenomenology (Saunders et al., 2009). Logical positivism or empirical positivism or just positivism is based on the notions of objectivity (that is, the objective reality of the physical world), scientific method and empiricism. In positivism the researcher plays the role of an objective analyst and is independent of the subject of the research (Remenyi, Williams, Money, Swartz, 1998).

According to (Remenyi et al., 1998), *'positivism emphasises quantifiable observations that lend themselves to statistical analysis'*. As a result, positivist studies are primarily quantitative in nature (Saunders et al., 2009). Empirical science reflects the positivist methods and knowledge is built on deductive reasoning (Hussey and Hussey, 1997; Saunders et al., 2009). Moreover, hypotheses are developed and tested with experiments; as more and more facts accumulate, they can be used to construct general explanatory theory (Saunders et al., 2009). Findings are validated when experiments are replicated, yield consistent results and tested under original conditions or variants thereof (Lee and Lings, 2008).

In terms of a positivist research methodology, researchers employ a deductive approach (Lee and Lings, 2008; Saunders et al., 2009) where a conceptual and theoretical structure is developed and then tested by empirical observation (Hussey and Hussey, 1997; Saunders et al., 2009). The main characteristic of this approach is that a study begins with a theory, and then a number of experiments and observations take place in order to test this theory (Hussey and Hussey, 1997; Lee and Lings, 2008; Saunders et al., 2009). As a result, researchers need to develop hypotheses to be tested by a collection of quantitative data (Saunders et al., 2009).

A quantitative approach involves collecting and analyzing numerical data and applying

statistical tests. This approach plays a confirmatory role in research by studying populations and samples. The explanation of the phenomena under investigation is developed through the analysis of numerical data. The quantitative approach makes it easier for the researcher to quantify the data and calculate how many people made a particular point (Wilkinson, 2000). The results of quantitative research are presented in the form of descriptive or complex statistics (for instance, tests of significance, correlation, and regression).

On the other side of the methodological spectrum is phenomenology. Phenomenology is seen as providing the basis for what is generally called interpretative (or interpretive) research where the assumption is that social reality can only be understood through social constructs such as language, consciousness and shared meanings. Interpretive research does not predefine variables, but explores human sense-making in naturalistic settings (Remenyi et al., 1998). The aim of phenomenology is to perform a bias free or prejudice-free analysis and description of experience. Phenomenology does not deal with the concrete existence of individual things or their characteristics but rather with the essence of things. Thus, phenomenology is defined as the science of the essences of things and refers to the meaning of a given fact of experience (Eze, 2006).

Researchers following a phenomenological research methodology employ an inductive approach (Saunders et al., 2009). Inductive reasoning typically moves from general truths to specific conclusions. It opens with an expansive explanation (statements known or believed to be true) and continues with predictions for specific observations supporting it (Saunders et al., 2009). Thus, researchers investigating a problem collate all the necessary data and analyse them. Out of this analysis the theory is formulated (Lee and Lings, 2008; Saunders et al., 2009). In essence, *'theory would follow data*

rather than vice versa as in the deductive approach' (Saunders et al., 2009, p.88). Thus, the deductive approach builds theory by a collection of qualitative data (Hussey and Hussey, 1997; Saunders et al., 2009).

A qualitative approach is more subjective in nature and involves examining and reflecting on perceptions in order to gain an understanding of social and human activities (Brewerton and Millward, 2001). This approach assigns a discovery role to research through the study of a variety of cases. The examination of these cases takes place through the analysis of narrative data (Brewerton and Millward, 2001). The resulting data is presented in the form of quotations or descriptions, though some basic statistics may also be presented.

The above research methodologies (positivism and phenomenology) are based on different research approaches (deductive and inductive) and methods (quantitative and qualitative). Neither school of thought should be considered as different in their impact on research and generalisability of their findings (Remenyi et al., 1998; Saunders et al., 2009). Both paradigms have strengths and weaknesses and which method is better will depend upon the questions asked by a specific research study (Remenyi et al., 1998; Saunders et al., 2009).

The majority of the studies in the field: NATO Reports, European Policy Papers but also a number of similar studies in the field (Schank et al., 1991; Yang et al., 1996; McKinzie and Barnes, 2004; Weber, 2006; Schoff and Travayiakis, 2007) have employed a phenomenological approach as part of their methodology (via participant

observation, workshops, and interviews). This study also employs the phenomenology methodology along with the finding of a number of previous studies.

This study's methodology is developed through a two-stage process and is based on a variety of research methods:

Phase 1: An inductive approach making use of personal observation of various meetings and committees and the analysis of historical facts. Based on this analysis a framework is developed.

Phase 2: An inductive approach by using qualitative data analysis with the purpose of testing and fine tuning the proposed framework.

4.5 Research Design

For its purposes this study will follow and make use of four well established methods:

- Historical fact
- Case study
- Interview
- Personal observations

Since these four methods will be used interchangeably, it is necessary to assess their relevance with regards to the subject at hand, namely civil/military synergies and merchant shipping.

4.5.1 Historical Analysis/Research

A possibly confusing feature of historical research is that in most cases it does not involve direct observation or the first-hand collection of data concerning the phenomena under study, but this is overcome by the use of reliable evidence from previously recorded observations and data, together with factual information and statistics disseminated and accepted by the international shipping market. There is a possible exception to this, whereby the market players who witnessed or were somehow involved in the case at hand can be directly approached by the researcher. In this sense, the function of historical research function is to systematically and objectively locate, evaluate and synthesize the available evidence.

Historical research data, in this instance, requires some degree of reconstruction on the part of the researcher in order to render evidence compatible with current conditions and changing regulations. Although historical analysis defines specific topics of interest (e.g., a standard contract of carriage) it tends to include social, cultural, economic, political, legal and psychological aspects of the topic. In this sense it is multi-disciplinary and multi-dimensional. Historical data may not be entirely relevant due to the influence of changing regulation and requirements in the commercial shipping market or the physical constraints of a particular mission; nevertheless its relevance and significance may be sufficient to confirm or reject a theoretical hypothesis.

As indicated above, historical analysis attempts to explain the development of observations, made by others, by the examination and/or re-examination of existing methods. Additionally, new details may become available which question previous methods and systems of understanding. In the evaluation of methods the researcher

may formulate hypotheses about the phenomena under examination and subject these to test and modification.

In historical research two general sources of data are employed, primary and secondary. Primary sources are those items which are original and have a direct relationship to the procedure being introduced (e.g., ship types, contracts of carriage, laws, regulations). Secondary sources, are those that do not have a direct connection to the event being studied (e.g. market trends and changes in the carriage of non-military or humanitarian cargoes).

Historical analysis typically involves two stages:

- Appraisal of the authenticity of sources. This stage seeks to evaluate the validity and reliability of the evidence and/or data.
- Appraisal of the meaning/importance of the source. After establishing the validity and reliability of the source, the researcher must evaluate the content of the source in terms of its importance and/or relevance and implications for current views and understanding about the topic.

There is plenty of evidence and data available in the commercial market and there are about sixty thousand merchant ships in service around the world today, including bulk carriers, dry cargo vessels, MPP's, container vessels, tankers, LPG's, LNG's, and cruise ships. This figure does not include all the small RO/ROs that service islands (short sea/tourism) or river barges, oil barges, floating docks, drill ships, service vessels, tugs, AHTS's, crew boats, restaurant vessels, etc. The difficulty is to decide which ship type is germane to the topic under investigation.

Both Arbnor and Bjerke (1997) and Sahlin-Andersson and Engwall (2002) have suggested that historical analysis should be considered in a theoretical context. Historical analysis is not just a retrospective study but also the view that history is continuous and that new history is constantly being created from current social, political and economic reality; in other words, everyday life, both social and commercial, is constantly creating its own history (Sahlin-Andersson and Engwall, 2002). Through an understanding of past events one can improve one's interpretation of the present: the study of the methodological principles of interpretation (Moustakis, 2003). In the context of this thesis, where historical analysis is basically commercial information, such information should not be used to confirm the historical facts and figures but rather to demonstrate historical diversity and used in an attempt to learn from our mistakes. In fact, the historical analysis of commercial carriage by sea relevant to civil/military synergies may help us in several ways: firstly and most importantly, 'It helps us to avoid reinventing the wheel' (Moustakis, 2003) because someone may have already asked the question and found the answer. Secondly, it is a diagnostic tool, to assist in following the development of particular circumstances over time thus influencing the conclusion and proof of the proposed hypothesis. Furthermore, the saying that '*history repeats itself*' is true, subject to several caveats, as history is constantly being created; in more practical terms and relevant to this thesis, as the commercial market improves, more ships are built and when it deteriorates, more innovation is required to save costs - as with war, the more intense the conflict, the more smart weaponry needs to be developed, therefore history can affect history. By utilizing historical analysis, order can be imposed on the information gathered and significant events can be identified. The review of historical facts and their independent interpretation can prevent the repetition of mistakes; success does not consist of never making mistakes but rather of not making the same mistake twice.

4.5.2 Case Study Method

The case study method for research, doctoral theses and commercial business studies is becoming a popular and useful tool. The utilization of commercial business events and outcomes helps the researchers analyze actual events which have been influenced by a much larger number of variables than can be incorporated in a theoretical model. However, one can either derive general conclusions from a limited number of cases or reach particular conclusions based on a single case. Despite these differences, both methods are capable of producing reliable conclusions which can assist in accepting or rejecting an hypothesis.

Yin (2014) provides a definition of the case study as a possible approach to research appropriate to this thesis. The author stated that the case study inquiry:

- *Copes with the technically distinctive situation in which there will be many more variables of interest other than data points, and as a result,*
- *relies on multiple sources of evidence, with data needing to achieve coverage in a triangulated fashion, and as another result,*
- *benefits from the prior development of theoretical propositions to guide data collection and analysis*

(Yin, 2003, p. 13).

Thus, the case study method covers most methods of analysis enabling the researcher to utilize a variety of approaches of data collection and analytical methodology. According to Stoecker (2010) the case study is neither a data collection tactic or a design feature alone, nor a comprehensive research strategy.

Yin differentiates between three categories of case study research namely case studies being used for exploratory, descriptive and explanatory purposes. When arguing the

general relevance of the case study method, Yin states that it is the preferred tool whenever “how” or “why” questions are being asked, especially when considering actual contemporary situations outside the realm of the researcher. If the main research question is “what?”, then an exploratory study based on a proposed hypothesis is preferable (the goal here being to develop pertinent hypotheses and propositions for further inquiry). Alternatively, if the questions are “how?” and “why?”, then time becomes a factor and a mere increase in volume of cases is insufficient to reach a conclusion; if so, differing cases over a period of time should be analyzed to assess the morphological developments and how they might affect subsequent cases. Just because several similar cases are analyzed, this does not confirm or refute a hypothesis as our research criteria may be too restrictive and thus exclude pertinent data (Yin, 2014).

This concept is increasingly relevant when analyzing commercial shipping case studies because factors such as, for example, changing regulations in the environmental field, can substantially affect the outcome of a business plan that may be the subject of a particular case study. A further factor may be a UN resolution that prevents business relations with a national of a targeted nation; this will reduce the size of the pool of available sealift assets. Assuming that the “how?” and “why?” questions are applicable to this study, Yin confirms the importance, when using the case study method, of the influence the investigator has over factors affecting the events being analyzed. To analyze operations involving civil/military synergies, the case study method is the preferred tool when examining contemporary operations, but only when the operations and end result cannot be manipulated. This ostensibly implies that the case study method utilizes similar procedures to the historical analysis method, with the added bonus of direct observation and answers to contemporary questions. Therefore, the case study technique is appropriate when dealing with a wide range of evidence

such as official documents, personal writings, notes, interviews and operational outcomes.

Either way, the case study method requires preparation. Firstly, know what you want, prepare the plan and collect the appropriate material for analysis, otherwise the conclusions may be tainted by variables that are irrelevant to the investigation at hand (Yin, 2014).

Gummesson (1991) cites that one of the greatest advantages of case study research is that it provides the opportunity for a universal view of a process. The case study method allows for real life examination of actual events which include all the variables and commercial constraints and allows for the comparison between cases with differing commercial criteria and social limitations and, furthermore, the collection of data for case studies over a time span allows the analysis to observe changes as they develop and their effect on the industry under review. The case study method for analyzing civil/military synergies is a useful tool and ties in well with the military credo of 'lessons learnt'. Some case studies are better than others due to relevance; regrettably actual events present very few cases on the specific subject of this thesis, yet it is by far the best tool to demonstrate the cause and effect of employing appropriate civilian sealift services to carry out non-aggressive/defensive military requirements involving strategic sealift. If used correctly, this is a tool suitable for proving or disproving the hypothesis of this study.

Hamel, Dufour and Fortin (1993) suggest that the case study method can produce flawed results due to bias in the data collection, as bias may be introduced by the players in the particular case study:

For its lack [of rigor] in the collection, construction and analysis of the empirical materials that give rise to the study. This lack of rigor is linked to the problem of bias. Such bias is introduced by the subjectivity of the researcher, as well as by the field informants on whom the researcher relies to get an understanding of the case under investigation
(Hamel, Dufour and Fortin, 1993, p. 23).

In the study of civil/military synergy it is therefore preferable to use data from the military side of the equation, where the alleged bias is known and is constant, so allowing for the bias to be taken into consideration when drawing conclusions on the case study. Whereas when it comes to the commercial side of the equation, however, there may be privacy clauses in the contract of carriage that prevent accurate information being released for analysis.

Even though the case study method is popular as an analytical tool for commercial studies, it has its shortcomings in that the analysis, and, therefore also its conclusions, being based on a small number of observations, all of which are similar in nature as opposed to a large number of random observations. Hägg and Hedlund (1978) review the shortcomings of the case study method under three headings:

- Case studies lack statistical validity
- Case studies can be used to generate hypotheses but not to test them
- Generalizations cannot be made on the basis of case studies

However, when posing a commercial question, the relevance of case studies becomes more important as the actual result is what the researcher requires in order to compare the actual benefit in adopting the inherent strategy being depicted by the case study.

