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Effects of the ISPS Code on ship and port security - a Swedish perspective

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EFFECTS OF THE ISPS CODE ON SHIP AND PORT SECURITY -A SWEDISH PERSPECTIVE

By

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Declaration

I hereby certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessary endorsed by the University.

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Abstract

The purpose and aim of this research paper was to investigate the effects of the ISPS Code on ship and port facility security and how the people working in these two different activities have interpreted the security level before and after implementation of the ISPS Code in the Swedish context. The areas which have been investigated was: knowledge of the ISPS Code, advantages and disadvantage of the Code, education and drills according to the Code, evaluation of education and drills of the Code and the service and support from the maritime administration. The study also included an investigation into whether there has been any synergy effect after the ISPS Code came into force. This was undertaken through the use of questionnaires in a combination with individual interviews. The respondents represent the key persons in the Swedish shipping companies and onboard their ship's, in port authorities, professional and maritime industry organisations and in the maritime administration.

The survey also gives an overview of the legal framework for port and maritime security, with particular explanations on how it affects Swedish ships and ports. The paper also presents the results of a literature review of existing publications related to this topic, as well as explanations in detail of the method and approach adopted in conducting the present research.

The outline and brief context of the dissertation conclusions are recommendations and improvements of guidelines and harmonisation of the open parts which can be interpreted in the ISPS Code, improvements of the communication between the maritime administration and the maritime stakeholders, suggestions of improvements in process and routines in maritime security within the maritime administration and guidelines and harmonisation of the education related the ISPS Code.

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List of Abbreviations

BC	Before Christ
BCM	Business Continuity Management
CSF	Critical Success Factors
CSI	Continuous Security Cycle
CSO	Company Security Officer
EC	European Community
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
EU	European Union
IAMSAR	International Aeronautical and Maritime Search and Rescue
ICC IMB	International Chamber of Commerce, International Maritime Bureau
ILO	International Labour Organization
IMO	International Maritime Organization
ISM Code	International Safety Management Code
ISPS Code	International Ship and Port Facility Security Code
ISSC	International Ship Security Certificate
MARSEC	Maritime Security Committee within European Community
MET	Maritime Education and Training
MIU	Maritime Inspectorate Unit
MSC	Maritime Safety Committee with International Maritime Organisation
PDCA	Plan-Do-Check-Act
PFSA	Port Facility Security Assessment
PFSP	Port Facility Security Plan

PSC	Port State Control
QM	Quality Management
RM	Risk Management
SAGMaS	Stakeholder Advisory Group on Maritime Security
SAR	Search and Rescue
SJÖFS	Sjöfartsverkets Föreskrifter (Swedish Regulation on Maritime Affairs)
SMA	Swedish Maritime Administration
SOLAS 74	Safety of Life at Sea 1974
SSA	Ship Security Assessment
SSAS	Ship Security Alert System
SSO	Ship Security Officer
SSP	Ship Security Plan
SUA	Suppression of Unlawful Acts against the Safety of Maritime Navigation
UK	United Kingdom
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
USCG	United Nations Cost Guard
VSP	Vessel Security Plan
VTS	Vessel Traffic Service
WMU	World Maritime University

The world is a spiritual thing

In the classical Chinese collection of poetic philosophy, ascribed to Toa Tse-Tung, it is said somewhere that whoever wants to grip the world and shape it will fail, because the world is a spiritual thing that cannot be shaped. On first reaction, this might seem to be the antithesis of the spirit that animated Columbus. But this is not so. The history of mankind is made by man, but men partly make it blindly. No one can foresee with certainty what will emerge from the give and take of the force at work in any age. For that reason history often seem to run its course beyond the reach of any man or nation. We cannot mould the world as master of the material thing. Columbus did not reach the East Indies. But we can influence the development of the world from within as a spiritual thing. In this sense Columbus would have been a pioneer for a new age if he himself had never reached America. As individuals and as groups we can put our influence to the best of our understanding and ability on the side of what we believe is right and true. We can help in the movement toward those ends that inspire our lives and are shared by all men of good will – in terms very close to those of the Charter of United Nations – peace and freedom for all, in a world of equal rights for all.

Dag Hammarskjöld Secretary – General of the United Nations 1953-1961

CHAPTER 1

1. Introduction

Shipping is a global business and during the last 40 years (1965-2005) the world seaborne trade has increased with 450% from 6000 to 28,000 billion ton miles.[1] This means that almost 90% of the world trade volumes are conveyed by sea and a large number of ships have to carry the cargo between different ports.[2] This should give a clear indication of the likelihood that every year ships will get caught in situations involving terrorism, piratical or other criminal activities which require a professional and international legal system supporting the ships and the port facilities in this type of situations.[3]

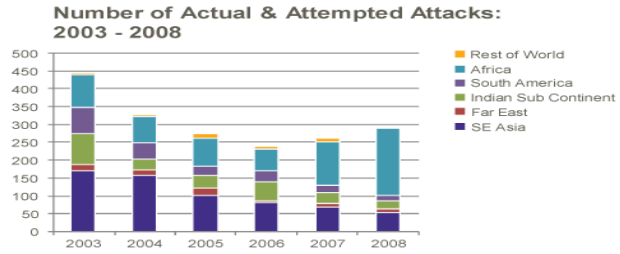
However, the act of piracy from a non-state actor is not a new phenomenon in the shipping business because the first recorded act of this type of action against ships was found in early Greek myths (1200-700 BC) when the Greek King Inachus daughter was kidnapped in the Mediterranean port of Argos. This led to the Great War between the Persians and the Greeks. As mentioned the act of piracy is as old as ships and has been in the human nature from time immemorial. At that time a group of people who acted as pirates were often driven by a primitive motive, namely to acquire wealth. The pirates in those days could just be pirates or they could be warriors coming on ships from a battlefield who kidnap and plunder the merchant ships for slaves and provisions to compensate for the loss of manpower during the war. They could also be warriors travelling by ships to a battlefield, in desperate

[1] Alan E. Branch, (2007). Elements of shipping. Scope of the book (p 1). Published by Taylor &
[2] IMO, (1999). International Maritime Organization. *Focus on IMO*. Published by IMO, UK.
[3] Steven Jones, (2006). Maritime security, A practical guide. *Threats to maritime trade* (pp 2-13). Published by The Nautical Institute, UK.

need of provision or manpower to fighting the war.[4] In addition, already in the Ming Dynasty (years 1368-1644) the Chinese tried to enforce laws against piracy and other criminal activities in the maritime trade between China and Japan. In the middle of the sixteenth century the emperor took action against piracy and enforced a law to protect the ships trading on the coast of China. First of all, every person involved in piracy was condemned to death penalty. The second action against piracy was limitations in the trade to China only; one company could trade between the two countries. The final attempt to restrict the violence and the piracy against the ships was to have heavy armed imperial navy ships supervising the coastline of China.[5]

The purpose of all three actions against piracy was to protect and increase the security of ship and port facilities security, the ship's crew and the ship's cargo from falling into the hands of a criminal group of people. Furthermore, the legal system had no international connections and if the piratical activity took place outside the country's jurisdiction, it was not possible to convict them. The international legal framework has since developed to solve global problems like terrorism, piratical and other criminal activities in fora such as the International Maritime Organization (IMO) and other international organisations like the European Union (EU), see Table 1:1 concerning actual and attempt piracy attacks 2003-2008.

Table 1:1. Table showing the number of actual and attempted piracy attacks



Source: International Maritime Bureau 2008.

[4] Alfred S. Bradford, (2007). Flying the black flag. (pp 3-5): Greenwood Publishing Group, London, UK.
[5] Denis Twitchett, (1988). The Cambridge History of China. *Trade and History* (pp 490-495): Cambridge University Press, UK.

In the twentieth century there were several piracy and terrorist actions against ships, most prominent, which was the *Achille Lauro* incident in 1985. The tragic events of 11th September 2001 although involving aircraft precipitated in for-reading security measure in the maritime industry. The twenty-second session of the Assembly of the IMO began in November 2001 to work on an instrument that will help deter and prevent terrorist attacks against maritime targets.[6] In December 2002, the diplomatic conference on maritime security adopted the amendment (Chapter XI-2 of SOLAS 1974) to the existing provisions of the International Convention for the Safety of Life at Sea, 1974.[7]

This study focuses on the effects of the ISPS Code on ship and port security from a Swedish perspective. In addition, some of the earlier research and statistics from ICC IMB in the subject concerning the effects of the new maritime security regime exhibit that the number of actual and attempted piratical attacks has decreased with 35% from the year 2003 to 2008. The amount of piratical attacks within the same mention period of time has decreased with 150 less than the year before the new maritime security legislation came into force 1 July 2004.

The purpose and aim of this dissertation is to investigate the effects of the ISPS Code on ship and port facility security and how the people working in these two different activities have interpreted the security level before and after implementation of the ISPS Code in the Swedish context. The research examines four different areas: knowledge of the ISPS Code, advantages and disadvantage of the Code, education and drills according to the Code, evaluation of education and drills of the Code and the service and support from the maritime administration. The study also includes an investigation into whether there has been any synergy effect after the ISPS Code came into force. This is undertaken through the use of questionnaires in a combination with individual interviews. The respondents represent the key persons in

[6] Maximo Q Mejia Jr (2003). Contemporary issues in maritime security. (pp 1-4): WMU publications Malmö, Sweden
[7] IMO, (2003). ISPS Code, 2003 edition. *Preamble* (p 3): IMO, London, UK.

the Swedish shipping company and key persons onboard their ships, key persons in port authorities, key persons in professional and maritime industrial organisation and finally key persons in the maritime administration working with maritime security.

Before the results of the survey and interviews are presented and discussed, this paper shall proceed by giving an overview of the legal framework for port and maritime security, with particular explanations on how it affects Swedish ships and ports. The paper also present the results of a literature review of existing publication related to this topic, as well as explanations in detail the method and approach adopted in conducting the present research. The research focuses on answers to specific questionnaires and comments made during interview with a view to incorporating improvements in the Swedish maritime security risk management system. The discussion and conclusion of the research could be useful in creating an inventory for the future development of the ISPS Code in Sweden. The inventories from the research could assist the Swedish Administration to clarify levels of awareness and comprehension within shipping companies and port authorities covered by the Code. This in turn can be used to improve the education for ship's crew, personnel working in the port facilities, ISPS Code inspectors and other persons involved in maritime security.