Thus, though a number of criticisms may be directed at the case study method, it retains its importance as a key research strategy. This becomes evident when

considering its applications in qualitative research (Zainal, 2007).

Since this thesis examines the feasibility of civil/military synergies and associated benefits derived therefrom, it is evident that practical case studies of actual events will demonstrate whether or not the concept or questions posed can be verified. If found to be advantageous to all parties, then how can this process be standardized and the benefits of synergy be reaped?

4.5.3 Personal Interviews and Attendance

Primary information can be obtained through personal interviews along with attendance at presentations, symposiums and commercial negotiations on related issues.

The advantages of personal attendance are clear as contemporaneous and specific questions can be posed that reveal more detailed and specific answers to the proposed question (Berg and Lune, 2011).

In order for attendance to be of value and/or for the interview to generate relevant answers that advance the thesis, considerable background work must be done. This concerns the practical side of research where experience plays a vital role; in non-theoretical studies where a practical solution or solutions are sought to a real life practical problem based on an identified theorem (as opposed to a non-specific conjectural question), material from a primary source of information can advance not

only the understanding of the non-theoretical academic question but assist in resolving and proving or disproving the proposed hypothesis (Kvale and Brinkmann, 2009).

Inasmuch as an important theme of this study is the introduction of the commercial shipping market for the military transportation desk officer, a considerable mass of information is based on primary sources of information, gathered through personal interviews and/or attendance at related presentations, symposiums and commercial sealift negotiations.

4.5.4 Personal Knowledge and Attendance

Personal knowledge accumulated over the years should be passed on in any form possible. The old adage that '*one learns from experience*' is true and the sharing of experience is a very powerful educational tool. There are, inevitably, several perils in the dissemination of experiences; these may vary from erroneous interpretations or mistaken conclusions due to inaccuracy. One may have one hundred experiences, all the same, yet another has but ten experiences all different; it could be argued the latter has far more educational significance by contributing a greater range of experiences (Andrews and Delahaye, 2002).

The title of this section also refers to attendance; this pertains to knowledge attained whilst attending lectures, seminars or working group meetings, within the relevance of this thesis. This is similar in many ways to the previous section on interviews with the only difference being the answers are not to the researcher's chosen questions but to the presenter's choice of questions. In previous chapters, information is taken from either papers presented or working group meetings attended within the framework of the

NATO unclassified forum. Such attendance has substantially increased the understanding of the topics presented or discussed (Polanyi, 1962).

4.5.5 Application of Case Study Method/Historical analysis and personal interviews and attendance in this thesis

All four of these analytical methods are appropriate for this study and have been used in the research as and where appropriate. The literature review (Chapter Two) mainly applied the historical analysis method to give a descriptive, explanatory and exploratory introduction to the basic commercial shipping market. However, this method was not used in isolation but instead incorporated personal knowledge and experience obtained over thirty-five years in the commercial shipping market.

It is very important to recognize that certain aspects of a military movement case study may involve restricted information that may not be copied or disseminated; therefore where necessary, generic information will be incorporated in order to prevent jeopardizing the secrecy of sensitive information. All sensitive information and data used have been approved and received from the Hellenic Navy.

4.5.6 Data Entry

The interview sessions were initially transcribed in Microsoft Word. Because of the complexity of the investigation, the responses were grouped into a single document with the purpose of identifying each respondent's views of the various issues discussed.

In terms of analyzing qualitative data Denscombe (2007) states the following four principles: (i) the analysis of the data and the conclusions drawn from the research

should be firmly rooted in the data; (ii) the researcher's explanation of the data should emerge from a careful and meticulous reading of the data; (iii) the researcher should avoid introducing unwarranted preconceptions into the data analysis; (iv) the analysis of the data should involve an iterative process.

To meet the above four principles Denscombe (2007) proposes a number of stages when analyzing qualitative data. This thesis will employ the following steps in analyzing the qualitative data: (i) preparation of the data in a readable format with the purpose of assisting the researcher to access and analyze the data at a later stage; (ii) familiarity with the data to facilitating the researcher in 'reading between the lines' and thus identifying information implicit in the data; and (iii) interpreting the data by developing codes, categories, themes and concepts.

4.5.7 Maintaining Validity and Reliability of the Study

Interviews just as any other research method need to be critically assessed for the validity and reliability of data (Remenyi et al., 1998; Gray, 2004; Saunders et al., 2009). More specifically, various data quality issues are related to: (i) reliability; (ii) forms of bias; and (iii) validity.

The first issue regarding data quality is reliability. According to Gray (2004, p. 219): *'For a research instrument to be reliable it must consistently measure what is set out to measure'*. Thus, *'reliability is concerned with whether alternative interviewers would reveal similar information'* (Saunders et al., 2009, p. 250). In essence, the concern has to do with how the study can be replicated. According to Saunders et al. (2009), to overcome the reliability issue, researchers need to provide detailed information of the

research study and design so others can replicate the findings. Similarly, a variety of analyses, quotes and transcribed information is provided within the Results Chapter.

Another data quality issue relates to various types of bias. For instance, interviewer bias is created by comments made, tone or non-verbal behaviour in response to interviewees' answer to questions (Saunders et al., 2009). In addition, interviewers can demonstrate bias in the way they interpret responses (Saunders et al., 2009). Another issue is the interviewee or response bias. In this case, bias is caused by perceptions about the interviewer, and lack of willingness to provide answers to sensitive questions (Saunders et al., 2009). Bias can also result from the nature of individuals mainly because of personal issues such as time commitments that may result in a reduction in willingness to take part (Saunders et al., 2009).

Overcoming bias-related issues is quite complex and requires a positive communication between interviewer and interviewee. Saunders et al. (2009) provides various key measures to assist researchers overcome bias in qualitative interviews. This study utilised the key elements to overcome bias throughout the interview sessions. A brief description is given below:

(i) preparation and readiness for the interview; (ii) level of information supplied to interviewees prior to the interview; (iii) appropriateness of the researcher's appearance at the interview. This increases credibility and is advised to adopt a similar style of dress to those to be interviewed; (iv) the nature of the opening comments to be made when the interview commences, which can increase credibility and the interviewee's confidence; (v) approach to questioning: interviewers' questions need to be clearly phrased, so the interviewee can understand them; (vi) the nature and impact of the interviewer's behaviour during an interview session could also reduce the scope for bias; (vii) demonstration of attentive listening skills by providing interviewees with reasonable time to develop their responses; (viii) scope to test understanding: it is recommended that interviewers should provide summaries of a number of explanations provided by the interviewees

(Saunders et al., 2009, p.257).

Finally, data validity relates to what extent the researcher has gained full access to knowledge and meanings of respondents (Remenyi et al., 1998; Easterby-Smith, Thorpe and Lowe, 1991 cited in Saunders et al., 2009). In essence, validity refers to whether *'the data collected is a true picture of what is being studied'* (Hussey and Hussey, 1997, p. 173). To overcome the validity issue in relation to data quality, the researcher followed a twofold approach. On the one hand, he followed the advice offered by Collins and Young (1988, cited in Remenyi et al., 1998) regarding data validation by feeding back to respondents' interview transcripts for verification. Thus, the researcher, after initial agreement with respondents, sent a transcribed copy of the interview for further validation and verification.

There are many ethical issues to consider in relation to the participants of a research activity. In every discipline it is considered unethical to collect information without the knowledge of participants, and their expressed willingness and informed consent (Saunders et al., 2009). Seeking informed consent *'is probably the most common method in medical and social research'* (Bailey, 1978, p. 384). Informed consent implies that subjects are made adequately aware of the type of information you want from them, why the information is being sought, what purpose it will be put to, how they are expected to participate in the study, and how it will directly or indirectly affect them. It is important that the consent should also be voluntary and without pressure of any kind.

The researcher working on this thesis has asked for consent to interview respondents and has received all the relevant approvals.

4.6 Conclusion

To conclude, the purpose of this chapter was to discuss the research methodology, approach, study setting and methods with the purpose of investigating the research questions set by the researcher.

CHAPTER 5:

MODEL OF INTEGRATION OF COMMERCIAL ASSETS, ANALYSIS and FINDINGS

5.1 A Suggested Model of the Integration of the Commercial Shipping Market Assets and Services into Strategic Sealift

Not only are the requirements continually changing but the entire transportation concept is evolving into a multi-modal transportation model. This means that a supplier of transportation services will provide a fully integrated and comprehensive door-to-door service encompassing air, sea and land transportation, because the military transport planners want a simple ‘one-stop shop’ concept for acquiring strategic lift.

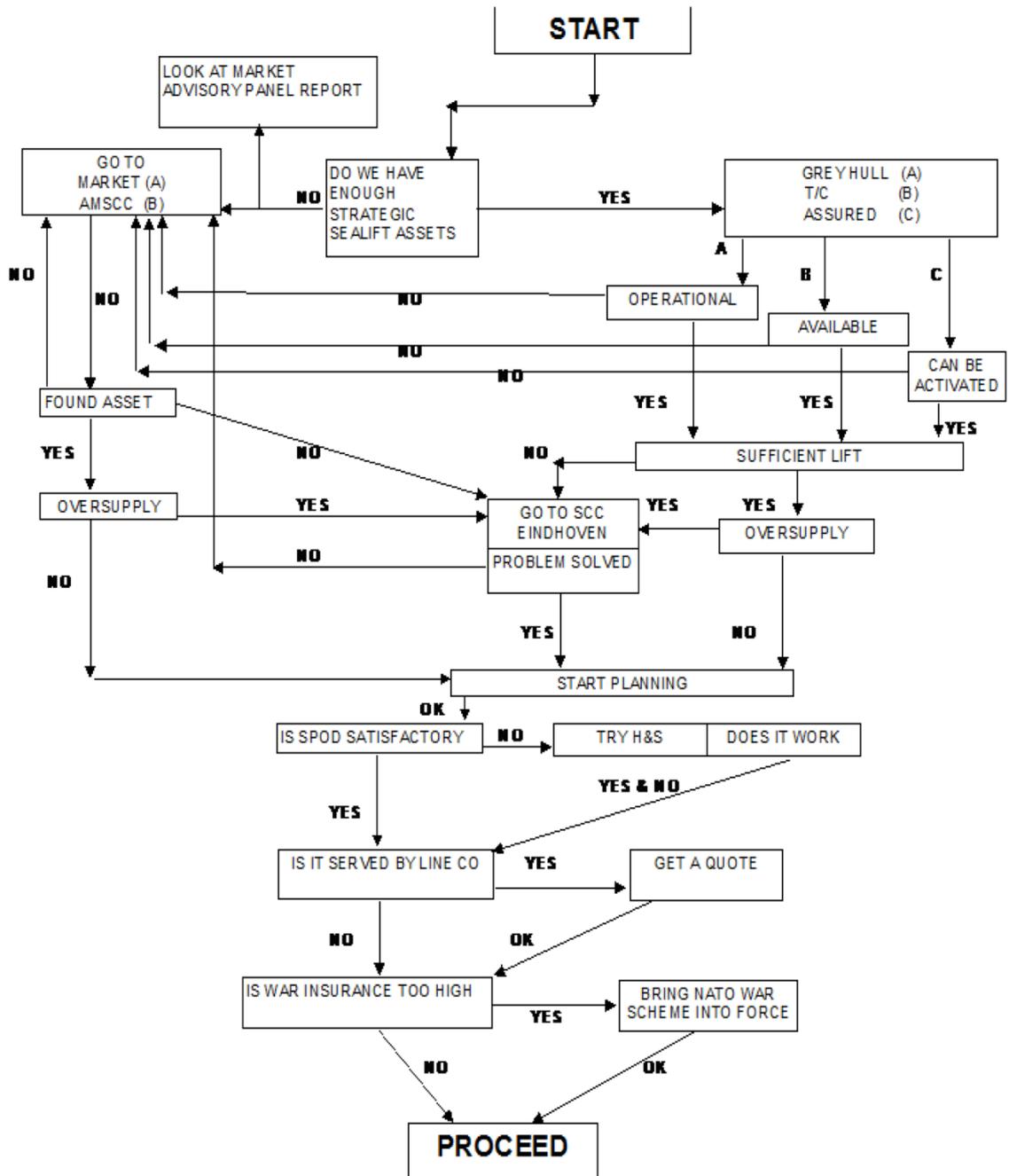
The theoretical framework presented below (refer to *Figure 1*) highlights a simplified guide for the marine transportation planner that could assist him in deciding which assets from the transportation toolbox should or could be used to perform and/or enhance a sealift operation in which the benefit of the civil/military synergies has been recognized and approved for use.

This flow chart was developed over the course of researching this thesis and started with the premise that a procedure could be formulated and repeated. One of the fundamental requirements of a beneficial integration of the merchant navy into military operations is the standardization of the operation which not only ensures consistency but facilitates cost comparisons, like for like.

The starting point is the request for sealift and the end point is 'proceed' with chartering the selected merchant vessel. The procedure between these two points is formed by the research and consideration of the requirements of the military and the capabilities offered by the merchant navy. Considering the information learnt from the literature review, it is possible to understand the additional nodes required in the path from request to proceed. It was found to be useful to combine the facilities offered by nations and NATO from a military point of view and the commercial requirements of the merchant. A simple 'YES' and 'NO' question was considered sufficient to guide the user down the path of the chart which allowed for both military and civilian requirements to be pondered and resolved.

The final version of the flow chart is seen in Table 1. The path through the flow chart is tested for the two case studies in chapter 5 where it can be clearly seen that the path can be repeated and form a consistent procedure for procurement of commercial sealift assets. See Appendix 4 and 5.

Figure 1: Model of the Integration of the Commercial Shipping Market Assets and Services into a Strategic Sealift



The framework itself could be operated as a simple flow chart by asking the question of whether strategic sealift assets are enough. If not, there are the options of:

- Looking into the market advisory panel report
- Going to market for operational sealift assets
- Going to AMSCC to determine availability

If the asset has been available and there is not oversupply, the planners are directed to SCC Eindhoven. Should there be oversupply, then they are directed straight into the planning phase.

In the case of the availability of sealift assets then the planner must determine whether:

- Grey hull is operational
- T/C are available
- Can be activated (assured)

If there is sufficient lift and there is oversupply then the planner must move to the planning phase. Here, if the SPOD is satisfactory and is served by the Line Co, the planner can get a quote and determine whether the war-risk insurance is high or acceptable. If the war-risk insurance is prohibitively expensive, then the planner can bring the NATO War Scheme into force and proceed. If the SPOD is not satisfactory, then the planner can try hub and spoke (H & S) to determine whether he can be served by the Line Co and proceed to requesting a quote and insurance (NATO, 2007d).

5.2 Introduction to the Case Studies

This section discusses the proposed framework in conjunction with the findings identified during the analysis of the two case studies. Furthermore, the researcher demonstrates the potential use of the framework and considers possible changes. Moreover, a handbook is later presented with the purpose of assisting in the

implementation of the proposed framework by various parties. Please read through the case studies along with the flow chart, Figure 1, p. 147 and Appendix 1 for Case Study One; Appendix 2 for Case Study Two.

5.3 Case Study 1

The first case study deals with the transportation of an aid cargo from Hungary and Greece to Iraq under the auspices of NATO in the spring of 2005.

In March 2005 the Iraqi defence minister accepted the donation of military hardware offered by Hungary. This was confirmed by the Secretary General of NATO on 12 April 2005 (Scheffer, 2005).

On 27 April 2005 the Greek government offered to transport the donated military hardware at its own expense from a Hungarian loading port to a discharge port in the Arabian Gulf through the Suez Canal (Lancaster, 2005).

Furthermore, the Greek government donated additional used military hardware that was in the final stages of overhaul. By 11 July 2005 it was agreed by NATO committee that Greece would transport the military equipment from Hungary and Greece to the end-user in Iraq (Giakoumakis, 2005).

The Athens Multinational Sealift Coordination Center (AMSCC) commenced work, together with their commercial shipping advisors, (personal participation, 14 to 20 August 2005), in preparing an international tender according to the standard European Union directives (European Parliament, 2004a; European Parliament 2004b). See Figure 1, p. 147. [GO TO MARKET A, AMSCC B].

On 22 August 2005 the State Maritime Transport Directorate (SMTD - or in Greek ΔΘΚΜ), issued their tender in search of the appropriate commercial vessel to perform the transportation as ‘grey hulls’ were neither available nor politically suitable for this maritime adventure (AMSCC, 22 August 2005– personal participation). The SMTD is a department within the Hellenic Ministry of Mercantile Marine and is run by officers of the Hellenic coastguard together with representatives from the Hellenic Chamber of Shipping and the State Maritime Inspectorate.

Only one company offered for the tender as the prospect of discharging in a war-like zone was not particularly attractive. Vessels suitable for transporting the sort of heavy rolling stock which constituted the Hungarian donation tend to be expensive vessels and purpose-built for a specific trade. Furthermore, in 2005 the RO/RO market was particularly tight with owners enjoying exceptionally high rates never before seen in the trade.

Consequently, the Greek government was grateful for the offer of tender (Personal participation, 12 September 2005).

The tender was conducted on 12 September 2005 (Goritsas, 2005b). This is the time of year when car manufacturers return from vacation and in general any free or unchartered RO/RO contract their services for the rest of the year.

According to European legislation, tenders involving strategic cargoes can be awarded without tender or competition (European Parliament, 2004a, 2004b).

Therefore, on 12 September 2005 the contract was awarded to the only company to offer a suitable vessel to undertake this maritime adventure.

The contract was awarded to a Greek publicly listed RO/RO and passenger ferry company, ANEK Lines (Michaloliakos, 2005a). See Figure 1, p. 147.

[FOUND ASSET].

This is a well-known, reliable and financially sound shipping company that enjoys a good reputation in the Eastern Mediterranean; their main business involves passenger, car and freight transportation between mainland Greece and the Island of Crete. This company has participated in many Greek civil/military sealift operations over the years (Personal participation, 2005 to 2014).

The vessel allocated to the transportation was the Greek owned, Greek flag RO/RO passenger ferry *Aegean Star* captained by a Greek national, Nicolas L. Lygizos (Michaloliakos, 2005b). See Figure 1 p. 147. [OVER SUPPLY].

The vessel was assessed by the State Maritime Transport Directorate (SMTD) panel consisting of a Hellenic Coast Guard Commodore, a civilian employee of the State Maritime Inspectorate and a representative of the Hellenic Chamber of Shipping (Personal communication, 12 September 2005).

The maritime sealift adventure was conducted on a 'voyage' basis for a lump sum freight of one million, two hundred thousand Euros. This means that the Hellenic State paid the owners of the vessel the above stated amount for the entire adventure. (Personal participation, September 2005). The owners were in their turn required to pay

the following: See Figure 1, p. 147. [START PLANNING].

1. The fuel required for the round trip voyage: Piraeus to Koper, Slovenia to Suda Bay, Crete via the Suez Canal to Shuaiba, Kuwait then return to Piraeus via the Suez Canal.
2. The port expenses at Koper Slovenia, Suda Bay Greece, Suez Egypt, Shuaiba Kuwait and again Suez Egypt.
3. The war-risks additional premium for transiting through the High Risk Area (HRA) of the Gulf of Aden and the Gulf of Oman together with the additional war-risk premium for the call to Kuwait and of course the additional premium for the return trip home. See Figure 1, p. 147. [IS WAR INSURANCE TOO HIGH]
4. And finally, the vessel's own daily running expenses for an international voyage.

5.3.1 The Cargo

According to Capt. G. Giakoumakis (2005) the Hungarian cargo consisted of:

- seventy-seven T-72 tanks each weighing four MT
- two tanks UT-55A weight thirty-five MT
- two JUBT-55A tanks weight thirty-five MT
- two spare part kits Type 1 (weight 1.2 MT)
- one spare part kit Type 2 (weight 8.8 MT)

The Greek cargo consisted of:

- twenty-eight BMP-1
- four containers (TEU's)

5.3.2 The Voyage

The Hungarian cargo was loaded out of Koper, Slovenia and loading was completed on 21 October 2005. The vessel then proceeded to Suda Bay in Crete to load the Hellenic portion of the cargo. The vessel then proceeded to the discharge port of Shuaiba, Kuwait via the Suez Canal. See Figure 1, p. 147. [IS SPOD SATISFACTORY].

The *Aegean Star* arrived safely in Shuaiba, Kuwait on 6 November 2005 and thankfully, the voyage had been without incident. It is interesting to note that, despite the insured value of the cargo being US dollars ten million (Tzanetou, 2005). There was no incident when passing the high risk area of the Gulf of Aden. See Figure 1, p. 147. [PROCEED].

Discharge was completed on the 9 November 2005 and the vessel departed for the return voyage to the Mediterranean without incident (Lygizos, 2005).

Appendix 3 indicates the path, along the red line, in the process of integrating commercial shipping market assets into the strategic sealift for case study 1. Throughout the steps of the case study, reference has been made to the proposed model. Once it has been shown to be correct and relevant, the path through the model has been highlighted.

5.3.3 Points of Interest

NATO's comprehensive approach concept was conceived and adopted to enable nations to benefit from civil/military synergies and further to enhance their security and to

compensate for alliance shortfalls.

The advantages do not exclusively relate to cost effectiveness but also to operational efficiency and knowledge sharing.

In case study 1, there was an international donation to a nation torn by conflict in which most NATO allies had some degree of involvement. Interestingly, one of the nation's donating hardware was also responsible for arranging and financing the sealift operation in addition to acting on behalf of a third nation. Additionally, in this maritime adventure the vessel's flag was the same as the nation organizing the sealift. In the second case study this was not a factor that affected either the financial burden or the efficiency of the sealift adventure as a whole. Restrictions on flag can either be a result of a national or international embargo or a UN and EU sanction.

It is inappropriate to discuss what political motives or benefits that prompted the donating nations into action as people 'outside the loop' are not privy to such negotiations or reasoning. In fact, for the purpose of this thesis, the political motives or benefits are irrelevant, the bottom line being that Hungary and Greece donated military hardware and Greece offered a means to fulfill the donations by arranging and financing the sealift transportation operation.

It is evident that such synergies in the use of commercial sealift assets are possible and in fact have been used for centuries to enhance and/or augment nationally owned sealift assets (grey hulls) in many military sealift deployment operations. Here, however, a different concept is being examined.

Two nations were offering military materials to be used by others in a NATO operation

and they were not in fact committing operational contributions or providing ‘boots on the ground’. If they had been doing this, then any strategic sealift would have been the obligation of the nation making the contribution according to NATO rules so they would have been obliged to arrange the sealift themselves, either with grey hulls or by contracting a commercial sealift asset.

In this case Hungary made a donation which was accepted by NATO on behalf of Iraq. Then, a third nation offered to make their contribution to the NATO led operation by financing and arranging the required sealift transportation of another nation’s contribution.

In this particular case, Greece – it can be assumed - would not have been comfortable providing one of its own naval grey hulls to transport a third nation’s military hardware to another nation. The logistics of a Greek grey hull loading in Hungary and passing through the Suez Canal, transiting the high-risk areas of the Gulfs of Aden and Oman, and subsequently discharging in a war zone such as Iraq would be a nightmare. Not only would the logistics be controversial but it would be logical to assume that there would be complications over responsibility and liability, let alone the political ramifications of such a proposal to send the grey hull crew into a war zone.

The solution was to employ a commercial asset, as set out by the NATO comprehensive approach; in this particular case there was a plethora of advantages:

- Greece was also able to add the transportation of their own donation of military hardware at no substantial additional cost save for a minor deviation in itinerary and port expenses.

- Furthermore, no Greek troops were put in harm's way or were involved in the war-like activities of this adventure.
- No nationally owned Greek sealift asset was at risk. This is an important consideration as all nationally owned sealift assets and their crews are covered for material loss or loss of life by the national budget.
- Since the chartered commercial asset was taken on a lump sum voyage basis, all risks fell upon the owners of the vessel. Once loading was completed, the freight paid and the Bills of Lading signed, the charterers - the Greek Government - had no other responsibility or liabilities for the maritime adventure.
- If the vessel and cargo had been lost, then the loss would have been covered by the vessel's hull and machinery insurance, and by the vessel P+I club for the loss of life and cargo; whether at war risk or not the whole adventure was covered by a commercial underwriter, whereas a grey hull is covered by the flag state.
- If the adventure had failed or been delayed due to breakdown of the sealift asset, the charterer had no responsibility or consequential cost, as the entire adventure was underwritten by commercial insurers.
- Any restitution that may or may not have been required would fall squarely on the shoulders of the master and owners of the vessel.

There were also some technical challenges that needed to be addressed:

The tanks were delivered to the loading port wearing their caterpillar track and with their turrets and barrels in place. The tank top of a commercial vessel is not always designed to handle the stress of caterpillar tracks and such high axle weights.

This is an example of how the assistance of commercially-minded people can facilitate

the integration of the Merchant Navy into the military sealift capabilities; a simple practical solution was required to allow for the loading of the tanks without causing damage to the vessel or the very costly removal of the caterpillar tracks. The solution given was to line the vessel's tank top/flooring with used tires (about ten under each tank) to distribute the load and protect the steel from the cutting edges of the tanks' caterpillar tracks (Personal communication, 18 October 2005).

This case study has demonstrated that not only is the use of commercially owned sealift assets a viable solution, but it can also provide financial and practical benefits for the operation as a whole, as well as reducing the responsibility and liability to a minimum for the nation making the donation.

5.4 Case Study 2

Case Study 2 relates to the transportation of an aid cargo, donated by Poland, from northern Europe to the Republic of Chad in central Africa. This case study is to be read in conjunction with Figure 1, p. 147.

The Polish government voted, in late 2007, to donate a humanitarian aid cargo to the Central African Republic of Chad under the auspices of EUFOR TCHAD/RCA (European Parliament, 2004a; European Parliament, 2004b).

In order to arrange the transportation of the goods to the western African port of Douala, Cameroon, the Polish government approached NAMSA, the NATO Maintenance and Service agency, to propose transportation modes and estimated costs.

See Figure 1, p. 147. [START].

Douala, Cameroon was the most convenient port chosen by France, the lead in the alliance forces, to serve land-locked Chad. When NAMSA was unable to provide a transportation option suitable to the Polish needs from a financial point of view, the Poles decided to approach the Athens Multi-National Sealift Co-ordination Centre in March 2008 (Personal environment, 1-7 March 2008). See Figure 1, p. 147 [DO WE HAVE ENOUGH STRATEGIC SEALIFT ASSETS].

In order for there to be any such co-operation between the Polish military and the AMSCC, an agreement was drawn up. On 3 March 2008 a MOU (Memorandum of Understanding) and TA (technical arrangements) were signed between the Hellenic Ministry of Defence and the Polish government (Bakos, 2008c). At the same time the Polish military pre-advised that they would be sending the AMSCC a request for tender for the transportation of their aid cargo to the western African port of Douala, Cameroon, for onward transportation to Chad (Personal participation, 3 March 2008).

See Figure 1, p. 147. [GO TO MARKET (A), AMSCC (B)].

On the 9 March 2008 the Polish National Movement Coordination Centre Branch Chief contacted the AMSCC requesting support for the transportation of their aid cargo from Szczecin, Poland to Douala in western Africa (Janasz, 2008).

On the 11 March 2008 the AMSCC initiated market research to ascertain the availability of suitable tonnage (Bakos, 2008b) and to obtain a 'ball park' figure of the cost of such a civil/military adventure. Furthermore, they asked that the Polish government send their official request for the transportation in the agreed format as per

the TA signed on the 3 March 2008. (Personal Participation, 11 March 2008). See Figure 1, p. 147. [LOOK AT MARKET ADVISORY PANEL REPORT].

On the 26 March 2006, the Polish military sent to the AMSCC the official request for the sealift adventure in accordance with Annex 'C' of the TA (Sowa, 2008b).