CHAPTER 2

2. The legal framework for port and maritime security

The international framework for maritime security consist mainly of the United Nations Convention on the Law of the Sea, 1982 (UNCLOS), the Suppression of Unlawful Acts against the Safety of Maritime Navigation, 1988 (SUA), and the SOLAS 2002 amendments including the ISPS Code. This paper focuses on the ISPS Code, particularly in the context of its application to designated port facilities in Sweden, Swedish ships in the international trade, and foreign ships calling in Swedish ports. Furthermore, as Sweden is a part of the European Community (EC), it has to comply with the EC Resolution 725/2004 concerning ship security and port facilities. The EC also adopted the Directive 2005/65/EG on port security. In addition, Sweden has also adopted a national legislation regarding the ISPS Code, Swedish Law on Maritime Security (2004:487), Swedish Act on Maritime Security (2004:283), Swedish Regulation on Maritime Security (SJÖFS 2004:13 and 2005:3) and Swedish Law on Secrecy 1980:100 (amended by SFS 2004:80).

2.1 International regulations affecting the security of ships and port facilities

The international work to high light maritime security and protect seafarers, ships and their cargo against piratical activities has been in progress for ages. In addition, to address the ship's security against acts of piracy in an international perspective the United Nations has included relevant provisions in, the United Nations Convention on the Law of the Sea (UNCLOS). The current version of UNCLOS was developed

between 1973 and 1982 and entered into force in 1994.[8] The main purpose of UNCLOS can be summed up in the following words:

> *"In short, the Convention is an unprecedented attempt by the international community to regulate all aspects of the resources of the sea and uses of the ocean, and thus bring a stable order to mankind's very source of life."*

Part VII High Seas, Section 1, Articles 100-108 in UNCLOS contains provision against piracy and other criminal activities at sea. In broad terms the different articles define piracy activities and which actions the authorities can take to fight these unlawful acts.[9] In early 1980s the general Assembly was greatly concerned about the increasing unlawful acts like terrorism, piracy, armed robbery, kidnapping onboard/hi-jacking of ships and deliberately running aground or blowing up by explosives. Until the 20 July 2009, 159 UN member states have ratified UNCLOS.[10]

In response to the *Achille Lauro* incident, the 14th IMO Assembly (see, Figure 2:1) Resolution A.584(14), in November 1985 gave the Maritime Safety Committee (MSC) a mission to develop technical details and practical measures, for ships and port facilities to ensure the security of passengers and crew.[11] In the conference held in Rome in March 1988 the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation was adopted. (SUA) The Convention came into force on 1 March 1992. The SUA Convention addresses issues to guarantee that suitable act is taken against persons committing unlawful acts against ships. In general, the convention takes action against seizure of ships by force; acts of violence against persons on board ships; and the placing of devices on board a ship

[8] Adam J. Young, (2007). Contemporary Maritime Piracy in Southeast Asia. *Background and Further Derails of UNCLOS and SUA* (pp 131-133): Institute of Southeast Asian Studies.
[9] UN, (1998). United Nations Convention on the Law of the Sea: UN, USA.
[10] UN, (2009). The Convention and Agreements of Oceans and Law of the Sea, http://www.un.org/Depts/los/convention_agreements/convention_agreements.htm
[11] Julio Espin-Digon et al, (2008). Lloyd's MIU handbook of maritime security. *Implications and Effects of Maritime Security* (p 97): CRC Press, UK.

which are likely to destroy or damage it. The convention also obliges Contracting Governments either to extradite or prosecute alleged offenders.[12][13]

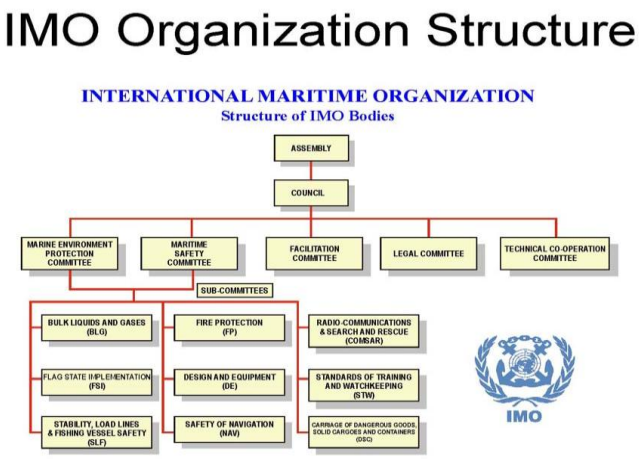


Figure: 2:1. Organisation chart over IMO Structure.
Source: IMO webpage2009

The conference in October 2005 adopted the 2005 protocol to the SUA Convention. In general, the amendment of the new protocol has a specific address to acts of terrorism, action against use of biological, chemical and nuclear materials and weapons of mass destruction.[14] On 31 March 2009, 152 member states of IMO ratified the SUA Convention 1988 according to IMO. The SUA 2005 Convention has not yet come into force and according to the IMO webpage[15] for summary of Status of Convention 8 member states have ratified the Convention. The 2005 SUA amendment protocol was ratified by 6 member states of IMO on 31 March 2009.

[12] IMO, (1988). Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation, 1988: IMO, London, UK.
[13] Julio Espin-Digon et al, (2008). Lloyd's MIU handbook of maritime security. SUA Convention (pp 140-144): CRC Press, UK.
[14] IMO, (1988). Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation, 1988: IMO, London, UK
[15] IMO, (2009). International Maritime Organization, Status of Conventions by country, http://www.imo.org/

2.2 The European Union legislation on security of ships and port facilities

The European Community (EC) consists of 27 member states and the introduction of the EC was established in 1958 by six member states. In broad terms, the European Union is structured according to Figure 2:2.

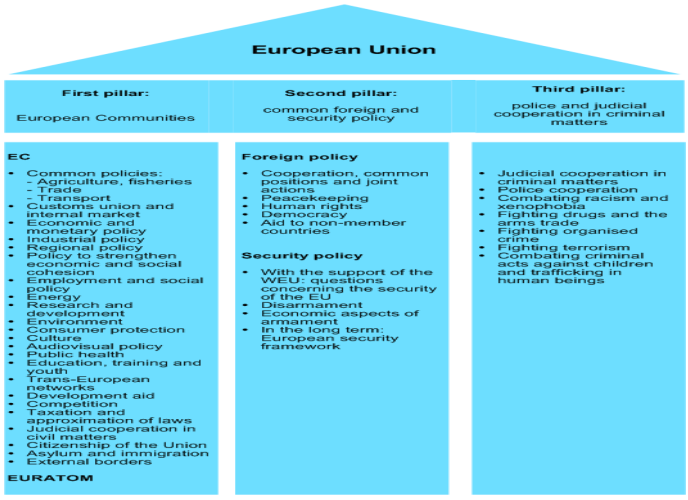


Figure: 2:2. Organisation chart over European Union Structure.

Source: Webpage, eu-lex.europa.eu 2009

EC enhanced Regulation 725/2004 on 31th March 2004, concerning the security of ships and port facilities and on 26 October 2005 enhanced the port security EC Directive 2005/65/EC. EC Directives, EC Regulation and chapter XI-2 of SOLAS 1974 regulate the maritime security including ships and port facilities within the European Union countries.[16] Moreover, within EC maritime transport policy is regulated in EC Treaty article 80 (2), but in general no concern is taken regarding the legal basis of the matters of maritime security. Article 80 (2) states a common transport policy and does not interface with the security of ships and port facilities.

[16] Espin-Digon et al, (2008). Lloyd's MIU handbook of maritime security. *Implications and Effects of Maritime Security* (p 97): CRC Press, UK.

The article 80 in the EC Treaty was selected as a legal basis for the new EC directives.[17]

The new legal proposal for the change in the EC Treaty was submitted from the Commission to the European Parliament and Council and was a rough guide. After three readings and joint co-operation of the Committee of the Regions, Economic and Social Committee, Parliament and Council, the proposed act was adopted. This procedure is the standard of changes in the EC Treaty.[18] The Maritime Security Committee (MARSEC) within the EC assists the Commission with regulatory procedure. MARSEC is a regulatory Committee established by virtue of Article 11 Regulation EC 725/2004 and assists the Commission with regard to its activities under Directive 2005/65/EC. The Committee consists of group experts representing all member states and it is chaired by the Commission. The Committee has frequent meetings and the group exchanges information concerning best practices and indication on national instructions on maritime safety and maritime security related issues. The main purpose for the group is to guarantee a proper technical adoption of the security measures.[19] Moreover, the expert group also reports the follow ups from activities concerning the safety and security of ships and port facilities and the report goes directly to the Commission which is a part in the Committee as well.[20] Furthermore, to involve the stakeholders concerning maritime security, the Commission invites all of them to participate in the Group on Maritime Security (SAGMaS). The main purpose of SAGMaS is to let the stakeholders express what they are thinking concerning the work done in the MARSEC.[21]

EC Directive 725/2004 gives the right to the Commission to conduct necessary inspection onboard ships within the EC. Furthermore, the Directive gives the right to

[17] Detlef Nielsen et al, (2005). International Association of Maritime Universities, Maritime security and MET. *EU Phare Twinning project* (p 99): WIT Press, UK.
[18] Peter Ehlers & Rainer Lagoni, (2008). Maritime Policy of the European Union and Law of the Sea. MARSEC (p 117-118): LIT Verlag Berlin-Hamburg-Münster, Germany.
[19] Ibid.
[20] EU, (2006). EU Legislation on Maritime Security. EU transport agency: EU, Brussels, Belgium.
[21] Ibid.

each Member State to appoint a competent authority to coordinate and to monitor the maritime security level in a national perspective. The Directive also gives each member state the right to verify the ship's certificate by a member state or inspectors.[22] The main objective of this Regulation is to implement Community measures aimed at enhancing the security of ships through measures of preventive nature used in international trade and associated port facilities in the face of threats of intentional unlawful acts (including piracy and armed robbery at sea). The Regulation makes mandatory a number of recommendations introduced into Part B of the ISPS Code.[23]

EC Directive 2005/65/EC complement Regulation (EC) No 725/2004 making an entire port subject to a security regime. This means that each member state is obliged to take action to measure the maritime security to obtain maximum protection for ship's and port activities in the supply chain of the maritime sector. The Directives also provides for mechanisms to implement these measures and check their conformity.[24]

2.3 The Swedish legislation of security of ships and port facilities

Maritime security in Swedish ports and onboard Swedish ships is regulated in the Swedish Law on Maritime Security 2004:487. This Law is a complement to Regulation (EC) 725/2004 and it promulgates which Swedish authority has the obligation and authority to set and change national maritime security levels, responsibility of the ship owner and the owners of the port facilities.[25] The Swedish regulation 2004:283 concerning maritime security regulates that the Swedish

[22] Peter Ehlers & Rainer Lagoni, (2008). *Maritime Policy of the European Union and Law of the Sea*. General provisions of the Regulation 725/2004 (pp 110-113).: LIT Verlag Berlin-Hamburg-Münster, Germany.
[23] EU, (2006). EU Legislation on Maritime Security. EU transport agency: EU, Brussels, Belgium.
[24] Ibid.
[25] Swedish Government, (2004). Lag 2004:487 om sjöfartsskydd: Swedish Government.