On the 27 March 2006 the AMSCC, sent out an invitation to the civilian participants of the AMSCC to prepare for the tender and subsequent allocation of the sealift contract. This operation was organized by the Polish military and they handled all the operational logistics, but it was to be physically carried out by commercial sealift assets. This civil/military cooperation needed to be coordinated to achieve the greatest advantages from the synergies at play in this particular maritime adventure (Bakos, 2008a).

The 'Calling Notice' went to the Ministry of Merchant Marine, State Maritime Transport Directorate, the Hellenic Chamber of Shipping, the author, the maritime advisor to the AMSCC and various departments within the Ministry of Defence (Personal invitation, 27 March 2008).

The document outlined the Polish requirements as to the loading port, discharging port and the preferred range of dates of loading and discharge. The meeting was arranged for the following day, 28 March 2008.

The pre-tender advice went out on the 2 April 2008 from the Hellenic Coast Guard, Civil Emergency Planning Directorate, on behalf of the SMTD, State Maritime Transport Directorate, specifying the dates that offers should be submitted by and the ports of loading including details of the proposed cargo (Hellenic Coast Guard, 2008).

On the 3 April 2008 the SMTD of the Hellenic Ministry of Merchant Marine sent the

tender out to the three Greek newspapers that handle such tenders for immediate publication. Offers had to be in by the 11 April 2008 by 11:30 at the offices of the SMTD, in Piraeus, Greece (Georgakos, 2008a).

The tenders were evaluated by the board of the SMTD, made up of the Director and Chairman, a Commodore of the Hellenic Coast Guard, a representative of the Hellenic Chamber of Shipping and the third member was a civilian from the State Maritime inspectorate (Georgakos, 2008c).

On 11 April the 'Contract of Transportation' was awarded to a freight forwarding company trading under the name 'Omega Transport Logistics' (Personal participation, 2 August 2008). See Figure 1, p. 147. [FOUND ASSET].

The price was open subject to the availability of the vessel. The opening offer was Euros one million, nine hundred and fifty thousand.

On the 17 April the Polish military advised that the maximum they were prepared to pay was an 'all in' payment of Euros one million, four hundred thousand. This price included the loading costs of the cargo in Szczecin, estimated to be about Euros fifty to sixty thousand since the Polish military wanted to contract on liner terms and on 'voyage' basis (Sowa, 2008c).

Two Polish officers attended the AMSCC meeting and negotiations commenced with the company that was awarded the contract. Since the proposed vessel was spot and in the loading area, the price was reduced and agreed at Euros one million three hundred and ninety nine thousand (personal participation, 17 April 2008) (Sowa, 2008a). The

final agreement was on voyage basis with the cargo being delivered free alongside the ship.

The owners were, therefore, required to pay all:

1. The fuel required for the voyage; in this instance, from Szczecin, Poland to Douala, Cameroon, via Skaw and the English Channel. After discharge the vessel could find a return voyage on the commercial market. See Figure 1, p. 147. [IS SPOD SATISFACTORY].
2. The port and loading expenses in Szczecin, Poland and the port and discharge expenses in Douala, Cameroon.
3. The war-risks additional premium for calling at Douala, for the duration of stay within the Gulf of Guinea. See Figure 1, p. 147. [IS WAR INSUREANCE TOO HIGH].
4. The vessel's daily running expenses for this international voyage.

The vessel chosen for the voyage was an Amsterdam registered, Dutch flag, twenty one thousand four hundred MT multipurpose cargo ship, fitted to take up to one thousand, one hundred and thirty-four TEU containers, with five cargo handling cranes, which facilitated the loading and discharge. The 2004 built, *M/V "Statengracht S 2"*, was captained by Capt. Apostolos Voulelikas and successfully completed this maritime adventure. See Figure 1, p. 147. [PROCEED].

The final contract between the shipowner's representatives, Omega Transport-Logistics, and the Polish government was prepared on 21 April for the all in sum of Euros one million three hundred and ninety nine thousand (Georgakos, 2008b and personal participation, 21 April 2008) with the contract of carriage being signed on the 22 April

2008 (Bakos, 2008d).

Appendix 4 indicates the path, along the red line, in the process of integrating commercial shipping market assets into the strategic sealift for case study 2. Throughout the steps of the case study, reference has been made to the proposed model. Once it has been shown to be correct and relevant, the path through the model has been highlighted.

5.4.1 The Cargo

- three hundred ninety TEU containers
- thirteen TEU refrigerated containers
- one hundred and three rolling stock and trailers
- three supercargoes to monitor the progress of the voyage

5.4.2 The Voyage

The Polish aid cargo was loaded in Szczecin, Poland on the 29 April 2008. The loading was uneventful and at no cost to the vessel or the Polish military as it was carried out using the ship's cargo handling equipment.

The vessel was capable of nineteen knots and she proceeded with all due haste to the discharge port of Douala, Cameroon being a safe arrival on the 14 May 2008. Discharge was completed on the following day without problems or damage to the cargo (Ampatzidis, 2008).

The vessel then departed for new business, whilst the cargo was demarcated in Douala and prepared for the onward land voyage to Chad.

5.4.3 Points of Interest

Again, this second case study demonstrates that the NATO Comprehensive Approach is not only viable but desirable. By combining civil/military know-how in logistics and operations it can be seen that there are benefits to all parties involved.

In this particular case, a nation which was a third party to the indicated area and non-participant in a conflict in central Africa was able to make use of a third party facilitator, the AMSCC, in order to arrange a maritime adventure of transportation via a vessel of a different flag and ownership to the rest of the players in the adventure. This is the essence of a truly international commercial venture.

In this second case study there are no political questions, motives or benefits to be examined. This was an aid cargo, pure and simple, donated by one nation to another one in need. A point to note is that this need does not necessarily have to be a need created by the effects resulting from war, but may well be caused by a natural disaster or viral epidemic that may require medical or hotel assistance to alleviate the suffering of the population affected.

The NATO Comprehensive Approach is a broad set of proposed approaches for benefitting from the exploitation of civil/military synergies; by augmenting military and/or humanitarian missions with commercial entities bearing appropriate experience and knowledge, it could overcome currently existing shortfalls in nations' relevant non-military capabilities. This is an important point: the military arsenal does not only consist of weapons and ordinance, it also contains a wide range of ancillary equipment

necessary to plan, implement, deploy, re-deploy and conclude a vast array of operations, both military and civilian.

As discussed before, the military are often called upon to perform duties other than war-like activities, which may include policing, patrolling, building, nursing and providing general humanitarian assistance in foreign lands. Most of these operations require transportation either by land, sea or air, or by a combination of all three modes. This is now referred to as multi-modal transportation and this thesis examines the maritime transportation aspect of multi-modal transportation complementing the NATO Comprehensive Approach.

5.5 Theoretical Framework: Evaluation and Validation

There are many case studies which could have been chosen in order to demonstrate the benefits of synergies from civil/military operations, and the fundamental advantage of cooperation in all forms of operations involving civil/military sealift.

One may question whether this thesis starts with a foregone conclusion. Nevertheless, it is an examination into whether the incorporation of commercial sealift is beneficial for nations when undertaking a civil/military, or purely military, operation. In the present climate, it appears that this is accepted to be the case, and that this knowledge is fundamental to the NATO Comprehensive Approach. The purpose of this thesis is not to reinvent the wheel but to assess and demonstrate that the NATO Comprehensive Approach is viable and beneficial; further, it explores how best to benefit from this civil/military co-operation and the most efficient method for obtaining these services.

The researcher has participated in many maritime sealift transportation operations over

the last fifteen years and in several military operations that utilized civilian sealift assets as opposed to nationally owned or controlled sealift assets; this means that the selection of case studies was no easy task.

Several assumptions were made and appropriate criteria were adhered to in order to select case studies that were appropriate and diverse enough to encompass many of the NATO Comprehensive Approach ambitions. Firstly, the multi-national involvement was important, secondly, a variety of cargo was selected that was both military and civilian, and lastly, third party involvement separated these operations from the simple national sealift deployment, which is, according to NATO, a nation's obligation (NATO, 2006). One of the essential conditions was that the particular sealift operation was disclosable, not NATO restricted. Also, that it was successfully concluded and involved a purely civilian partner not contracted on a long-term basis to any of the nations in the operation.

The theoretical framework (as demonstrated in Chapter Two, Section 2.9) was presented and discussed with key participants that were involved in Case Study 1 and Case Study 2. Several questions were posed to them with the purpose of evaluating the possible use of the proposed theoretical framework. The respondents in the research were either from the European Defence Agency or the Hellenic Navy. The strictest confidentiality was promised the participants in exchange for total frankness, thus negligible background information was disclosed beyond the participants' general involvement in the operations. The sample questionnaire is included as Appendix 2.

Table 5: Questionnaire Distribution

Date Distributed	Number of recipients
18April 2016	2
19April 2016	3
22April 2016	2
25April 2016	1
26April 2016	3

According to their responses it appears that the theoretical framework could be applicable for NATO sealift operations. Specifically, respondent A stated:

Yes we believe that is applicable for NATO sealift operations if the time limits permit it. The Go to Market [(A) option] pre-suppose competitions with duration approximately 6.5 months (EU Legislation, if it is required by the user). Only AMSCC [(B) option] has additional capabilities with its direct communication with the ship-owners [and the political approval] can minimise significant the required time.

Similarly, respondent B agreed:

The flowchart is providing solutions to the Staff Officers, applicable for all the NATO sealift operations. The applicability is based upon the fact that both supporting Centres, within the flowchart, have arrangements in place with NATO, the AMSCC has an MOU with NATO/SHAPE and the MCCE has an agreement with NATO/IS.

Concerning the question of whether the framework could be suitable for NATO military operations, the respondents agree that is appropriate mainly because it allows a combination of tools and procedures. Respondent B stated:

The flowchart is suitable for NATO operations, because it follows the practice to combine tools/procedures/capabilities with civilian origin to support military operations.

This method used also before, but the flowchart is a genuine initiative to put the relevant tools together. In addition to the NATO military operations it is also

suitable for support to EU-CSDP operations.

Respondent A clarifies that merchant fleets can provide better sealift and logistics support in case of crisis:

For some kinds of military sealift operations, we believe that the merchant fleet is the one sector which can provide the appropriate capacity for transportation.

Respondent A explains further:

International and maritime trade has been growing at twice the rate of the world's economy for some time. Large merchant vessels are the most flexible and cost-effective modes of intercontinental and coastal transport. Increasingly, new markets and new resources are found overseas. As the world evolves from a collection of disconnected national and regional economies to one global inter-linked economy, freedom of commercial transit on the high seas and through straits and other navigational choke points becomes ever more important. At the same time, the ability of military forces to respond abroad in case of crisis requires the sealift and logistic support that can only be provided by the merchant fleet.

Respondent A also discusses possible security issues when involvement of merchant ships should take place in a time of crisis and raises specific concerns:

The first, and possibly most obvious problem, is the presence of a large number of fully loaded merchant ships at anchor in a major port. Such a gathering over several days is an obvious indication that a convoy or major operation is being planned, and is almost impossible to keep secure. Somewhat more subtle, but still obvious, is the gathering of large numbers of sealift ships at a forward base, particularly those ships which can be identified with an assault follow-on echelon. The key point here is that, while a large mass of merchant shipping can be regarded as a target in and of itself, the presence of certain types of merchant ships can indicate a major military operation even when the "military" end of the operation has scrupulously observed operations security measures.

The respondents were also asked to discuss whether the theoretical framework could be relevant to NATO-led operations. Both parties had been involved in previous operations similar to those discussed in the case studies, and both agreed that it could be used as a reliable methodology. Respondent B stated that:

Could provide to NATO a reliable methodology, adoption and systematic use of it could better deconflict and prioritise actions in NATO support.... That could be from very early, pre-planning (St-buy), during the planning phase and up to

the execution of an operation.

Respondent A went a step further and highlighted a number of factors that should be taken into consideration:

Several factors should be taken into consideration. Firstly, only very few Allies are capable of transporting significant relief capabilities rapidly over great distances to stricken areas and to sustain the effort. Secondly, NATO's primary contribution is the coordinating, liaising and facilitating function that the Alliance's military structures provide. These enable smaller Allies to contribute capabilities, such as a military hospital or water purification unit, that they would not be able to contribute on their own. In addition, this coordination role that characterises NATO-led operations has proven useful both to the authorities of the receiving country and to the United Nations, who were thereby able to deal with a single actor rather than many

According to respondents the proposed framework could be employed for a variety of operations. Respondent B stated:

It could be used also in other cases like humanitarian aid and refugee evacuation, where NATO and other international organisations (EU, UN etc.) are getting involved. The strategic sealift assets could have a wide range use for by the competent organisations/national authorities. That gives to the flowchart an added value, as it describes the road to achieve successful results for strategic sealift.

Respondent A also agreed and added:

If one recognizes that military capabilities may usefully be deployed in disaster-response operations the next issue to address is that of NATO's added value. Clearly, military contributions do not have to come via NATO and may be made on a bilateral basis. Moreover, decision-making in response to disasters needs to be rapid and the Alliance's multilateral approach is in theory slower than that of individual Allies.

However, Respondent A emphasized the importance of taking into consideration the need for the development of new funding mechanisms:

Looking ahead, one of the most important issues that needs to be resolved before either NATO as a whole or individual Allies again make military capabilities available for disaster-relief operations is that of appropriate funding mechanisms. If, as at present, the defence ministries of those countries that are asked to provide helicopters for a future disaster-relief operation are also expected to carry the entire financial burden of their engagement, they may

decide that they cannot afford to become involved. Unless new funding mechanisms are developed, intervention for disaster relief would eat up a great portion of the defence budget.

Both respondents feel confident that the proposed framework could assist in locating more assets during a sealift operation. Respondent A stated:

Of course, because every time we increase the range of options (let's say: pool of assets), we increase the possibilities to have a solution. It is not duplication of effort, because the centres have connections to different markets. This should be one of our theses (with permission from Mr. Foskolos/AMSCC Dir) at the meeting of 06 May 2016. Until now NATO/ or NATO member deals with NSPA in order to find solutions. So if there are more centres which can contribute to this target (in cooperation with NSPA), we strongly believe that this would be an added value to the Alliance.

Similarly, Respondent B agreed:

Following the flowchart procedure, it provides you the ability to access all the available assets through MCCE, the market individually or by AMSCC, but also the AMSCC pool of vessels (a genuine capability already in place).

When respondents discussed the possibility that the proposed framework could provide a potential financial benefit when employed during sealift operations both agreed that that could be a potential outcome. Respondent A gave the following reasons of why these could be of financial benefit:

The larger the pool of solutions, the greater competition will rise and thus economic profit for the requesting party. Also the characteristics of the ship will be closer to the user's requirements (due to the bigger number of assets).

Moreover, Respondent B identified a number of additional reasons as to why the proposed framework could be of financial benefit:

The financial benefit is a potential result, because the flowchart shows the way to avoid duplication of actions, like chartering unnecessary more assets-missing opportunity to share spare capacity-miss coordinate the existing assets etc.

Last but not least, respondents were asked to discuss whether they would recommend

the use of the proposed framework. Both A and B agreed that it is useful. Specifically, Respondent B stated:

I recommend its use by the Staff officers in NATO but also in EU for the support of the CSDP operations...This flowchart is a mechanism which combines the most relevant tools for Strategic Sealift, in support of the planning but also the implementation of the Operations. It could be very useful for the deployment-sustainment-redeployment of forces.

Respondent A agreed and also recommended the proposed framework although he raised concerns in relation to the various costs involved in such operations and emphasized that there are additional unpredictable factors such as an ‘*act of God*’.

Thus, it is effectively shown that the civil/military synergy delivers benefits and that the flowchart could be of value to any operation as it provides an extra tool in the ‘toolbox’ of sealift capabilities of alliances such as NATO. Presently, an answer to the question of ‘how?’ will be proposed. A practical ‘handbook’ procedure will be introduced with the purpose of assisting the alliance or national movement procurement officer in completing the required movement task in a cost effective and efficient manner. It will aim at taking them through all the steps from assessing the requirement to selecting the appropriate vessel together with using the appropriate contract of carriage for the procurement and operation of the vessel.

5.6 The Handbook: Based on the Proposed Theoretical Framework

The question “*Can the strategic sealift shortfall be resolved with the tools in our toolbox?*” can be categorically answered as “yes” although with a caveat. The shortfall can be resolved either by governments spending vast amounts of money, far beyond their present and predicted future budgets, in order to acquire dedicated sealift assets, or alternatively, with the caveat mentioned above, by making use of the commercial

shipping market.

5.6.1 The Strategic Sealift Toolbox

Before progressing with the analysis there are a number of major stumbling blocks encountered by nations over the years that need to be addressed. These are basically caused by military requirements together with standards and levels of ambition which differ dramatically from the requirements of a commercial maritime adventure – largely because in the commercial market lives are not at risk. The problem areas are:

- A. Command and control
- B. Unit integrity
- C. Assuredness vs. Availability
- D. Information
- E. Duplication of effort

Each of these five complications warrants an explanation, not only as to what they refer but also with respect to their consequences and whether there is a possible solution that could facilitate the maritime adventure. While each is important, it is not as significant as the overall effectiveness of the final sealift transportation operation (NATO, 2007d).

A. Command and control

A central tenet of any strategic defence movement, whether by land, sea or air, is the military commander's requirement to retain 'Command and Control'; in layman's terms this means that the participating nation supplying the military hardware is in touch with its hardware until it is delivered to the operational commander in the arena of operations or the field of combat. This is because most military equipment is both expensive and sensitive, and in some cases, extremely dangerous. An obvious risk of not retaining

command and control over such equipment is that it is either damaged beyond use or falls into the wrong hands. (Let us not forget the hijacking by Somali pirates of the container ship *Maersk Alabama* with a cargo of military hardware whilst transiting the Indian Ocean in 2009 (Weaver, 2009)). Both the damage and loss scenarios can have dire results and can negatively affect any strategic operation or create bigger problems than the operation was intended to resolve. Thankfully, most militarily-suitable commercial sealift assets capable of carrying such equipment also have the capability of carrying up to twelve passengers according to the International Convention for Safety of Life at Sea, 1974 and its protocols of 1988 (IMCO, 1974). These passengers can easily be military personnel, armed or unarmed, depending on flag state requirements and permits, and this offers the ability to retain command and control on paper and in practice. (More than twelve passengers on a commercial vessel would designate it as a 'passenger ship' and seriously affect its SOLAS status requiring additional safety and lifesaving appliances (IMO, 2004a)).

B. Unit integrity

Clearly it is desirable to maintain unit integrity; essentially, this means that, for example, a battalion will always retain the integrity of personnel and equipment. But this can create great difficulties in the maritime transportation of equipment to and from remote or damaged sea ports of embarkation (SPOE) or sea ports of disembarkation (SPOD). In the situation that a sea port has been under attack and its facilities are compromised or impaired, either by a draft restriction or wharf or crane restriction, then it is possible that the operational equipment may need to be delivered in a staggered formation and demarcated at the theatre of operations. This is referred to in NATO circles as Reception Staging and Onward Movement (RSOM). However, it will not be examined in this thesis. It can easily be understood that when personnel and equipment

are not simultaneously delivered there is an increased probability of loss and delays especially adding the elevated stress levels that are associated with conflict or disaster control.

However, this is only relevant at the point of demarcation at the SPOE prior to loading and at the SPOD prior to transfer to the actual theatre of operation and the handing over of command and control to the operational commander.

Since both items A and B above can be maintained to a certain degree at some important times during the sea transit, but possibly not at all times, the question is:

Are the participating nations prepared to make some sacrifices on command and control and unit integrity, as described above, to increase their available choices of commercial sealift solutions?

There are several advantages to flexibility including that of increasing available sealift choices you can expect to be able to obtain at more competitive prices and more reliable service providers. Additionally, there will be a shorter notice of activation and deployment time and a greater flexibility on the collection, loading and delivery dates.

C. Assuredness vs. Availability

What do these words mean?

According to the *Collins Dictionary* (2000, p. 63), when you 'assure' someone of something, you make certain that they will get it. Therefore, assuredness provides confidence and certainty. Similarly, 'available', according to *Collins Dictionary* (2000, p. 71) is when something can be obtained, therefore making it convenient and accessible.

In any military or civilian operation, be it strategic defence sealift, humanitarian aid or refugee evacuation, a certain degree of assuredness is desired by the decision makers.

When political leaders agree on dates for an operation, they need to be assured that the operation will take place on, or near, the indicated dates. By owning sealift assets, a nation can be reasonably assured that the strategic lift can, and will take place, but at what cost? By contracting in commercial sealift tonnage there is still, of course, a chance that the operation may fail; for example, a breach of contract could result in the failure or, at best, a lengthy delay in the particular operation. Furthermore, the term ‘assured access’ needs to be defined, so that all the users and providers of the sealift assets know exactly where they stand commercially, legally and financially.

At present NATO suggests it should be defined as:

The guaranteed right of a pre-defined group or entity to use pre-defined site, facilities, asset or services, in accordance with a prior written agreement between NATO and the provider (NATO, 2014).

It is feared that this definition will lull military users into a false sense of security, which may result in disastrous consequences for a planned and agreed operation. There are several flaws in the definition. Firstly, what is the consequence of failure to provide the assured asset? There might be some financial retribution after a protracted legal battle, yet the fact of the matter is that the operation itself failed. In point of fact and law, the provider of the asset can claim *force majeure* or ‘act of God’ and not be financially liable for any consequential losses. So, in truth, there is no significant detrimental consequence for the sealift asset provider. A stricter definition is therefore essential.

Nonetheless, there is some doubt as to whether, having agreed to a contractual term, the breach of that term will automatically entitle the party innocent of the breach to seek specific performance of the contract or to the award of damages as a result of the

complained breach. In interlocutory terms: *If, for example, a shipowner undertakes to make his vessel available within 5 days of a contractual notice so to do, will a failure to make the vessel available automatically expose the shipowner to a claim in damages?*

The answer is no – there are exigencies which would protect a shipowner from a damages claim. In shipping, indeed in very many commercial ventures, there are innumerable events that may disable one party from effecting immediate performance of a contractual obligation. Some of those events are predictable, whether as unavoidable fact or potential risk, and most contracts will contain, within their text, provisions to deal with certain foreseeable exigencies.

The issues under consideration here are those where a breach has occurred (in this case, where an owner and/or seafarer asset provider is unable to fulfill obligations regarding the availability of a ship), but where the reason for the breach is an event which was not foreseen, nor provision made for it at the time the contract was entered into. In such circumstances, English law allows that the party apparently in breach may seek to defend that breach, invoking ‘the doctrine of frustration’, (*Law Reform (Frustrated Contracts) Act, 1943*) on which topic many text books have been written. The essentials of this doctrine have not been codified into UK statute law, but have derived from a great many decisions of the UK courts over the past one hundred fifty years, the doctrine having first been touched upon in 1853.

The essence of the doctrine is this:

Irrespective of the non-performance of a legal obligation, if that non-performance arises as a result, without fault of either party, of an unforeseen supervening event making it impossible for the obligation to be fulfilled or makes the fulfilment of the contract radically different to the original venture,

then the party nominally in breach may claim that the contract is frustrated, the consequence of which is that the contract immediately terminates and all performance obligation thereunder immediately ceases (Law Reform (Frustrated Contracts) Act, 1943, c. 40, ss.1-3).

Whether an event relied upon by a party nominally in breach is sufficient to invoke frustration is an objective test determined by consideration of the facts of each individual case. If a contract is determined to have been frustrated, then the financial consequences thereof are determined in accordance with the terms of the *Law Reform (Frustrated Contracts) Act (1943)*. While this makes commercial sense, however, it does not make ‘military sense’ as reducing cost is not the main objective there but rather the success of a maritime mission on which lives may depend.

The researcher suggests that the definition should be amended:

‘Assured access’ to become: *‘Priority usage’*

And thus the definition would read:

The contractual right of an identifiable group or entity to use pre-defined sites, facilities, assets or services, in accordance with any prior agreement or understanding between NATO and the provider.

Once the appropriate interpretation has been chosen, then the levels of assuredness that nations wish to maintain can be determined. The level is related to the cost; the higher the level, the higher the overall cost, and, unfortunately, the relationship between level and cost is not linear but exponential, so that little extra assuredness will cost a considerable amount more. However, the relationship between the level of assuredness

and the availability is neither linear nor exponential; it is, in fact, cyclical so that when the commercial freight market goes up the costs of availability go up. The question is: how can a price factor be put on assuredness and availability to enable the M+T staff officer to choose the desired level of assuredness that satisfies operational needs?

D. Information

Despite the efforts of PBOS over the years to properly enlighten their military customers, it is plainly clear that the military sealift customer is very badly informed about the workings, availability and cost structure of an ever changing and complex merchant shipping asset. This ignorance leads to military operations not utilising all the available commercial solutions nor any of the civil/military synergies, and thus it affects not only the financial/budgetary aspects but also the military efficiency of operations.

E. Duplication of effort

Although duplication of effort can lead to higher cost, it can also lead to increased reliability, healthy competition and new markets. Are there not two hydraulic systems in an aircraft and two circulating pumps in a vessel's cooling system? In a practical way duplication of effort can also enhance reliability and increase the number of available options.

5.6.2 The Tools in the Toolbox

Next, we identify and examine all currently available sealift transportation tools that presently exist in the strategic sealift transportation 'toolbox' (NATO, 2007d).

Before this question can be answered, the practical side of the question needs to be addressed by identifying and investigating all the tools that exist in the strategic sealift

toolbox.

1. Nationally owned assets (grey hulls)
2. Nationally controlled assets (long term chartered-in vessels)
3. The commercial shipping market (spot vessels)
4. The Athens Multinational Strategic Lift Coordination Center
5. The liner companies
6. The SCC Eindhoven (NATO, 2002)
7. The hub and spoke concept (NATO, 2004b)
8. The NATO War Risk Scheme
9. The NATO Market Advisory Panel
10. Cooperation with CAPC and PBIST (NATO Transport Group committees)

By analyzing each of the above assets or tools, it will be possible to identify the potential for integrating these individual tools into a transportation solution for most sealift transportation scenarios while taking advantage of civil/military synergies in accordance with the NATO Comprehensive Approach and by use of the model of the integration of the commercial shipping market assets and services into strategic sealift, Figure 1, p. 147.

At this point, it is important to recognize the fact that these tools can also be easily transposed into a multimodal transportation solution for road and air transportation. Once the sealift transportation solution has been created, the next step would be to integrate all the modalities to create a multi-modal strategic lift solution. With today's NATO requirements as stated in the 'Comprehensive Approach', it will be necessary to resolve complicated movement requirements to the desired level of ambition despite potentially remote and difficult to approach theatres of operation at the commander's

required date. These solutions will probably require a multi-modal approach, land, sea and air, all integrated and managed by one entity. This subject requires lengthy investigation and discussion but does not form part of this thesis.

Logically, in order to recognise the benefits of the vast range of available civil/military synergies, the military transportation desk officer must be aware of what is available in the commercial market and how it works, so as take best advantage of the benefits and savings in both time and money (NATO, 2007d).

1. Nationally owned assets

Several NATO nations own strategic sealift assets or grey hulls. These are vessels specifically designated for national military and humanitarian operations but they can satisfy only a part of their national requirements although their importance is vital as a part of the whole picture (LMI, 2001). Despite the fact that this level of comfort and misleading sense of assuredness is enjoyed at a very high cost, nations persist in funding such projects. The apparent assuredness and availability is fairly high, but is conditional upon these assets being well-maintained as discussed in section 2.2.4, fully-crewed, class-maintained, functional, up-to-date with all new national and international regulations and requirements, provisioned, stored and bunkered ready to go and not undergoing repair and/or routine maintenance or half way around the world on another national civil or military operation at the critical time.