Transport Agency is the competent authority of maritime security. The authority has the obligation to conduct and supervise so that Sweden fulfills commitments of the Regulation (EC) 725/2004. The regulation also allows the Swedish Transport Agency to delegate issues concerning maritime security to the National Swedish Police Board and the Swedish Coastguard.[26] The Swedish regulation on Maritime Security 2004:13 and its amendment 2005:3 regulates in a national approach. The regulation explains in a detailed approach how to implement maritime security in Swedish ships and Swedish port facilities.[27]

In addition, one part of the Swedish Law on Secrecy 1980:100 and its amended 2004:80 preserve the integrity of ship and port facility security plans (SSP and PFSP) and other sensitive issues connected to maritime security accessible.[28]

2.4 The ISPS Code

The main purpose of SOLAS Chapter XI-2 is to establish an international as well as a national framework for ship and port facility security. The focus of Chapter XI-2 is to protect ships and port facilities from terrorism, piratical and other criminal activities and increase awareness how to be protected from unlawful acts. After several actions against ships especially the Italian cruise ship *Achille Lauro* incident in 1985 and also the tragic events of 11th September 2001, the twenty-second session of the Assembly of the IMO, began in November 2001 the work with the ships and port facilities security which later on became the **International Ship & Port facility Security Code (ISPS Code)** which resulted in an amendment to SOLAS, 1974.[29]

[26] Swedish Government, (2004). Förordning 2004:283 om sjöfartsskydd: Swedish Government.
[27] Swedish Maritime Administration, (2004). Sjöfs sjöfartsskydd 2004:13: Swedish Maritime Administartion, Norrköping, Sweden.
[28] Swedish Government, (2008). Sekretesslag 1980:100: Swedish Government.
[29] Maximo Q Mejia Jr (2003). Contemporary issues in maritime security. (pp 1-4): WMU publications Malmö, Sweden.

2.4.1 Background of the ISPS Code

The Italian cruise ship *Achille Lauro* was hijacked on 7 October, 1985 by four heavily armed terrorists representing the Palestine Liberation Front (PLF). The cruise ship was carrying more than 400 passengers and the hijacking took place in Egyptian waters. The terrorists onboard the cruise ship demanded that the Israel government should free 50 Palestinian prisoners. During the hijacking the terrorists shot and killed a 69 year old disabled American tourist and threw the body and the wheelchair overboard. The drama carried on for two days. In addition, finally the terrorists were captured in Sicily, Italy and they were convicted to long prison terms. The hijacking incident was one of the first terrorist acts against the shipping industry and the first recorded terrorist acts in modern maritime history. A short period after the hijacking incident in 1986, the IMO adopted resolution A.584 (14) on measure to prevent unlawful acts which threaten the safety of ships and the security of their passengers and crew. Furthermore, in 1986 the UN General Assembly requested a study concerning the problem of terrorism on board ships. The study resulted in a set of recommendations on measures to prevent unlawful acts against passengers and crew on board ships. These measures were adopted as MSC/Circ. 443 at IMO. It was to become the basis, some fifteen years later, for the development of the ISPS Code.[30]

In the wake of the tragic event of 11 September 2001 in the United States, the Assembly resolution A.924 (22) November 2001 called for a review of the existing international legal and technical measures to prevent and suppress terrorist acts against ships at sea and in port, and to enhance maritime security both onboard ships and port facilities ashore.[31]

[30] Hartmunt Hesse, (2006). Maritime Security in a Multilateral Context. IMO Activities to Enhance Maritime Security: The international journal of marine and costal law, IMO, London, UK.
[31] Steven Jones, (2006). Maritime security, A practical guide. A new era the evolution of maritime security pp 91-94: The Nautical Institute, London, UK.

The main purpose with the resolution A.924 (22) was to develop international standards and recommendations concerning reducing the risks to passengers, crews and port personnel onboard ships and in port areas. The standardization also considers protecting the ship's cargo and to enhance ships and port security and prevent shipping from becoming a target of international terrorism.[32] IMO developed new requirements concerning maritime security during the international convention for the Safety of Life at Sea (SOLAS), 1974 as amended, the new Chapter to SOLAS XI-2 on special measures to enhance maritime security. The diplomatic conference on maritime security in December 2002 adopted the amendments to chapter V and XI-2 of SOLAS 1974 to the existing provisions of the International Convention for the Safety of Life at Sea, 1974 (SOLAS, 1974).[33] One hundred and nine contracting governments, two observers from IMO member states, two observers from IMO associate members, UN specialized agencies, intergovernmental organisations and non-governmental international organisations attended the conference. The new legal maritime security regime including the new Chapter XI-2 of SOLAS 1974 and the International Ship and Port Facility Security Code (ISPS Code) entered into force on 1 July 2004, only 18 months after their adoption.

2.4.2 An overview of the ISPS Code

SOLAS Chapter XI-2 has been amended to include special measures to enhance maritime security. In principle, the new chapter incorporates new regulations concerning definitions and requirements for ships and port facilities. These

[32] Hartmunt Hesse, (2006). Maritime Security in a Multilateral Context. IMO Activities to Enhance Maritime Security: The international journal of marine and costal law, IMO, publication, London, UK.
[33] IMO, (2003). ISPS Code, 2003 edition. *Preamble* (p 3). IMO publication, London, UK.

regulations are supported by the ISPS Code.[34] The ISPS Code applies to the following types of ships engaged on international voyages:

- Passenger ships, including high-speed passenger craft;
- Cargo ships, including high-speed craft, of 500 gross tonnage and upwards;
- Mobile offshore drilling units; and
- Port facilities serving such ships engaged on international voyages.

In addition, the ISPS Code is divided into two sections, part A and part B. Part A deals with the mandatory requirements; an example is the goal of the code and functional demands on ships and in port facilities. Part B deals with the guidance regarding the provisions of part A. An example is the responsibility of the contracting governments. Another example that part B deals with, is how part A should be implemented and the establishing of the security levels which is one of the vital issues in the ISPS Code.[35] There are three different security levels in the ISPS Code. The **first level** is in principle the minimum appropriate protective security which the security plan general is approved for by the responsible maritime administration. The **second level** requires that appropriate additional protective security has to be maintained for a period of time as a result of increased risk of a security incident. The **third level** is the highest risk level concerning security and an incident is probable or imminent, although it may not be possible to identify the specific target.[36]

[34] Hartmunt Hesse and Nicolaos L. Charalambous, (2004). New Security Measures for the International Shipping Community: WMU Journal of Maritime Affairs, Malmö, Sweden.
[35] Moth, Peter (2004). ISPS code 2004 Update a practical Guide. *General* (pp iv-v): SG Design Havant, England.
[36] Moth, Peter (2004). ISPS code 2004 Update a practical Guide. *General* (p 6): SG Design Havant, England.

2.4.3 Obligations of Contracting Governments

The responsibility of the contracting governments is critical to the successful implementation and enforcement of the ISPS Code. The contracting government is the authority which decides the level on maritime security for the ships flying their flag and ports within their jurisdictions. The contracting government also has a large responsibility to ensure implementation on appropriate maritime security culture within its nation.

However, in some cases after the implementation of the new maritime security regime the ISPS Code, there have been major difficulties for seafarers to exercise their rights to have a proper social life while sailing at sea to go ashore. The contracting government has the responsibility to supervise the authority within the country so the seafarers are treated as professional mariners doing their jobs in the supply chain of maritime transport and not be seen as potential threats to maritime security.[37] In addition, the contracting governments have various responsibilities, which, amongst others include the following:[38]

- Setting security levels;
- Notification of security levels;
- Communication of information;
- Testing ship security plans;
- Declaration of security;
- Contact points;
- Identification documents;
- Threats to ships and other incidents at sea;
- Manning levels; and

[37] Steven Jones, (2006). Maritime security, A practical guide. A new era the evolution of maritime security pp 78-79: The Nautical Institute, London, UK.

[38] International Chamber of Shipping, (2003).Guidance for Ship Operators. *Shipping Company Responsibility* (p 39): Edward Mortimer Ltd Pellone Lane, West Yorkshire, England.

- Continuous synopsis record.

Flag states have been given responsibility throughout the ISPS Code, to provide guidance for protection from security incidents for the ships flying their flag and where they are obliged to heightened security measures and levels. They also have to provide appropriate security related information to the shipping industry both the ships and port facilities.[39]

2.4.4 Shipping company responsibility

The shipping company has to obtain an International Ship Security Certificate in respect of each vessel it operates and ensure that it is available onboard the vessel for inspection at all times. The following measures are required to be taken according to the ISPS Code:[40]

- Appointment of a Company Security Officer (CSO);
- Carrying out Ship Security Assessment (SSA) and install proper equipment onboard Ship Safety Alert System (SSAS);
- Have an approved (approved by, or on behalf of, the flag state) and fully implemented (educated crew members onboard) Ship Security Plan onboard (SSP);
- Appointment of a designated Ship Security Officer (SSO);
- Ensuring that appropriate security drills and exercises are carried out; and
- Providing appropriate resources to the ship to comply with the security plan.

[39] Ibid.
[40] International Chamber of Shipping, (2003).Guidance for Ship Operators. *Shipping Company Responsibility* (p 8): Edward Mortimer Ltd Pellone Lane, West Yorkshire, England.

The above mentioned steps are necessary to take, if shipping companies want to obtain the certificate concerning maritime security because without it they could not carry on their trade in the shipping industry. Shipping companies also have the moral and commercial responsibility for maritime security within their company which is difficult to regulate and measure through the ISPS Code. Throughout the Code the shipping industry also has the freedom to interpret maritime security on an ad hoc basis as long as they apply to the minimum maritime security level, set by the contracting government flying their flag.[41]

2.4.5 Training and education of the ship's crew members according to the ISPS Code

According to Part B 13.1 the ISPS Code requires SSO to have knowledge and receive training in some or all of the following, security administration, relevant international conventions, codes and recommendations, relevant government legislation and regulations, responsibilities and functions of other security organizations, methodology of SSA; methods of Ship Security Surveys and inspections, ship and port operations conditions, ship and port facility security measures, emergency preparedness and response and contingency planning, instruction techniques for security training and education, including security measures and procedures, handling sensitive security related information and security related communications, knowledge of current security threats and patterns, recognition and detection of weapons, dangerous substances and devices, recognition, on a non-discriminatory basis, of characteristics and behavioral patterns of persons who are likely to threaten security, techniques used to circumvent security measures, security equipment and systems and their operational limitations, methods of conducting audits, inspection, control and monitoring, methods of physical

[41] Ibid.

searches and non-intrusive inspections, security drills and exercises, including drills and exercises with the port facilities and assessment of security drills and exercises.