2. Nationally controlled assets

Several nations have realized that owning a sealift asset as mentioned above is a very costly proposition that no longer gives value for money, so in order to maintain the level of assuredness that they have enjoyed to date they have taken on vessels with long-term

time charter. This course of action has some merit as it leaves all the requirements for maintenance, crewing, class maintenance, as the responsibility of the owner of the asset as opposed to the nation. As of 2014, France has two RO/ROs; the UK has six; Denmark, two; Germany, one and Norway one on an ad hoc basis as presented at the NATO Ship Availability Seminar in Athens June 2014 (NATO, 2014f). All these chartered vessels can perform a service for regular peacetime movements such as sustainment and re-deployment; then, and in times of crisis, not only can they perform military defence strategic sealift operations but humanitarian aid and in some cases (with slight modification and additional safety equipment such as lifejackets), refugee evacuation. However, these vessels alone cannot resolve the strategic sealift shortfall problem (LMI, 2001).

3. The market

One interesting finding of this thesis is that a single solution alone cannot resolve the strategic sealift shortfall and that a combination of alternative means is required to allow for a reasonable level of assuredness. One such solution is the integration of the commercial sealift market into the militarily controlled sealift operation for defence, humanitarian and refugee evacuation, thus reaping all the financial and operational benefits of the civil/military synergies.

The commercial shipping market has a huge reserve of available military suitable tonnage of all shapes and sizes. As stated previously, the level of availability is cyclical; for example, in the summer months in the northern hemisphere, many car factories close for summer vacation time making the RO/RO more readily available, whereas the car/passenger ferries are relatively scarce as they are at the height of their seasonal cycle of employment carrying the summer holidaymakers and family cars around the

Mediterranean islands. However, availability is not the only hurdle to overcome when trying to secure any type of merchant ships from the commercial market and the way to approach the market is of paramount importance.

Unfortunately, there is no hard and fast 'golden' rule as to how to approach the commercial shipping market, because it is continually changing, not only from a cost point of view, but because each different type of asset requires a different approach. This is further complicated by the fact that vessels are continually evolving; what was considered an ideal or suitable ship for last year's operation may no longer exist or it may have been replaced by one that is, in fact, better. What is a military suitable vessel today may be incompatible tomorrow. Even in the open commercial market, an old adage says: *'A ship is out of date the moment it glides down the slipway'*. One fact is beyond dispute: the governing factor in obtaining the appropriate merchant-shipping asset for any type of operation, whether it be strategic defence sealift or humanitarian aid or refugee evacuation, is knowing what you need and knowing exactly when you want it. The continuing misconception that the RO/RO is the only military suitable asset is a blind spot that not only restricts the choice of sealift asset but also potentially increases the cost. Chapter 2 introduced a plethora of other military suitable vessels equally adept at handling many different operational scenarios. It may be helpful to explain exactly what is available from the market.

As explained in detail in chapter 2, a simple way of understanding different methods of utilising a ship identified above is to imagine yourselves leaving your residence to go to work. The choice is whether to travel by your own car, by taxi or by bus with their different advantages and drawbacks reflected in the different ways of accessing sealift.

It should be stressed that supply and demand affect the shipping market to such an extent that freight rates can, in extreme cases, go up tenfold in a good freight market or when the supply of a certain type of ship becomes scarce or it is in great demand or perhaps to satisfy a well-publicized national or NATO led sealift requirement. These are situations where the method and timing of approaching the market can not only affect the price but also the availability of the most suitable asset; the appropriate strategy for achieving the best possible commercial deal is to act early, discreetly and rapidly, none of which are easily accomplished by the government of any nation.

4. The Athens Multinational Sealift Coordination Center (AMSCC)

Despite its bumpy start due to adverse comments by misinformed allies, the Athens Multinational Sealift Coordination Center is thriving (Personal participation, 2003-2015). The Center provides an easy conduit to a large part of the global merchant shipping fleet; it provides this ready access through close cooperation with ship owners and ship operators, by methods used for over seventy-five years. Standardized charter-parties, pre-translated for European tenders allow for shorter contractual time frames. Over two hundred military-suitable vessels with a comprehensive range of ship types are contracted into the centre on a non-binding Letter of Intent (L.O.I.), which creates the no-cost environment of the AMSCC. This L.O.I. is non-binding inasmuch that the owner has no obligation to provide his vessel and the center has no obligation to charter the vessel for any of its operations. As previously mentioned, availability and assuredness are cost-related and inversely proportional to market volume. The larger the market pool from which to choose a vessel, the lower the overall cost. This is the philosophy of the AMSCC with its ever-growing pool of vessels contracted in on a non-binding L.O.I.. By providing access for member nations to this pool of military-suitable sealift assets, it can increase the probability of finding a suitable asset at the

appropriate time and at a competitive rate. This is not a panacea for the NATO sealift shortfall problem; it is just one more tool in the solution toolbox.

5. The liner companies

As described earlier, the liner shipping companies are like buses on their fixed and scheduled routes. When used in conjunction with the NATO hub and spoke concept (NATO, 2004b) the liner companies can easily handle all types of military transportation operation including - but not limited to - deployment, redeployment and sustainment. However, liner shipping services are not really suitable for humanitarian aid or refugee evacuation, as they cannot easily break from their scheduled commitments and their liner services.

All major liner companies have the flexibility to reconfigure their cargo spaces to accommodate all types, shapes and sizes of military cargoes. From a cost point of view liner shipping is probably the most cost effective form of maritime transport available today. Liner companies use the larger and deeper ports as hubs for the larger mother ships and then distribute their cargo through their own network of owned and chartered-in feeder vessels. Since most customers are now demanding a total transportation package this translates into a door-to-door service which involves the company collecting the cargo at the shipper's designated place of business, transporting it either by sea, land or air and delivering the cargo at the recipient's designated place of business. It is interesting to note that the military is probably one of the smallest customers of marine transportation, albeit, one of the most reliable (Personal experience).

6. The SCC Eindhoven

The concept of the SCC Eindhoven (NATO 2002) was born in the NATO Planning Board of Shipping Working Group, in 2002. At the time, the idea of the military of one nation sharing a merchant-shipping asset of another nation was abhorrent. The military commanders required the retention of command and control over their equipment and their men and this would be very difficult if there were two commanders in the same maritime adventure or even on the same ship. Then the military budgets of all nations shrank just as there was an increase in new demands upon them so that new methods of cost saving needed to be developed and employed. The SCC Eindhoven concept provided a quick, clean and sound solution in all modes of transportation in the private sector. In only a few years of operation the SCC Eindhoven has proved a great success as a multimodal, multinational operation. It has had the advantage of dedicated management and personnel during its fledgling years, which will lead to long-term success. The problem seems to be the usual resistance to a novel idea; it is hoped that such resistance will be overcome, and that most nations will probably use the SCC Eindhoven for smaller marine strategic transportation, deployment, sustainment and redeployment. The basic concept is very simple: when a nation, or its military, charter in a sealift asset, it is likely that its capacity far exceeds the actual requirement of the particular transportation operation. When the SCC Eindhoven is made aware of the details of the charter, including the route and the remaining free space available, they can provide this free space to other nations participating in the operation and requiring sealift to the same vicinity. Hopefully, they can sub-let the residual capacity, thus increasing the efficiency of the particular sealift adventure for all concerned.

Despite the fact that the SCC Eindhoven ostensibly provides a different service than the Athens Multinational Sealift Coordination Centre, they both suffer from the same

vulnerability, and this is loyalty. The more you use the centres the more cost effective they become. If you start by-passing the centres either by going directly to the ship owner (AMSCC) or directly to the other nation, you undermine their fundamental philosophy of reduced cost via economies of scale (NATO, 2014e).

7. The hub and spoke concept

The shipping hub concept for NATO can be used to transport military cargoes from the Ports of Embarkation (SPOE) (direct ports) to an existing commercial hub port (trans-shipment port) near to the theatre of operation and then from the hub port to its final destination. The establishment of a shipping hub system for NATO does not preclude or pre-empt the use of other means of obtaining sealift - such as chartering vessels directly from the market. It is only another means for obtaining the required services to satisfy the prescribed operation (NATO, 2004b).

A hub is the point (sea port) at which material and equipment required for an operation is assembled and readied prior to dispatch to the theatre of operations.

The use of a hub system could provide better utilisation of existing scarce sealift assets. It would be used in addition to direct strategic transportation, thus resulting in shorter voyages over shorter routes (Lines of Communications (LOCs)) and allowing these assets to be used for more voyages in a shorter period of time. This concept is especially applicable where the port facilities at the theatre of operations are unable to handle large RO/ROs and large container vessels, or where the infrastructure of the port has broken down. These deficiencies include lack of, or inoperable, cargo handling equipment and cargo storage facilities or even restrictions on the available draft in the Seaports of Debarkation (SPOD) for whatever reason (i.e. sunken vessels, and/or disabled vessel)

and inadequate security facilities (NATO, 2004b).

The major liner companies have created hub ports all around the world with suitable cargo handling equipment with demarcated parking areas able to handle large volumes of standard and outsized cargo well in excess of most NATO deployment requirements. However, if suitable cargo handling equipment and labour are not available at the final discharge ports, they may have to be deployed during the early stages of the operation.

Each nation participating in an international operation of any kind can elect to have military or civilian representatives at the hub port to provide coordination for their cargo at all times, thus retaining the desired command and control.

The handling and storage of large quantities of Class 1 (hazardous) cargoes in most ports could be a problem as there are limitations on the retention and throughput of dangerous cargoes. Such limitations on the movement and storage of these cargoes at hub ports have to be identified and to be taken into account at the planning stage of the operation. However, in order to overcome this operational difficulty specialized, chartered-in vessels could be used solely for the transportation of Class 1 (Ordinance) cargoes directly to the SPOD.

How a NATO hub would work

The NATO hub concept is designed to ensure that the right material will arrive in the right quantities and at the right time at the theatre of operations as requested by the operational commander (NATO, 2004b). All NATO countries and partner nations participating in the operation will be responsible for delivering their cargo to the hub port according to the NATO strategic sealift doctrine, either by regular liner vessels or

by individually chartered-in vessels (NATO, 2006). A participating nation may choose to make its own arrangements for deploying the cargo to the hub port with a chartered-in vessel as is the procedure used today. However, it is recommended that nations use a regular liner service, which can be a door-to-door service (collection from a military base or from the Seaport of Embarkation (SPOE) directly to the Seaport of Debarkation (SPOD) via the hub) as discussed before. The liner company could provide the smaller feeder vessels to provide the service for all the cargo, both the cargo the liner vessel transported to the hub and also the cargo brought in by individually chartered-in vessels. Feeder vessels can be chartered-in individually on a time charter basis or the service can be purchased from a liner company. Military organic assets could also be used for feeder services. Predominantly smaller feeder vessels, as the name implies, are able to enter smaller ports and are well equipped with adequate cargo handling gear to discharge their cargo in unfriendly ports.

At the NATO hub port, areas may be demarcated for each member to place their containers, rolling stock, etc. Hence, each nation can retain command and control until such time as the allied commander requests the appropriate material at the theatre of operations (NATO, 2004b).

The built-in advantage of using the NATO hub system is that all relevant and related equipment that needs to be deployed as a combined unit can be prepared and sent in self-contained units/cargo blocks and thus remains intact until it all arrives at the theatre of operations. Other material that may be required at a later stage of the operation or for sustainment, say in colder weather, and can be delivered much faster than if ordered from one's nation.

To transport the equipment, etc. to the theatre of operations, small feeder vessels will be selected according to the restrictions and conditions ruling at the SPODs, whether there be draught restrictions or infrastructure restrictions. If military organic vessels are being used by a particular nation to deliver their cargo to the SPOD or NATO hub port, they can also be used as feeder vessels between the SPOD and hub port, thus making far more efficient use of this owned asset.

Thus, the allied commander can ensure that he will receive the right material in the right quantities at the right time and therefore obtain the most efficient use of his available SPOD facilities.

With current technology, each container is assigned an identification number enabling the allied movement and transport, M+T, personnel to locate the whereabouts of each individual container or unit of cargo or rolling stock. Additionally, the same container or individual piece or rolling stock can be fitted with a GPS tracker. The liner company will allocate a security password to each nation and they can track their cargo on the liner company's website. The NATO hubs can also have an electronic tracking system linking the carrier, cargo and military planners, as is current practice in commercial environments (Avante, 2017).

It is emphasized that all the equipment can be containerized or carried on heavy flat racks and can thus be placed in self-contained units whose exact location can be verified at any time.

Another possible means to develop a hub system is to request a freight forwarder/shipping company to arrange for the transportation of the cargo. Using the

principles of the Movement Coordination Centre Europe, a body could be established that could coordinate via a transportation cell and arrange a contract of transportation for all participating countries. Alternatively, transportation could be arranged by a liner company on the principle of door-to-door delivery. They would pick up the cargo at places nominated by the nation, such as a military base, and deliver it by scheduled liners to the NATO hub while also assuming responsibility for transporting the cargo from the hub to the theatre of operations. By this method, the nation will not be required to have all its cargo ready in one big shipment as liner vessels call on a regular and frequent basis.

A supercargo, military escort for the cargo, could be placed on board the liner vessel to accompany the cargo. This way the nation does not relinquish command and control over their cargo. At the hub port command and control is retained by the nations by having military personnel on site at the allocated areas.

Once the cargo arrives at the NATO hub port, the allied commander, together with each participating nation, can define and set priorities and the order or sequence of delivery movements based on operational requirements. This can include requesting specific containers or items of rolling stock to be loaded on feeder vessels or RO/RO feeder vessels, and delivered to any of the SPODs, to prevent congestion of unnecessary equipment at the SPODs and the theatre of operations. In hub ports cargo could be under the control of the national military authorities, the allied commander, or a lead nation (NATO, 2004b).

There is a minor drawback in that the use of the hub might result in additional cargo handling efforts and the need for additional military personnel in the ports to coordinate

operations, to provide any additional security and to provide specialist drivers.

As a logical observation, the hub concept also works exceptionally well for redeployment. Unused ordinance and equipment that is no longer necessary at the theatre of operations can be returned and stored at the hub port. It can then be transported back to the nation of origin either by liner service or by an individually chartered vessel when the quantity is sufficient, thus uncluttering the theatre of operations and allowing the redundant equipment to be returned to the nation at a convenient time.

Advantages to using a NATO hub system

The NATO hub concept will assist to ensure that the right material will arrive in the right quantities and at the right time at the theatre of operations. The consequence of using a commercial liner service is that all participating countries may benefit from the following civil/military synergies:

- Combine their contracts of carriage with one carrier
- Start moving equipment almost immediately
- Add unforeseen cargo at a later stage
- Be aware of the exact location of their cargo at all times
- Have a reliable delivery schedule
- Be able to re-deploy part cargo
- Save money because of lower war risk insurance premiums
- Other savings resulting from more effective utilization of shipping assets and obvious economies of scale

The collection of the cargo at the NATO hub port by feeder vessels will work better

than chartered-in ships, even if the entry into the market is coordinated, because ships that are in high demand and scarce supply will be better utilised and port congestion will be minimised or eliminated. A further advantage is that a larger range of smaller ports with poor facilities in the vicinity of the theatre of operations could also be used as SPOD's, because small, well equipped feeder vessels would now be involved in the marine transportation adventure. This arrangement can also be employed in humanitarian aid operations but has limited use in refugee evacuation as immigration laws might create insuperable obstacles (Personal experience).

Using commercial ports away from the theatre of operations as NATO hub ports would logically result in significantly lower war risk insurance costs because these ports would most likely be outside any declared war-risk zone.

Nations having smaller logistics requirements and budgets will benefit greatly from the NATO hub concept in conjunction with liner service contracts. Liner companies will give a more competitive price to a larger volume of cargo coming from multiple clients as opposed to a single nation searching the market to charter in specific ships (NATO, 2004b).

If during sustainment, additional or revised requirements are identified because of changing operation needs, they can be easily met by the liner company to and from the country of origin on a scheduled liner vessel.

The economies of scale speak for themselves along with other financial benefits derived from the use of the hub system. Nations will only be paying for cargo carried, known as slots, rather than empty space - dead freight - on an individually chartered vessel.

Much has been written on the idea and the concept. It works well in many situations but not in all. Basically, during the planning stages it can be easily decided whether the concept should be used or not. In general terms it is workable for material transportation and not for refugee evacuation where people are being transported. Geography is both its advantage and its drawback. Nevertheless, the hub and spoke concept should be incorporated into every operation as a fallback position in case the discharging ports, convenient to the theatre of operations, become inoperable. The commercial air, sea and road transport markets have the expertise, not only to accommodate the military in existing hubs and the flexibility to incorporate military destinations in their range of spoke ports, but also to set up and operate *ad hoc* hubs to facilitate specific operations. This concept is easily transposed into a multi-modal concept as used by both the commercial trucking companies and the commercial airlines. As an analogy, a holidaymaker rarely goes directly to a Mediterranean holiday island resort, but flies to the main capital 'hub' airport and catches a smaller feeder aircraft to the final destination (NATO, 2004b).

8. The NATO War Risk Scheme

The NATO War Risk Scheme is a useful arrangement displaying foresight and flexibility of use, providing security for all parties involved in a NATO operation in a war or war-like zone where commercial war risks insurance is no longer available according to NATO directives (NATO, 2007a, 2007b). Regrettably, few nations have truly grasped the concept and tremendous operational and financial saving provided by this scheme. Statistically, if one considers the amounts paid for war-risk insurance by nations when chartering vessels for operations over the last twenty years, and compares it to the impeccable record, that is, no reported losses, then one can see where the ever-

tightening military budget is throwing money away. Any zero-cost scheme must have financial benefits (NATO, 2007a).

The four main advantages of the NATO War Risk Scheme outlined by NATO (2005a) were:

- No premium is payable by the NATO member or the shipowner
- The maximum liability cover for contracting parties is US dollars one hundred fifty million per vessel per incident
- There is secondary seamen's cover
- The insured value is the commercially insured war-risk cover as set fourteen days prior to coming into force of the indemnification provisions of the scheme

The main dispute within NATO concerns the need to harmonize the marine war-risk scheme with those of aviation and land-based schemes. This harmonization also incorporated criteria for Entry into Force, Denunciation and Termination. The proposed clauses were agreed to by the working groups of NATO producing a text (NATO, 2005b). Below are relevant clauses:

Article VII – Entry into Force

This Agreement is subject to ratification, acceptance, or approval by states that are members of NATO. Each instrument of ratification, acceptance, or approval shall be deposited with the Office of the Legal Advisor in the Office of the Secretary General. This Agreement shall enter into force thirty days after the Office of the Legal Advisor has received instruments of ratification, acceptance, or approval from all members of NATO. The Council shall notify all members of NATO of the date when this Agreement enters into force.

Article VIII – Denunciation

Any contracting party may denounce this Agreement by written notification to

the Office of the Legal Advisor, which will notify all other contracting parties of such notification of denunciation and the date of the receipt thereof. A denunciation shall take effect one year after receipt by the Office of the Legal Advisor.

Article IX – Termination

This Agreement shall terminate if and when it is denounced by NATO members whose aggregate contribution to NATO's civil budget under the NATO Common-Funded Cost Share Arrangements reaches thirty percent. In the event of denunciations aggregating less than thirty percent, the NATO members that remain bound by this Agreement shall meet to adjust their shares of indemnification as prescribed in Article II

(NATO, 2005b, p. 5).

Apart from small changes in some other articles that are required to allow for changing circumstances and world security situations, the scheme is workable and practical and it is in line with the protocols of the Athens convention. Changes need to be made to incorporate a wide range of ever-changing economic sanctions imposed by the United States of America and the European Union affecting the payment of claims to benefit a *persona non grata* or someone who is associated with, or is on, the Presidential Order list of sanctioned persons.

Regrettably, the 'powers that be' voted to shelve the scheme until such time that it is required or becomes a necessity to facilitate an operation when commercial war-risks insurance is unavailable. In this scheme no premium is paid by any nation that charters a sealift asset for an operation. However, if there is a casualty, as explained in previous chapters, then all the members of the operation will pay according to the percentage of the NATO civil budget allocated to that nation.

9. The Market Advisory panel

The invaluable information provided by the highly professional panel of the Transport Group (Ocean Shipping) experts is highly sought after in the commercial market and yet this information was provided to the NATO Senior Civil Emergency Planning

Committee (SCEPC) and to the Movement and Transportation Group (M&TG) through the NATO Senior NATO Logistics Committee (SNLC) at no cost in the form of the Commercial Ship Availability Assessment Report, AC/329(EAPC)N(2013)0014) (NATO, 2014a). Ship owners and operators pay dearly for this market assessment information as it can make or break any business venture. This report is produced twice a year, at the beginning of the year and mid-term; it would be a foolish military planner who ignored the facts on market values and fluctuations in the semi-annual report. However, from 2013, in order to further improve the usefulness of this report, each section on each ship type closes with a trend prediction for the following six months (Personal participation, June 2013). This information when used correctly can assist in operational planning and judging when to enter the commercial sealift market. This is a living document which continually requires more feedback from the military and national movement planners; if the panel knew which parts are more useful or what parts need more detail, this could probably be one of the most useful planning tools in the marine transportation toolbox.

10. Cooperation with CAPC, PBIST and PBOS

The three NATO Transportation committees formerly known as (PBOS) Planning Board of Ocean Shipping, (CAPC) Civil Aviation Planning Committee and (PBIST) Planning Board of Inland Surface Transport are now all joined under one main Committee known as the Transport Group (TG) with the three subcommittees as described above. This is part of NATO's substantial transformation both in military and civilian areas that have taken place since the fall of the Berlin Wall.

To a certain extent cooperation is increasing as the multi-modal transportation demands of the military are evolving. This integration and/or co-operation, although limited by

fundamental differences in each mode of transport -land, sea or air - is inevitable and will eventually lead to the multi-modal solution becoming the norm as opposed to the exception.

There are significant differences in the three forms of transportation as indicated by the above committees and planning boards (these differences have been briefly touched upon in Chapter 3), nevertheless, the three committees meet jointly in plenary and at working group level approximately three times a year (Personal participation, 2001-2016).

This chapter has discussed how to access and utilise the available commercial sealift assets in order to deal with the expected and actual demand in a practical and workable manner and to resolve the strategic sealift shortfall. This simplified method is suitable for both pre- and post- Wales Summit levels of expectations (NATO, 2014g). In the final chapter, suggestions will be made based on conclusions from this research as to the way forward for further investigation and proactive improvements in anticipation of the potential increase in requirements and levels of expectation as globalization's impact on the level of security that citizens have come to expect.

5.7 Conclusion

This chapter presented two case studies and various findings related to the proposed theoretical framework. A handbook to assist in the implementation of this framework was also introduced. The final chapter provides a discussion of the findings, and certain limitations of our research.

CHAPTER 6:

DISCUSSION ANALYSIS and CONCLUSION

6.1 Introduction

The contribution of this study to the literature on civil/military integration for strategic sealift is the use of two case studies for developing the purpose of identifying a specific framework that can be used in a practical and cost effective manner and the associated optimal practices.

The main objective of this study is to examine how a military movement and transportation desk officer should integrate the commercial shipping market assets and services into strategic sealift, in a practical and cost effective manner for strategic deployment, re-deployment and humanitarian aid.

To accomplish this we set the following objectives:

- To identify the relevant issues
- To develop a model that allows military sealift personnel to efficiently and cost-effectively procure shipping assets
- To validate the model, assessing its functional competence and

- To evaluate the outcomes, process and the model

6.2 Study Overview

This research focuses on two main areas, namely the civil merchant navy and the military sealift capabilities. It investigates the potential for the seamless integration of the above sealift capabilities for defence, humanitarian aid and refugee evacuation. This is a relatively new and uncharted territory so there is rather limited literature to review and cite.

The literature review showed that there are limited studies that analyze the indicated topic and propose solutions for the integration and use of civil/military synergies. However, there are two somewhat relevant studies:

- *Joint Strategy and Strategic Sealift for the Next Century*. This study looked at the commercial sealift available in 1998 for use in supporting the US Department of Defense, analyzing the availability of the 1996 MSA passed by congress and the VISA subsidy project managed by the DoT (Ernest and Bobby, 1998).
- *Strategic Sealift for Desert Shield not a Blueprint for the Future*. This study examines the Strategic Mobility Policy of the US Department of Defense in the 1980's and suggests that it should be modified by reducing the National Defense Reserve Fleet and revitalizing the merchant marine industry (Bright and Hale, 1991).

Although both these papers refer to strategic sealift, neither addresses the primary and secondary research questions of this thesis.

To examine the above research questions we employed a two-stage process based on a variety of research methods. In Phase One, an analysis of the historical record was presented. The theoretical framework was then developed (Chapter Five). During Phase Two, the theoretical framework was tested for its validity/usability and fine-tuned by making use of two case studies.

6.3 Discussion of Results

It is evident from the historical record and case studies that such synergies in the use of commercial sealift assets are possible and in fact have been used for centuries to enhance and/or augment nationally owned sealift assets (grey hulls) in many military sealift deployment operations. This thesis investigated in detail a fairly narrow aspect of strategic sealift as it applies to humanitarian aid, refugee evacuation and strategic defence and it identified a potential NATO sealift shortfall.

During the Cold War the basic requirement was for ‘macro forces over micro distances’. Since the fall of the Berlin wall and the disappearance of the recognized enemy along with the heightened awareness of security risks, the basic requirement has shifted to ‘*micro forces over macro distances*’ as discussed in NATO (2015c) Plenary September 28-29 2015 (personal participation). In contrast, in 2015, during a Russian military exercise, one hundred and twenty thousand troops along with their heavy artillery equipment were deployed within seventy-two hours; this was a wake-up call for the Wales Summit which then emphasized the need for rapid deployment, with the overriding demand being “speed, speed and speed” (NATO, 2015c).

Military, and especially transportation, planners must not only be aware of all tools in the transportation toolbox, but also must be able to assess to what extent a particular tool is to be used and how it can complement and enhance the rest of the tools employed. This must be done in the context of the maritime transportation adventure in hand, in accordance with current strategic and humanitarian requirements and, more importantly, consistent with the military and/or civilian leaders' levels of expectation. The combination of civilian and military sealift tools inevitably leads to the development of synergies and the benefits therefrom. This thesis has attempted to demonstrate how the transportation desk officer can exploit such synergies for the enhancement of any sealift operation both financially and in its efficiency.

From a practical point of view the first step must be to identify all the available and/or appropriate tools, which will undoubtedly be different for each nation and for each particular operation. Subsequently, the transportation planner and decision maker should understand the possible benefits to be gained from the civil/military synergies created. This understanding, however, is not enough; in order to maximize the benefit from the potential use an awareness of how to access and integrate any particular tool or a combination of tools is paramount. In Chapter Two, not only were the basic workings and the main features of the commercial shipping market introduced but also possible methods for accessing the services and the synergies available for the benefit of the nation performing the maritime transportation operation.

It has been conclusively demonstrated in Chapter Three that the integration of commercial sealift assets into civil/military, nationally-led operations is not only

feasible, but to a significant extent, financially and operationally beneficial. Often it is the only viable solution where the sealift requirement can only be met by incorporating commercial 'know-how' and commercial assets. This is especially true in areas where, for example, the military or a nation itself cannot be represented for political reasons, or the financial situation of that nation prevents it from maintaining a ready fleet of grey hulls for every possible eventuality in the marine transportation arena. The financial benefit from utilizing synergies in any field has been well-documented.

Both case studies have also demonstrated that not only is the use of commercially owned sealift assets a viable solution, but it can also provide a benefit both financially and practically for the operation as a whole, as well as reducing the responsibility and liability to a minimum for the nation making the donation.

The theoretical framework (as demonstrated in Chapter Five, Section 1) was presented and discussed with key participants that were involved in Case Study One and Case Study Two. A number of questions were posed to them with the purpose of examining the possible use or not of the proposed theoretical framework. It appears from both case studies that the theoretical framework proposed by the researcher can be of assistance in view of civil/military integration for strategic sealift. According to the participants, the theoretical framework provides a simple guide to the marine transportation planner of how to decide which assets from the transportation toolbox should or could be used to perform and/or enhance a sealift operation where the benefit of the civil/military synergies has been acknowledged and approved for use.