Other shipboard personnel having specific security duties should have sufficient knowledge and ability to perform their assigned duties, including, as appropriate (Part B 13.3 ISPS Code), knowledge of current security threats and patterns, recognition and detection of weapons, dangerous substances and devices, recognition on a non-discriminatory basis of characteristics and behavioral patterns of persons who are likely to threaten security and techniques used to circumvent security measures.

All other shipboard personnel should have sufficient knowledge of and be familiar with relevant provisions of the SSP, including (Part B 13.4 ISPS Code), the meaning and the consequential requirements of the different Security Levels, knowledge of the emergency procedures and contingency plans, recognition and detection of weapons, dangerous substances and devices, recognition, on a non-discriminatory basis, of characteristics and behavioral patterns of persons who are considered apt to threaten security and techniques used to circumvent security measures.[42]

2.4.6 Responsibility of the ports and port facilities authorities

The ISPS Code gives the responsibility to the port authority to identify and assess the threats and vulnerability of the port facilities applying to the Code. In addition, the port authority also has to create and develop an incident response plan in case of emergency. The port authority also has to obtain the education standard set by the contracting government and also establish a communication and information flow towards the ships entering the port via a ship security officer (SSO), through a port

[42] Moth, Peter (2004). ISPS code 2004 Update a practical Guide. *General* (pp 62-63): SG Design Havant, England.

facility security officer (PFSO) and to the responsible government handling the ISPS Code related issues within the country.[43] The PFSO, port facility personnel and all other personnel should also have education, training and drills similar to the shipping company and their ships according to the ISPS Code part B 18.1-18.6.

2.4.7 Basic principles of risk management

The concept of risk management began its development in the American industry in the middle of 1950. After the Second World War, the insurance industry started to look thoroughly into insurance affairs and they found that risks were connected to high costs. Moreover, to make the market self-regulating the insurance company raised the insurance premium due to the risk within the insured company. The company then started to develop risk management to deal with the risks and to cut costs and reduce the insurance premium within the company. The purpose and benefits with risk management are to be proactive and reduce the future losses and damages and minimise the total cost of the risk. [44]

The basic principles of risk management can be divided in two factors. The **first factor** is to identify and then quantify risks. There are three methods to quantify risk, qualitative or quantitative or a combination of them. The **second factor** is the risk environment which the risk is created from. The two factors cannot be treated separately due to the fact that both factors have to be in the same environment to create risk management.[45] In addition, there are a clear difference between risks and threats. Everyday there are potential risks, but very few of them constitute a real

[43] Steven Jones,(2006). Maritime security, A practical guide. A new era the evolution of maritime security pp 81-82: The Nautical Institute, London, UK.
[44] Gustaf Hamilton, (1996). Risk management 2000. *Introduction pp 9-11:* Studentlitteratur, Lund, Sweden.
[45] Roy King, (2000). Risk Management. *Preface pp 5-6:* Broadstairs, Kent, GBR, Scitech Educational, UK.

threat. However, the risk which generates the threats is the ones that should be identified and included in a risk management system.[46]

An RM system manages all risks from incidents to a catastrophe. According to Hamilton 1996 there are more than 600 incidents before a catastrophe (see Figure 2:3 concerning risk triangle).

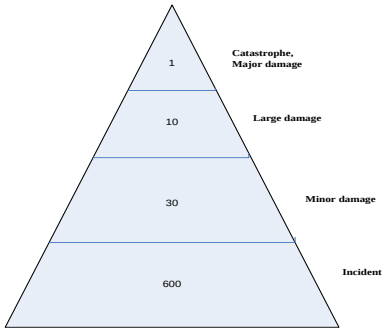


Figure: 2:3. Risk Triangle

Source: Gustaf Hamilton, (1996). Risk management 2000. What is risk management *p 66.* Studentlitteratur, Lund, Sweden

A RM system in the shipping industry assists the shipowners and port authorities to assess environmental risks, which include risk identification, risk assessment and evaluation of risk mitigation measures concerning maritime security,[47]

The RM process is divided into four different levels: evaluation and analysis of the risks, management of the result of the risk identification and the use of the result as a preventive measure in which action is taken to minimize the consequences of the risks (see Figure 2:4 the RM circle).[48]

[46] Gustaf Hamilton, (1996). Risk management 2000. *Risk conception p 12:* Studentlitteratur, Lund, Sweden.
[47] Alan E. Branch, (2007). Elements of shipping. *Services performed by pricipal shipping organization, p 161:* Taylor & Francis Group UK.
[48] Gustaf Hamilton, (1996). Risk management 2000. *What is risk management pp 68-69:* Studentlitteratur, Lund, Sweden.

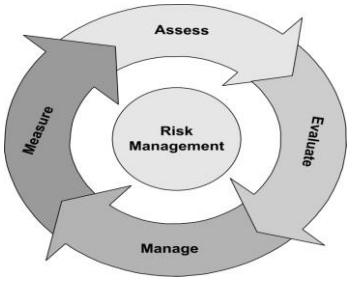


Figure: 2:4. Risk management circle

Source: Gustaf Hamilton, (1996). Risk management 2000. What is risk management *p 68.* Published by Studentlitteratur, Lund, Sweden.

2.4.8 Applying the ISPS Code in maritime security risk management

The IMO stated that maritime security is a risk management system and that the ISPS Code is a support to SOLAS and each contracting government as a methodology to improve the response and the system performance concerning maritime security. In addition, each contracting government needs to implement maritime security risk management and to ensure the security of ships and port facilities and to comply with the new maritime security legislation regime. The system provides support to the organisation of the contracting government to determine what security measures are appropriate, evaluate the risks and identify the threats with the purpose to reduce the vulnerability of ships and port facilities in issues concerning maritime security. According to IMO the main purpose of the Code is to provide a global standardized consistent legal framework for the shipping industry in issues concerning maritime security.[49]

The maritime security RM is divided into two different phases. The first phase is for the contracting government to establish tools for appropriate security assessment and conduct it towards ships and port facilities. To accomplish this contracting

[49] IMO, (2002). IMO adopts comprehensive maritime security measures: IMO, publications, London, UK.

governments must identify and evaluate vital risks in maritime infrastructures within the country and then create an action plan handling the consequences of the risks in case of loss of life and the economic and environmental damages to a ship flying its flag or to the port facilities within the country. The final phase for the contracting government according to IMO is to accurately evaluate the risks through addressing the weaknesses of the vulnerability in port facilities.[50]

To achieve this contracting governments have to consider the following facts:

- Physical security;
- Structural integrity;
- Protection systems;
- Procedural policies;
- Communications systems;
- Transportation infrastructure; and
- Utilities and other areas within a port facility that may be a likely target.

IMO does not state which method, qualitative or quantitative to be used when conducting risk assessment, which means to determine the risks, identify risks within the risk areas, analyse risks, evaluate risks, treat risks, monitor and review the performance of the risk management and communicate and consult. It is up to the contracting government, shipping company and the port authority to decide. In addition, the two methods have different working space. A qualitative based risk management is frequently used to measure the risk in a broad and more general perspective. This means the method using evocative terms to define the likelihoods and consequences of risk event.[51] Quantifying (risk assessment) risks in a qualitative

[50] Ibid.
[51] Adrian R. Bowden, Malcolm R. Lane, and Julia H. Martin,(1996). Triple bottom line risk management. Why use anything other than qualitative risk assessment pp 17-19. John Wiley & Sons Inc. New York, USA.

based risk management system is based on three variables: subjective, expert and judgment.[52]

A quantitative based risk management system is also used to evaluate and estimate risks within a navigational area.[53] In addition, the system uses risk assessment based on quantitative risk assessment, which means that measurements are based on two variables, namely scientific evidence and statistics to calculate the likelihood and consequences.[54]

Moreover, the RM concept is divided into three different minimum functional requirements. The first functional requirement is addressed to the shipping company and its ships and its crew. The requirements embrace SSP, SSO, CSO and certain maritime security equipment onboard. The second functional requirement is addressed to the port authority and its port facilities. The requirements embrace PFSP, PFSO and certain maritime security equipment. The final functional requirement is addressed to shipping companies and port authorities and its port facilities. The requirements embrace monitoring and controlling access, monitoring the activities of people and cargo ensuring security communications are readily available.[55]

2.4.9 Applying the ISPS Code in the maritime security risk management system in Sweden

The maritime security legislation involves three main authorities: the Swedish Transport Agency, the National Swedish Police Board and the Swedish Coast Guard.

[52] Jens-Uwe Schröder, (2008). Handout Risk management, Lecture in WMU.
[53] Omar Frits Eriksson, (2009. Handout pp-presentation, Full IALA Risk Management, Lecture in WMU.
[54] Giziakis Konstantinos and Bardi-Giziaki Ernestini, (2002). Assessing the risk of pollution from ship accidents. *Introduction pp 6-7:* MCB UP Ltd, UK.
[55] IMO, (2002). IMO adopts comprehensive maritime security measures. IMO, London, UK.

The Swedish Transport Agency has the responsibility and the authority to supervise the implementation and compliance with the new maritime security legislation regime and the authority is also the appointed authority representing Sweden in international meetings concerning issues of maritime security. In very broad terms, the National Swedish Police Board has the responsibility and authority to supervise and set the maritime security level in a national perspective.[56] The Swedish Coast Guard is appointed by the Swedish Transport Agency to be the authority which has the responsibility and the authority to control and to receive preliminary application of crew lists and crew visa from ships entering Swedish waters. The Swedish Coast Guard also has some police related obligation of law enforcement against terrorism, piratical and other criminal activities in Swedish waters. [57]

The Maritime Security is a unit within the maritime department of the Swedish Transport Agency. The unit handles surveys, inspections and coordinates maritime security related issues with the other units within the Maritime Department. Moreover, key persons in the unit also participate in maritime security related meetings at EC, IMO, and with countries in the region. The unit also cooperates with the two other main authorities mentioned in the text and the Swedish Maritime Administration (SMA) which also is a part of the maritime security risk management system in Sweden and the responsible authority concerning the Swedish maritime contingency plan.