The main question being asked on the subject of strategic sealift for defence, humanitarian aid or refugee evacuation is based on the Head of States' decision in the

NATO Comprehensive Approach, as approved at the Bucharest Summit in 2008 (NATO, 2008b): Based on operational experience, NATO has concluded that it cannot meet all the complex challenges associated with the level of ambition of maintaining the alliance's security. Therefore, members of the alliance must include other assets, both from within and outside the Euro-Atlantic alliance, in all aspects of the alliance's security, defence, humanitarian aid and refugee evacuation and on all levels be it political, military or civilian.

Findings from both case studies indicated that both respondents anticipate that the proposed framework could provide a reliable methodology for NATO as it could assist them in prioritizing their actions in case of civil/military integration. There is also an advantage in the opportunity to coordinate actions between the receiving country and only one actor, NATO, rather than several different authorities. In that aspect, the proposed framework adds value to the civil/military integration for strategic sealift and as Respondent B stated: *“as it describes the road to achieve successful results for strategic sealift”*.

The North Atlantic Treaty was signed in Washington in 1949 and created an alliance for collective defence as defined under article 51 of the United Nations Charter. The treaty is of indefinite duration. According to the rules of the alliance (NATO, 2006) and more specifically Chapter 4 'Common-funding Resources, Budgets and Financial Management', strategic sealift is financially covered by the nation providing the sealift, while NATO does not own any sealift assets nor does it budget for sealift contributions by willing nations. In the early 2000's when funding was not an issue, the world economy was booming, nations were rich, sealift freight rates were high and the problem was actually the availability of scarce sealift assets. When the freight market is

high it is difficult to secure the services of any vessel that is enjoying the security of reliable and substantial financial returns from the open commercial freight market; in such a situation the military often has to pay a premium to have a vessel released from a long term contract to perform a military sealift requirement. Our research shows that the development of funding mechanisms is also crucial for the purpose of dealing with disaster relief issues, rather than NATO and allies utilizing their defence budget. In that way, the participation and willingness from defence ministries of various countries to deploy their military capabilities in such emergencies will eventually increase.

The proposed framework can also assist in locating more valuable assets during a sealift operation. That could be achieved while avoiding duplication of effort because various command centres have connections to different markets. Respondent B specifically stated:

Following the flowchart procedure, it provides you the ability to access all the available assets through MCCE, the market individually or by AMSCC, but also the AMSCC pool of vessels (a genuine capability already in place).

According to the respondents, the proposed framework could provide a potential financial benefit when employed during sealift operations. On the one hand, it could work as a large pool of resources which could result in increased competition between interested parties. Therefore, the requesting party could choose to employ a ship closer to their requirements but also at a competitive price. On the other hand, the flowchart highlights ways to avoid duplication of actions which inevitably leads to financial savings.

Apart from the 'act of God' circumstances (Respondent A), the proposed framework could be a useful mechanism in assembling the most appropriate tools for strategic

sealift, in the planning and also in the implementation of the required operations.

A practical 'handbook' procedure is also introduced for the purpose of assisting the alliance or national movement procurement officer in completing the required movement task in a cost effective and efficient manner in accordance with the proposed framework. The handbook's aim is to take them through all the steps from assessing the requirement to selecting the appropriate vessel along with using the appropriate contract of carriage and procurement and operation of the vessel.

6.4 Concluding Contributions

There are several contributions from the above research for those involved in civil/military integration for strategic sealift and humanitarian aid. These are as follows:

1. Empirical verification of the feasibility and efficiency of civil/military integration for strategic sealift with emphasis on financial benefits and resource optimization;
2. Demonstration that optimization techniques are capable of delivering higher quality and superior overall outcomes for all parties involved
3. Introduction and verification of a theoretical framework that could be suitable to NATO operations by combining tools, procedures, and capabilities of civilian origin for the purpose of supporting military operations and
4. The introduction of a practical handbook that could assist the alliance or national movement procurement officer in completing the required movement task in a cost-effective and efficient manner via several rational and appropriate steps

The conclusions to this research can assist the military and civilian players in a sealift

event at the planning stage, the sustainment and the end game stage. The build-up of resources at the theatre of operations usually occurs over time (NATO, 2014f), however once hostilities or humanitarian aid events are concluded there is a rush to close down and stop the expenditure. Just as in the rapid deployment (NATO, 2015c) where the initial deployment must be fast so does the redeployment need to be rapid in order to stop the expenditure. The additional options and methodology introduced by this research gives the transportation planner, both military and civilian, the alternatives that increases the probabilities of being able to contract financially beneficial and efficient sealift assets. This may seem an obvious extension of the transportation officers' duties but for him it is not only daunting to delve into the unknown commercial market but could create greater difficulties for the mission if done incorrectly.

6.5 Limitations of the Study

Along with any research project the present one too is subject to certain limitations. First, research done in the field of civil/military integration for strategic sealift is limited. Therefore, there is a lack of reliable data from previous studies which presents a significant obstacle to finding trends and corresponding patterns. Consequently, the researcher must depend to a large extent on historical analysis and personal participation in various committees as a source of information.

A further constraint on gathering information for the purpose of this thesis was the sensitive nature of some of the data which meant that officials were reluctant to have information disclosed in a public document.

The sample size used in this thesis was a limitation itself. It would be desirable if the

sample to be used for testing the proposed theoretical framework were larger and included more NATO officials from various countries, nations and cultures. Testing the proposed framework could then be made more reliable. Hence, the robustness of our results could have been improved if more participants at different levels had been available.

Another reservation is the qualitative nature of this thesis, mainly because of the self-reported data that can rarely be independently verified. Although the researcher took all necessary steps to avoid bias there is always the possibility that various mistakes were made during the interviews.

6.6 Recommendations for Further Research

The conclusions and recommendations of this thesis on civil/military cooperation cannot be definitive. This is true due to the ever-changing requirements of the military and their civilian masters, as well as to the technological advancements in the area of transportation along with the constantly increasing environmental restrictions.

Further research is needed following each NATO summit in order to assess the newly prescribed levels of expectation agreed upon by political leaders as the political map of the world evolves and is affected by global events such as epidemics, conflicts, terrorism, natural disasters and mass human migration. Indeed, mass human migration, is one of the fundamental causes of environmental and political change inasmuch as humans are the most aggressive and destructive invasive species. Therefore, by implication, political objectives are ever-changing and require constant revision and

review in all sectors of defence and security including strategic sealift.

Not only are requirements continually changing but the entire transportation concept is evolving into a multi-modal transportation model as discussed in NATO (2015b) Plenary September 28-29 2015 (personal participation). This means that suppliers of transportation services will increasingly provide more fully-integrated and comprehensive door-to-door services encompassing air, sea and land transportation. Therefore, suppliers move closer to the requirements of the military transport planners who want a simple 'one-stop-shop' concept for strategic lift. This involves collection from storage depots with land transportation to a SPOE, followed by the sea voyage and then land transportation to the theatre of operations. This multi-model concept will require further research as to the efficiency and optimum acquisition procedure in order to attain the levels of expectation and efficiency that are currently enjoyed on the sealift segment of the transportation operation.

Another important element for future research could be the use of actual data. For instance, in assessing the efficiency of operations, other measures of effectiveness may be proposed based on actual operational data such as the percentage of ships available, activation and vessel turnaround time, financial benefits, as well as operating cost data.

The move towards a permanent and *ex ante* arrangement between the military and the civilian transportation providers should be the main thrust of political leaders and it should be able to provide reliable and efficient solutions to current and future multi-modal transportation requirements.

6.7 Implications and Conclusion

There are several implications that emerge from the above research for those involved in civil/military integration for strategic sealift. This thesis presents the following contributions:

- Empirical verification of the feasibility of civil/military integration for strategic sealift with emphasis on financial benefits and resource optimization
- Demonstration that optimization techniques are capable of delivering higher quality and superior overall outcomes for all parties involved
- Introduction and verification of a theoretical framework that could be suitable to NATO operations by combining tools, procedures, and capabilities of civilian origin for the purpose of supporting military operations and
- The introduction of a practical handbook that could assist the alliance or national movement procurement officer in completing the required movement task in a cost-effective and efficient manner via several rational and appropriate steps

APPENDIX 1

Table 5: Ship Visits

SHIP TYPE	SHIP NAME	DATE
Ro/Ro Stern/Quarter ramp	NEPTUNE THELISIS	28/12/2016 PIRAEUS
PCTC Movable car decks	NEPTUNE KEFALONIA	21/12/2016 PIRAEUS
GENERAL CARGO	DIMITRAKIS	AUG 1999 PIRAEUS
HEAVY LIFT	DEVO	SEP 2000 GIBRALTAR
BULK CARRIER	UNITED STARS	JAN 2017 DURBAN
CONTAINER GEARLESS	BFT MELODY	JAN 2017 PIRAEUS
CONTAINER GEARED	CONSHIP GEM	FEB 2017 ALGECIRAS
CONTAINER FEEDER	CONSHIP ECO	JAN 2017 PORT SAID
RO/PAX	BLUE STAR VI	JULY 2016 PIRAEUS
CRUISE SHIP	MYTILINE	AUG 2016 PIRAEUS
REEFER	GEORGIAN REEFER	SEP 2016 ROTTERDAM
TANKER	CHEROKEE	JAN 2017 MILFORD HAVEN
TUG	PACIFIC BUCCANEER	MARCH 2015 PIRAEUS
FLO/FLO	BIG LIFT	MARCH 2011 THAILAND

Appendix 2: Research Questionnaire

Dear [Name withheld],

I trust you and your family are well.

Further to our today's telephone conversation, I am in the process of researching my PhD thesis on the integration of the Merchant Navy into the Military Sealift command of each nation or jointly into a NATO operation through the MSCC.

In this regard, after examining 2 case studies of acquisition of Sealift assets for an actual operation I concluded that it was necessary to create a flowchart to assist the Transportation Desk officer in selecting the sealift asset.

This is similar in principal to the flowchart at the end of my TOOLBOX paper that I wrote for TG(OS)

I attach the final version of the Flowchart and request your feedback as to its applicability and suitability for strategic sealift.

For consistency in my research below please find some standard questions:

For the attached flowchart for use in Strategic sealift:

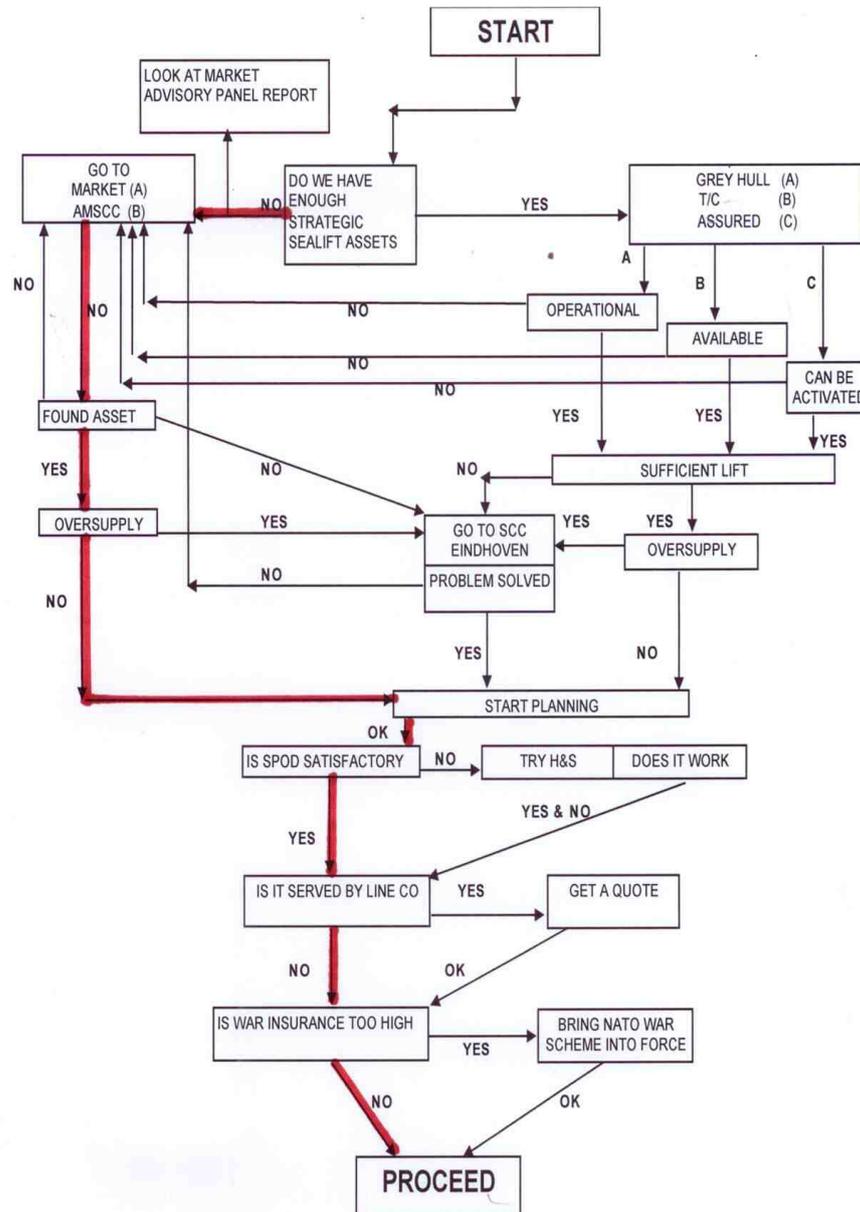
- 1. Is it applicable for NATO sealift operations*
- 2. Is it suitable for NATO military operations*
- 3. Is it relevant to NATO led operations*
- 4. Can it be used also for Humanitarian aid and refugee evacuation.*
- 5. Does it assist in locating more assets*
- 6. Will it be also of financial benefit.*
- 7. Would you recommend its use.*

Please do not just give one word answers, your comments and insight will be very useful for my study and research.

*Kind regards
G. D. Pateras*

Appendix 3

Case Study 1: Hungarian Sealift



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