In addition, the maritime security unit has two obligations within the Swedish Transport Agency, Maritime Department. There primary responsibility is to supervise and coordinate the operational maritime security in Sweden. The secondary responsibility is to support the SMA maritime contingency plan in case of terrorism or treat against Sweden. SMA organisation has a similar RM structure as mentioned in the IMO recommendation MSC.1/Circ.1332. Piracy and armed robbery against

[56] Swedish Government, (2004). Lag 2004:487 om sjöfartsskydd: Swedish Government.
[57] Swedish Maritime Administration, (2004). Sjöfs sjöfartsskydd 2004:13: Swedish Maritime Administration, Norrköping, Sweden.

ships in waters off the coast of Somalia and the MSC.1/Circ.1181 concerning standard of a qualitative based risk management in IAMSAR organisation. The purpose and goal with the plan and risk areas have been identified in the contingency plan from previous statistics and experience within the organisation concerning issues related to risk and crises. The structure of the organisation is well defined and explained and the different responsibilities in case of emergency. The risk assessment is based on a matrix which is defined and explained in the Swedish maritime contingency plan. The risk assessment matrix is based on the qualitative method to evaluate the risk and its consequences. There are different management levels with different responsibility and authority, but in general the risk assessments and risk analysis are carried out by one of the top managers in each decision level. The risk analysis is based on a subjective judgement, predefined matrix to calculate the level of risk, and a computer system with a resource register containing all available maritime units in Sweden. The SMA also evaluates risks; an example is after larger exercises all the stakeholders who participated have a debriefing and all the experience is written down and filed within the SMA. The SMA reviews the contingency plan continuously and the result is published in SMA intranet and other public places.

To make the maritime contingency plan function there is three units which are vital for the operational function within the Swedish contingency plan. These units are the Search and Rescue Unit (SAR), the Vessel Traffic Service Unit (VTS) and the Maritime Inspectorate Units (MIU). The function of SAR and VTS plays a vital role in the Swedish maritime contingency plan as a contact point for ships operating in areas remote from maritime security facilities. The Maritime Inspectorate Units have the vital role to set demands, instructions and decision concerning issues related to maritime safety and maritime security.

2.4.9.1 Advantages with the maritime security RM

It is important for a maritime administration to have a risk management system for the organisational and managerial factors so they can succeed in carrying out the objective to reduce the risk of threats to secure persons and property and to put them in safety in case of an emergency.[58] The SMA has a risk management system which is a part of the maritime contingency plan for the maritime community and shipping industry. The Swedish government has adopted the ISPS Code and it came into force on 1st July 2004. The ISPS Code is also a tool and a part of the risk management concerning the Swedish maritime contingency plan.[59] This means that one part of the maritime contingency plan is maritime security related issues.

The system is relatively easy to understand because all routines and instructions are written down in the SMA system and the qualitative risk assessment method can give a relative quick answer through using a matrix of high-, medium- and low level of risk. The method also provides the user with a general understanding of comparative risk between events. It is a well structure method which divides the risk events into broad consequences and likelihoods which can be identified throughout the method. The matrix can be used to separate the risk event into risk classes.[60] The system also provides the top manager in each decision level or the top management with a quick decision making process to make a clearer view to decide which area to prioritize and what type of immediate action and improvement is needed,[61].[62]

[58] Edward Smith, (1992). The importance of safety management systems in risk reduction and risk quantification: Technical limited London, UK.
[59] Sjöfartsverket, (2004). Sjöfartsverkets handbok vid kriser och katastrofer: Swedish Maritime Administration: Norrköping, Sweden.
[60] Thomas R. Peltier, (1999). Information security risk analysis, *Qualitative Risk analysis pp 23-25:* Taylor & Francis e-Library, UK.
[61] IRGC, (2005). An introduction to the IRGC Risk Governance Framework. *Handling systematic risks with the IRGC framework p 6:* IRGC, Geneva, Switzerland.
[62] Thomas R. Peltier, (1999). Information security risk analysis. *Effective Risk Analysis p 3:* Taylor & Francis e-Library, UK.

2.4.9.2 Disadvantage with the maritime security RM

The key weakness with the qualitative risk management system is in the risk assessment method. The risk assessment relies on the previous personal experience and knowledge from a single top manager in each decision level. Depending on the manger's judgement and training, there are uncertainties in the decision making process due to the subjective judgment and the fact that decisions are not made from evidence of science.[63] It is also a large responsibility and burden for the top manager in each decision level even if the manager can claim for extra help and support in a large maritime security operation. In some areas there have to be improvements concerning the routines and instructions regarding the responsibility in case of emergency between the different authorities SMA and the Swedish Transport and the responsibility between the three vital units SAR, VTS and MIU.

Every case of emergency related to maritime security is unique and how to define risk is described in very broad terms in the contingency plan so it is easy to interpret words like hazards, risk, consequences and likelihood differently between the different authorities and the vital units in case of emergency. The maritime security risk management system does not have any tools to solve this problem with the subjective interpretations. The method is imprecise and gives only a broad and general indication of the likelihoods and consequences. Neither is the method clear about the level of risk, which means that the method only gives an indication that there is a risk and the method does not weight the risk based on the severity of consequences against justification of the risk.[64]

[63] IACS, (2004). A guide to risk assessment in ship operations: IACS, London, UK.
[64] Bowden, Lane, et al, (2001). Triple bottom line risk management. *What is the Risk Management Process p 8:* John Wiley & Sons, Inc. New York, USA.

CHAPTER 3

3. Aims, Objectives of the study and Earlier research

3.1 Scope of the study

The aim of this dissertation is to investigate the effects of the ISPS Code on ship and port facilities security and how the people working in these two different activities have interpreted the security level before and after implementation of the ISPS Code. Furthermore, the study also includes an investigation if there have been any synergy effects after the ISPS Code came into force.

3.2 Objectives and the importance of the ISPS Code

The purpose of this dissertation is to elucidate the effects of the ISPS Code on ship and port security in Sweden. The subject for the dissertation was inspired by the Swedish Maritime Administration and the Swedish Transport Agency. Furthermore, the results of the research could be used for creating an inventory for the future development of the ISPS Code in Sweden. The inventories from the research could assist the Swedish authority and the shipping community too clarify if there are any improvements to make concerning the ISPS Code. Moreover, the study should give a synergy effect so that this research can lead to a harmonization of the method to evaluate the effectiveness of the ISPS Code between IMO member states.

In recent years there has been an increasing fear of terrorist attacks using ships or their cargo as tools to attack exposed sensitive areas and create chaos in the maritime

transport chain.[65] In addition, since the tragic events of 9/11 when two aircraft were used to attack the two buildings of Wold Trade Centres in the United States losing 2997 lives, the devastating bombing attack on the railway in Madrid**,** Spain 11 March 2004 losing 191 lives and 7/7 bombing on London's public transport system during the morning rush hour the 7 July 2005 in London, United Kingdom, (UK) when 52 lives were lost.[66] Moreover, the tragic acts against these three countries have been carried out by terrorist in a series of coordinated suicide bomb attacks.

In addition, the main tragic event 9/11 is one of the reasons that the ISPS Code came in to force 1 July 2004 as a tool for the maritime security risk management and to protect the ships and their crews and cargoes and also the port facilities against terrorism, piracy activities and other criminal activities related to unlawful acts against the shipping industry. The ISPS Code provides instructions and guidelines for governments, maritime administrations and the shipping industry in a preventive and reactive way to best practice maritime security.[67] The ISPS Code provides the necessary constituent element to analyse the threats against the shipping industry and create a security plan in a proactive way preventing terrorism, piratical and other criminal activities onboard the ship's or in the port facilities. However, to meet the demands and responsibility to overcome the fear of criminal violence against the maritime sector both governments and the shipping industry have to cooperate and create a maritime security risk management system which clarify the responsibility and the obligation the different parties have in the system. Moreover, this can be done in a simple way through the matrix showed in Figure 3:1. Figure 3:1 explains which sector the different parties have to cover and the private sector mission should be preventive responses designed essentially to deter tactical development by criminal groups. On the other hand, if the matrix is in general accepted, the other

[65] Detlef Nielsen, (2005). Maritime security and MET. *Introduction p 3*: WIT Press, UK.
[66] Espin-Digon et al, (2008). Lloyd's MIU handbook of maritime securit.y *Introduction P 56-57*: CRC Press, UK.
[67] Khalid Bichou, Mike G.H. Bell, and Andrew Evans, (2007). Lloyd's practical shipping guides, Risk management in port operations, logistics and supply chain security. *Introduction p vii:* Informa Law, London, UK.

three sectors should be covered by the governments and their agencies. The matrix also shows if the private sector interferes with the other sectors, which are government responsibility, it will be a disturbance and the focus of the discussion will be moved from preventing the threats of criminal groups to a discussion who is in charge. In addition, this move of focus could lead to a lack in the maritime security risk management.[68]

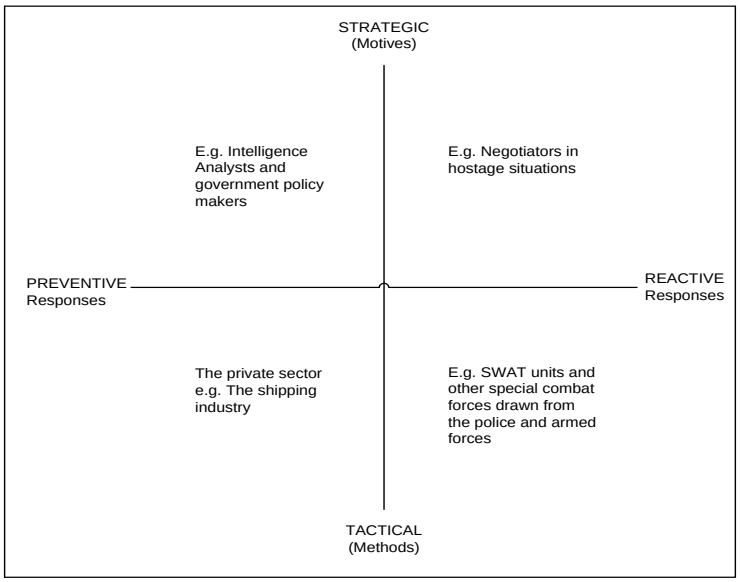


Figure:3:1. Matrix shows the lines between the stakeholders responsibility.

Source: Brian A.H Parritt (1986). Violence at sea. Published by International Maritime Bureau.

3.3 Literature review

To acquire knowledge of the topic the author has made a literature review based on the following key words; research methods, the meaning of case studies, Maritime Risk Management, ISPS Code, ship security, port facilities security and maritime education and training in ISPS Code. The author consulted books related to scientific

[68] Brian A.H. Parritt, (1986). Violence at sea. *Observations on the Threat and Appropriate Responses p 96-98.* ICC IMB, London, UK.

research methods, maritime convention and their implementation, basic principle of risk management and principle of education in maritime security.

3.4 Earlier research on effects of the ISPS Code on ship and port security

A substantial amount of earlier research has been carried out to seek the answer to the effectiveness the implementation of ISPS Code has had. A variety of institutes and organisations have produced research papers and research reports. A small selection and brief content of those research papers and research reports is described as following:

Worldwide security measures for shipping, seafarers and port: an impact assessment of ISPS Code,[69] is a research paper published by the Department of Maritime Studies, University of Piraeus, Greece. The purpose and goal with the research paper was to give the shipping community comprehensive and sufficient information about the enforcement of the new legal regime regarding the ISPS Code. The research paper focuses on six different areas:

- The legal background and the implementation of the new amendment to SOLAS, Chapter XI-2 of SOLAS 1974;
- The European Community way to enforce the new security regime;
- The meaning of the United States Maritime Transportation Security Act of 2002;
- The stakeholder's different implications in the new Maritime Security regime;
- The ILO 185 Convention and shore leave for seafarers; and

[69] Alexandros M. Goulielmos and Agisilaos A. Anastasakos, (2005). Worldwide security measures for shipping, seafarers and port: an impact assessment of ISPS Code: Department of Maritime Studies, University of Piraeus, Greece.

- The cost and commercial implication of the ISPS Code.

The research paper focuses in general on how maritime security can facilitate the free flow of sea transportation. The research also focuses on the risk and consequences of the different legislations applied into the global shipping industry. The researcher has conducted the study from a user's point of view concerning the implantation of the new maritime security regime. The research method used to conduct the research is general based on a literature review and meetings with persons both in the global shipping industry and in the Maritime Administration.

The legal sections in the research paper discuss the implication of ISPS Code, EC legislation, the US Maritime Security Transportation Act of 2002 and ILO Convention. The author considers that the ISPS Code only refers to procedures which embrace armed protection or presence on board of armed guards. If the user applies to these procedures it will acquire the International Ship Security Certificate (ISSC) demands for all ships. The ISPS Code is divided into five different areas:

- The security officer determination;
- The way of the construction of the security team;
- The way to obtain formal and certified security training;
- The implementation and function of the security plan; and
- The familiarization of crew with the various so-called protection levels.

Furthermore, the author clearly states that it is the captain who has the ultimately responsibility for the safety and the security of the ship and when the captain requests aid in case of an emergency situation the responsibility must rest on the costal nation's Maritime Administration. In addition, this means that the contracting government will set the applicable security level by approving the ship security plan (SSP), verifying the compliance of ships with the provision of SOLAS Chapter XI-2 and Part A in the ISPS Code, issue international ship security certificate (ISSC). The

contracting government also has to approve port facility security assessment (PFSA) and port facility security plan (PFSP) and exercising control and compliance measures.

The research paper discusses the responsibility of the US Coast Guard (USCG) through the US Maritime Transportation Security Act of 2002, section 415. This means that the USCG has the responsibility to approve and check all foreign ships including domestic VSP before entering a port in the USA. The USCG also has the responsibility to approve and check the PFSP. According to the author the USCG has announced that they will board all foreign ships bound for US ports to assess the ship's compliance with the ISPS Code. If the ship fails, it will be denied entering any port in the US. The effect of this rigorous port state control (PSC) could affect the American and the world economy negatively, due to the fact that it would restrict foreign ships from operating in US waters until the USCG has approved the VSP and the commerce of import and export could be affected due to longer time to discharge and load the ships. However, the author do not discuss the advantages for the contracting government in this especial case USCG to use a proper ship reporting system similar like the EC[70] are using. Within the EC the captain or the ship's agency or the shipping company are obliged to send mentioned information 24 hours in advance before the ship reaches the destination. Which means that the maritime administration receive this information in advance and then they supervise and monitoring the ship's destination, estimated time of arrival (ETA) at port of destination or pilot station and estimated time of departure (ETD) from that port, the total number of persons onboard, last port of call, next port of call, dangerous cargo, and navigational status and other relevant information about the ship. In addition, if this information chain is sent in advance to the USCG the likelihood is that it can reduce the time-consuming control of the ship when entering the US waters and it will benefit both the authority and the shipping industry with an increased security

[70] EC, (2002). Directive 2002/59/EC of the European Parliament and of the Council: EC, Brussels, Belgium.

through a PSC which is not interfering with lead time for discharging and loading cargo. Moreover, the issue concerning how the ISPS Code has affected the seafarers onboard will be discussed. There is an increased work load due to the implementation of the ISPS Code in the following areas:

- Supervise loading cargo
- Supervise unloading cargo;
- Deal with all those who may visit during the stay in port such as PSC officers, customs officers, emigration health authorities, agents and pilots;
- Operational maintenance of the ship

The consequences of the increased work load can lead to limited opportunities for the seafarers to enjoy the shore leave which causes an increased risk of fatigue. However, the research paper not include if the areas of increased work load is based on the implementation of ISPS Code or if there are other elements, for example the length of the employment the seafarers have onboard or which relieving system the shipping company is using. Not either does the research conceded if the control of admission to the ship and port facility has contributed to an increased security for the seafarers onboard or the ship's cargo. Furthermore, the removal of crew list visa has affected the shipping industry in the form of increased work load for the captain and the shipping company's administration a shore.

The increased work load is due to the increased bureaucracy to handle the visa applications for the multinational crew member's onboard ships. There is also a fear in the industry that the ship will be detained in port or not be able to enter the port if any crew visas are incorrect. This can led to increased cost and valuable goodwill losses for the shipping companies. Especial focus is given on the ships in the tramp shipping industry where it is common to change trade and crew members frequently. The problems which occur are that the seafarers and the shipping companies dealing in the tramp industry seldom know which ports the ships are entering. In addition,

this can lead to discriminating of seafarers who do not have the right visas to go ashore and use there human rights to a social life and it increases the work load onboard and ashore for the shipping industry.

The conclusion of the research paper is that the ISPS Code has affected the shipping industry with increased work load son board, which also means increased cost for the shipping industry and limited opportunity for seafarers to use there rights to go ashore to exercise the elements of a social life. This can also affect the recruiting of seafarers in the future. In addition, the ISPS Code is written as a part of a risk management system around the world and its purpose and goal is to protect the ship's crew, the ship's cargo and the port facilities against terrorism, piratical and other criminal activities. It is important in the implementation phase and the further administration of the ISPS Code to clarify its purpose and goal and what the Code can support the shipping community with.

Effective maritime security: conceptual model and empirical evidence, is a research paper written by the author Thai, Vinh V at the Department of Maritime and Logistics Management, Maritime College, Tasmania, Australia.[71] The research paper was published by Maritime Policy and Management in 2009. The purpose and the goal with the paper are to illustrate an effective maritime security system while not jeopardising the organisational efficiency or the transport and supply chain of cargo. The question the author bases the research paper on is "How to achieve effective maritime security e.g. satisfying security requirements while enhancing other business objectives, such as service quality or operational efficiency". Moreover, the author addresses the issue to have an effective management of security in maritime transport in three different cornerstones:

[71] Vinh V Thai, (2009). Effective maritime security: conceptual model and empirical evidence: Maritime Policy and Management, Australia.

- Quality management (QM);
- Risk management (RM); and
- Business continuity management (BCM).

In addition, the author has created a model of effective maritime security including 13 different dimensions and 24 associated critical success factors. To ensure a trustworthiness research method in the research paper, the model was tested through a survey of 119 maritime transport organisations and 25 interviews conducted in Vietnam. According to the author the model can be used as a checklist with the necessarily elements to support the management in the shipping industry when they create the company's maritime security policy. The model is universal which means it is applicable in any shipping company. The research paper identifies the most important critical success factors (CSF) for having an effective management of maritime security in the maritime chain of transport. According to the author the CSF are the following:

- A clear defined responsibility and the authority in all levels within the company for the security issues;
- Documented processes, procedures, routines and checklists for system for security risk assessment;
- A clear definition of security threats;
- Defined risk acceptance level in a balance with the company's resources to handles the security issues;
- Clearly defined risk levels, risk-based security mitigation strategies and plans;
- Clearly understood, implanted and resources to handle risk levels, risk-based security mitigation strategies and plans within the company;
- A clear plan for communication and consultation of the security policy within the company with the stakeholders, employees, business partners and authorities;
- Resources to monitoring, review and evaluate security system;

- Resources to continuously improve the security system, both at management level and operational level;
- Implementation of a system how to encourage and give feedback to the employees suggestions of improvement and involvement in security problems;
- Continuous security training both at management level and a operational level and with the stakeholders;
- Continuously control, survey and review of the security system;
- Understanding by the senior management that technology-based solution is not the only answer to security problems; and
- A clear defined level of accessibility of details in security system for the employees, stakeholders, business partners and authorities.

Moreover, a QM system and its processes assist both the company and the maritime administration to conduct control in the supply chain of maritime transport. If the control of cargo is carried out in the end of its chain, it can lead to increased cost and delays for the shipping industry. Implementing a QM system the company can clearly show the whole supply chain and its processes concerning maritime security and the maritime administration could easily do random controls of the supply chain of maritime transport to investigate that the company implies all necessary processes according to the SOLAS and the ISPS Code. A key function in the QM system is the process for quality control and the management is needed to ensure that variability during the process. According to the author, it is similar with monitoring shipment while in transit and thus reduces the risks of threats from terrorism, piratical and other criminal activities. In addition, this could benefit the shipping company in the tramping industry and also improve the transparency of the ownership in the shipping industry. In addition, a continuously security improvement is fundamental for success in QM and that the company works with the Deming cycle Plan-Do-Check-Act (PDCA) as a tool for security improvements (see Figure 3:2).

Figure: 3:2. The continuous security improvement (CSI) cycle.

Source: Vinh V Thai, (2009). Effective maritime security: conceptual model and empirical evidence: Maritime Policy and Management Australia..

The maritime security is a part of the company's risk-based management (RM) and such system highlights the areas which have to be protected. The paper defines four elements, threat identification, risk assessment, acceptance criteria, and implementation process of risk control which is associated with maritime security risk management. The RM process should be communicated and consulted with the internal and external stakeholders from the senior management within the company so they keep a close business relationship, so-called BCM. The benefit from this is that the stakeholders are updated and the senior management can receive feedback and improvements which can be vital to obtain a high level of maritime security in the supply chain of maritime transport.

The research papers conclusion for an effective security management is to have a system consisting by a well well-structured, security policy, security risk assessment, risk-based security mitigation strategies and plans, communication and consultation with stakeholders, security monitoring and review, continuous security improvement, senior management commitment and leadership, employee empowerment, employee involvement, security training, security design and process control, holistic approach, and incident handling and response. The suggestion is to have a combination between the three systems QM, RM and BCM makes a strong effective maritime security management. In addition, QM provides the framework for the security

system where processes and routines are brought together. RM provides the system with identification of threats and risks within the company's operational area. The RM also provides the consequences of the risks and how to handle them through a risk assessment. The BCM provides the security system with engagement, feedback, improvement and long-term relationship which benefits the security system.

The conclusion and the suggestions in the research paper does not consider the cost and the administration the three system QM, RM and BCM generates and it can be difficult for a minor shipping company to implement and run a full scaled QM system. Neither does the research paper consider the facts that keeping track of ship's is easy due to today's public webpage's for Automatic Identification System (AIS).

New Security Measures for the International Shipping Community is an article written by the author's Hartmunt Hesse and Nicolaos L. Charalambous at the maritime safety division, International Maritime Organisation (IMO), London, UK. The article was published in Journal of Maritime Affairs, 2004, Vol. 3, by Word Maritime University (WMU).[72] The purpose of the article was to clarify the responsibilities in the new requirements from the international framework of security related issues in the maritime environment and gives the shipping community a guide what the ISPS Code and other security related instrument can provide concerning maritime security. Moreover, the authors clarify that the government's responsibility is to determine the security measures and assess the threats and evaluate the risk and consequences of a possible act of terrorism, piratical and other criminal activities against the flag state and the port facilities within the country.

The legal regime in the ISPS Code provides the government the right to impose control and compliance measures on ship' and port facilities. The Code also gives the

[72] Hartmunt Hesse and Nicolaos L. (2004). Charalambous at the maritime safety division, International Maritime Organisation (IMO), London, UK: WMU in Journal of Maritime Affairs, Vol. 3, Malmö, Sweden.

government the right to take further action when the requirement is not met. The new regime places the responsibility on the government to identify the risk and threats for an attack and that the costal state will advise the ships of the present security level so that the ships can protect themselves from unlawful acts. The security levels are divided into three different levels: security **level 1** is the normal operation level for ships and port facilities. Security **level 2** is set over a period of time when there is a heightened risk of security incidents. The security **level 3** is set over a period of time when there is a probable or imminent risk of security incidents. It is the government's responsibility to make the decision to revoke a higher security level set by the costal state that brings it back to the normal operational level in the region.

In addition, the ISPS Code addresses the maritime security to ship's and port facilities. The minimum requirement for risk management according to ISPS Code for ships will include:

- Ship security plan (SSP);
- Ship security officers (SSO);
- Company security officers (CSO); and
- Certain onboard equipment (SSAS).

The minimum requirement for risk management according to ISPS Code for port facilities will include:

- Port facility security plans (PFSP); and
- Port facility security officers (PFSO).

The article also reflects on other security related items like MSC/Circs. 622 and 623, as revised, on Guidelines for administrations and industry on combating acts of piracy and armed robbery against ships, MSC/Circ.754 on passenger ferry security, providing recommendations on security measures for passenger ferries on

international voyages shorter than 24 hours, and ports. Furthermore, the assembly resolution A.871(20) on Guidelines on the allocation of responsibilities to seek the successful resolution of stowaway cases and resolution A.872(20) on Guidelines for the prevention and suppression of the smuggling of drugs, psychotropic substances and precursor chemicals on ships engaged in international maritime traffic.

Moreover, the discussion and the conclusion of the research paper is that there are still some factors for future challenges for the contracting government to accomplice an effective maritime security regime within IMO. These factors are the following:

- The contracting government's success to implement, application and enforcement of the SOLAS Chapter XI-2 and ISPS Code;
- The contracting government's success to create adequate security net and a appropriate security culture and a climate of mutual trust and reliance between the shipping industry and the government; and
- The shipping industry maintaining continuous compliance with special measures to enhance maritime security which will benefit the development of it.

Maritime security, a review and a follow-up of the implementation of the new maritime security legislation regime system in Sweden.[73] The Report was an assignment from the Swedish government given to the investigators Cecilia Persson and Tomas Ordeberg. The report was published by the Swedish government in 2006. The Ministry of Transport decided in May 2005 to conduct a review and a follow-up on the implementation of the ISPS Code, EC directive concerning maritime security

[73] The Ministry of Transport decided in May 2005 to conduct a review and a follow-up of the new maritime security legal regime which came into force 1 July 2004. The assignment was given to the investigator Cecilia Persson and Tomas Ordeberg, (2006). The titel of the report was named Maritime security, a review and a follow-up of the implementation of the new maritime security legislation regime system in Sweden: Swedish government.

and national legislation regarding maritime security. The purpose of the report was to clarify the following questions stated from the Swedish government:

- How well has the new security legislation regime been implemented within the different stakeholders in the shipping community?
- How do the different stakeholders manage the ISPS Code today and what is left to complete the system?
- What costs has the new security legislation regime generated for the different stakeholders?
- What is the appliance with the new security legislation regime concerning inspection and control of persons, property and supervision?
- How does the co-ordination between authorities operate when changing maritime security level and how does the stakeholder interpret this co-operation?
- Is it clear who is the authority involved in maritime security in Sweden?
- What consequences have been identified when the new security legislation regime came into force regarding access to port facilities?
- Have the new security legislation regime changed the balance between different types of transportation?
- How does the implementation in Denmark, Germany, Holland and Poland been done concerning the new security legislation regime?

The research method was based on personal interviews with key person from a different number of authorities and the shipping industry connected to the new maritime security legislation regime. The outline and brief content of the report conclusion shows that due to time limit in the implantation phase, the maritime administration and other authorities concerned and the stakeholders in the shipping industry did not have sufficiently time to implement the new maritime security system completely. According to the report there are still some issues to deal with before having a complete system of maritime security in Sweden.

The report discussion and conclusion shows that the regulation which authorises the National Police Board was still under development and as a consequence they have not yet designated security control officers to conduct security inspections. The structure of drills and exercises was still under progress with some of the maritime stakeholders and some of them have not yet had any drills and exercises concerning maritime security. The information from the authorities about training and education concerning maritime security were needed to be improved and clarified and communicated to the maritime stakeholders. The authorities for maritime security have to improve the information chain and the communication between them and the maritime stakeholders, especially when the maritime security level is changed. The authority has to do improvement concerning the processes and routines within their own organization then the authorities setting or changing back the maritime security levels. There has been some uncertainty with the police authorities concerning collaboration between the National Police Board and the district police authorities. The report suggests that the processes and routines have to be improved and communicated to the other maritime security authorities and the maritime stakeholders.

The report shows as a conclusion that there was some uncertainty from the PFSO concerning how to collect the information from the authority then they are changing the maritime security level. The report also shows that there was some uncertainty from the maritime stakeholders concerning the responsibility and authority between the different authorities related to a threat in the supply chain of maritime transport. The report discuss a suggestion from the maritime stakeholders that the authority for maritime security in Sweden and the neighboring countries develop and establish a guidelines and a harmonization of the new maritime security legislation regime.

Finally, the report shows that the new maritime security legislation regime has limited the admission to the port facilities, which was a step in the right direction to improve the working environment for the work force in the port. The stealing of

material and personal belongings and other criminal activities in port facilities had decreased after the implementation of the new maritime security regime. The report also shows that in the initially phase of implementing the new maritime security legislation regime had caused problems allowing seafarers to go ashore. However, this problem has been sorted out, but it was still a problem in other countries.

CHAPTER 4

4. Research method

The research method is often used as a tool for the researcher to create a framework and a structure how to solve the task of the researched objectives.[74] Furthermore, the choice of method to research an area and the result of it will most likely contribute to future research so other researchers can use the same method in future research within the same area.[75] However, if the acquired knowledge of a researched area is scientific, it should belong to a disciplined or interdisciplinary area. This is the difference between ordinary knowledge and scientific knowledge.[76] Furthermore, the choice of research method should make it possible for the researcher in a systematic way to choose different objectives and use the information of it to create the result and conclusion on the report. In addition, the method from which the result and conclusion have been produced should be used to critically review and test the researcher's outcome.[77] Moreover, there are a number of approved methods to use when the researcher is carrying out the research. The researcher should select the method from what question or what problem should be solved and this should reflect the choice of research method.

However, to make it easier for the reader to follow the discussion and to give the trustworthiness in this dissertation the research method used in this paper is explained in the following.

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[74] Ulf Bjereld, (2002). Varför vetenskap? *Tillvägagångssätt p 105*: Studentlitteratur, Lund, Sweden.
[75] Lars Torsten Eriksson, (2001). Att utreda, forska och rapportera. *Att undersöka på vetenskaplig grund p 175*: Liber AB, Malmö, Sweden.
[76] Runa Patel, (1987). Grundbok i forskningsmetodik. *Om forskning p 14*: Studentlitteratur, Lund, Sweden.
[77] Robert Weissberg et al, (1990). Writing up research. *The experimental research report p 1:* Prentice-Hall, inc., UK.

4.1 Analysis of the problem

There are two main problems to be discussed in this dissertation. The first is what effects the ISPS Code have had on ship security and port security. The second issue to discuss is how the crew members onboard comprehend and interpret the application of ISPS Code. In addition, to make these main problems more suitable to deal with, they have been diverted into four different areas; knowledge of the ISPS Code, pros and cons of the ISPS Code, education/drills according to ISPS Code and evaluation of the education/drills and service and support from the authority. From these four areas of problem there have been created eight broad questions which are the base in the interviews and the questionnaires;

- Extent of the crew members and the port personals knowledge about ISPS Code?
- The pros and cons with ISPS Code from the perspective of the ship's crew and the personal in the ports?
- How long was the ISPS Code education of the crew members and the port personal?
- How often have the crew and the port personal exercise ISPS Code drills onboard?
- What do education and exercise contain for subjects (course modules)?
- How do a shipping company and the port authorities evaluate the ISPS Code drills and how do they take care of the feedback from them?
- How do the ship's crew and the port personal interpret the service/support from the port authorities and the Swedish Transport Agency regarding ISPS Code related matters?
- How does the Swedish Transport Agency evaluate the effectiveness of the ISPS Code and how do they utilise the feedback from it?

4.2 Limitations of the study

In addition, to limit time and scope of the study, it has been necessary to limit it as follows:

- The study includes Swedish ports;
- The study covers Swedish owned shipping company; and
- The study includes tankers, general cargo ships, container ships and car carriers.

4.3 Explanation of research strategies

There are two different research strategies when doing a study of a research area. The author can chose between an inductive way of doing the research and a deductive way of doing it. If the author's chose inductive way as a research strategy it means that the conclusion is based upon empiric facts. The author systematically collects information about the research area and from this material the conclusion is found in a more general and theoretical way. Furthermore, if the author uses the deductive way of a research strategy, it means that the conclusion is based upon different theoretical statements in a combination with the reality in the research area. These conclusions can then be tested if they are true or false comparing the empiric data. In addition, this dissertation is based upon the choice of a deductive way of research strategy. Moreover, the author is going to systematic collect information about the interpretation of the ISPS Code from the crew members' onboard ships, key persons from different port facilities and key persons in the Swedish Transport Agency and the conclusion is formulated from this outcome.

4.4 A qualitative or a quantitative method of research strategy

Depending on how different things are measured the researcher can either chose a quantitative or a qualitative method to collect and analyze the data.[78] If the author chose the qualitative method for the research, it is based upon the quality or characteristics of the facts. The knowledge the quality or characteristics of a phenomenon helps understanding it functions. Moreover, the quantitative method is connected with the understanding to find the answers "how many" and "to which extent". In addition, this dissertation is based on a quantitative method to use as a standard to collect and analyze the data in this dissertation. Furthermore, the data is collected from several case studies onboard vessels entering the ten most important ports in Sweden. In addition, the case study will be based upon individual interviews and questionnaires.

4.5 Case study in combination with interviews

There are several different research methods depending on which way the study is carried out. Examples of different methods are ante fact- and ex post facto research, experimental research, survey research and case study.[79] The work strategy in this dissertation is to combine a case study with interviews. Furthermore, a case study is a study where the researcher collects as much information as possible concerning the specified questions or the research problem. The researcher's intention is to formulate an interpretation or a theory around the researched area.[80]

[78] Ulf Bjereld, (2002). Varför vetenskap? *Tillvägagångssätt p 114:* Studentlitteratur, Lund, Sweden.
[79] Patel, R. (1987). Grundbok i forskningsmetodik. *Om olika typer av undersökningar* (p 52): Studentlitteratur, Lund, Sweden.
[80] Merriam, S. (1994). Fallstudien som forskningsmetod. O*lika typer av fallstudier och deras tillämpning* (p 41): Studentlitteratur, Lund, Sweden.

In addition, the advantage of a combined case study and interview is that the researcher can eliminate different interpretations and misunderstandings in a personal interview and also support the interviewing respondent.

Moreover, the disadvantage with it is that the researcher can be interpreted as subjective during the interview depending on the respondent's knowledge of the interviewed topic and the formulation of the questionnaire.[81] Despite this disadvantage, the work strategy in this dissertation is to combine the two methods to achieve the goal with the case study.

4.6 The choice of respondents for the study

The choice of ports in Sweden included in this research done randomly from the Swedish Maritime Administration Information System IT-Farled. Furthermore, the criteria for selection were the number of ships entering the port and the location of the port in Sweden. Moreover, to briefly explain the importance for Sweden to have secure and safe transport system via the Swedish port the author have select according to Swedish Government investigation SOU 2007:58 the ten largest ports in Sweden. In addition, the ten ports which have been chosen by the government as the largest and most important are Göteborg,[82] Helsingborg, Malmö, Trelleborg, Karlshamn in cooperation with Karlskrona, Norrköping, Stockholm (Kapellskär), Gävle, Sundsvall and Luleå. The outline and brief context of the reason for the choice of the ten ports is described below:

[81] Merriam, S. (1994). Fallstudien som forskningsmetod. O*lika typer av fallstudier och deras tillämpning* (p 46-49): Studentlitteratur, Lund, Sweden.
[82] Göteborg is the Swedish spelling of Gothenburg.

- Port of Göteborg is the largest port in Sweden and the geographic location is on the west side of Sweden makes it is very important for the Swedish export and import barter.
- Due to the geographic location in the Öresundsregion, Helsingborg is an important port for the southern part of Sweden and Denmark. The port is also the second largest container port in Sweden.
- Malmö is located in the south of Sweden and due to its geographical location, the port receives large quantities of oil products to store and to distribute to Germany and Scandinavia.
- Trelleborg is also located in the south of Sweden and due to the frequent ferry connections between the north of Germany and Poland, this port is important for the infrastructure in the north of Europe.
- Karlshamn is located on the southeast coast of Sweden and its geographical location and its trade between Sweden and the Baltic countries is important for several countries infrastructure.
- Norrköping is located in the middle of the east coast of Sweden. Due to the large amount of cargo which is handled by the port every year, its location and size is important for the Swedish barter with other countries in Europe.
- Stockholm is the capital of Sweden and is located in the middle of the east coast of Sweden. Due to the frequent trade between the neighboring countries, Finland and other Baltic countries, the port is of importance for east Scandinavia.
- Gävle is located about 400 km north from Stockholm on the east side of Sweden. Due to the growing container traffic and its trade with oil products, it is a geographically important port for Sweden and the Baltic countries.
- Sundsvall is located in the upper northern part of the Swedish east coast. Due to the importance of shipping the forest industry products, the port has a high value.

- Luleå is located in the northern part of Sweden and the port handles a large amount of ore and steel products every year. The port is of high value for the Swedish steel industry.

The choice of ships trading in Swedish ports is based upon the ship's regular traffic in the Swedish ports. However, to acquire information concerning the ship's voyages in and out of the ports the author used the Swedish Transport Agency's ship database to randomly find suitable ships (tankers, general cargo ships, container ships and car carriers). The criteria to participate in the research were at least 10 arrivals and departures per year and that the shipping company is Swedish owned. The choice of respondents was based on the position onboard the ship. The criteria for this selection of respondent were to interview the SSO onboard the ship.

4.7 Interpretation of systematic collected information

When conducting an interview there are three methods to collect the information. Despite the choice of method all three ways affect the result of how the collected information should be interpreted. The first method is to record the interview with the respondent and it is the best way to handle it comparing to the two other methods. The second method is based on the facts that the researcher conducting the interview makes notes frequently about the respondent's answers. The disadvantage with this method is that some information can be lost due to not being written down by the interviewer. The third and the final method is based upon the same principles as method number two, but the difference is that no notes are taken during the interview. In addition, after the interview the interviewer writes down the notes from the meeting.[83] Despite the disadvantage from method number one, in which some information is lost the author have chosen the second method as the working method

[83] Merriam, S. (1994). Fallstudien som forskningsmetod. *Teori och litteraturgenomgång vid fallstudier* (p 74): Studentlitteratur, Lund, Sweden.

to collect and interpret the information from the interviews. Furthermore, the reason for the choice is to create a more harmonized environment for the interviewer and respondent. After the interview all the information from the questionnaire and interview is collected together and the results are analyzed and compared with previous studies or other academic sources regarding the topic to ensure its reliability.[84]

4.8 Reliability of the research method

Reliability means that a measurement in research should be so reliable that it can give authenticity to the result of the research. There should be no questions about the trustworthiness of the result and this will ensure that the outcome of the research result is the reality of the truth. In addition, this means that same research topic and research method can be used in similar areas and the result should be the same as the first research and the second research. In addition to gaining a high reliability the researcher can include statistics from numerical data and this tends to give a higher reliability to the research paper.[85] In the dissertation statistics will be used in form of diagram from the questionnaire, and all the notes from the interviews are going to be described in the research paper. To ensure the reliability in the study the questionnaire is the same for everyone and its answers are going to be analyzed in similar way. The margin of error assumes not to affect the study due to the method of collecting information and the way how to analyse it. In addition, the identity of the ships, ports and the information from the respondents will be handled with greatest confidentially and no names will be mentioned in the research paper. All ships and ports which is included in this study are named respondents, so it is impossible for anybody else than the author to trace the information.

[84] Merriam, S. (1994). Fallstudien som forskningsmetod. *Teori och litteraturgenomgång vid fallstudier* (p 75): Studentlitteratur, Lund, Sweden.
[85] Eriksson, L. (2001). Att utreda forska och rapportera. (p 40): Studentlitteratur, Lund, Sweden.

4.9 Validity of the research method

Validity is an instrument showing whether the researcher measures the right things in the study. Reliability and validity is closely connected to each other and if there is no reliability in a question there is no validity in it either.[86] Furthermore, there are two types of validity; internal and external. **Internal validity** means an indication whether the author really measures what the author should measure in the study. All information is measured neutral in the beginning, but depending on the author's personal aspects the collected information can be interpret in many different ways of the author. In addition, the questionnaire and ships statistics from the Swedish Transport Agency and statistics concerning the ports from the Swedish Maritime Administration will give the study a high value of validity and avoid the discussion of the trustworthiness of the study.

External validity means that the result of the research can be generalized and used in other similar situations. Furthermore, this means that the result of the research can be used in general terms in the same specific area but not outside it.[87] Moreover, this study method of research can be used to conduct the same study in another country. In addition, that will make the external validity high in this particular study.

[86] Patel, R. (1987). Grundbok i forskningsmetodik. *Problematiken vid information i numerisk form* (p 72): Studentlitteratur, Lund, Sweden.
[87] Merriam, S. (1994). Fallstudien som forskningsmetod. *Validitet, reliabilitet och etik i fallstudier* (p 183): Studentlitteratur, Lund, Sweden.

CHAPTER 5

5. Results

5.1 Introduction

The new maritime security legislation has been active for nearly 5 year since it came into force on 1 July 2004. The maritime administration in Sweden indicated a need to conduct a survey on how the shipping industry, especially the ship's crew had been affected by the implementation of the new maritime security regime including the ISPS Code. The questions to be analysed in these pages are intended to clarify the shipping industry's general awareness and understanding of the new maritime security regime and its effects it have been given and what can be improved in the maritime security risk management system. In addition, to achieve the aim and objectives of the survey considerable time was taken to construct the questions to ensure that the maritime administration and the shipping industry and other maritime stakeholders would acquire an insight into the effect of maritime security in Sweden. The questions cover the following areas: knowledge of the ISPS Code, advantages and disadvantage of the Code, education and drills according to the Code, evaluation of education and drills of the Code and the service and support from the maritime administration. Furthermore, each respondent participating in the study was given the questionnaires in advance followed by an individual interview either a personal meeting or a telephone call.

5.2 The design of the questionnaires

The design and the construction of the questions were made through inputs from earlier researches, suggestions from the maritime administration and discussions with different maritime stakeholders. The questionnaire[88] is divided into two groups. The first questionnaire contains questions to shipping companies and their ship's crew member. The other questionnaire reflects questions related to port authorities and port facilities. The two different questionnaires are similar apart from the fact that one question concerning the SSO experience of other countries authority's' control of the ships SSP. The questionnaire to the shipping company is designed to cover 21 questions and questionnaire for the port authority was designed to cover 20 questions.

There are three types of questions: open, semi-closed and closed. The open questions give the respondent the choice to describe briefly the advantage and disadvantage (DB) of the statement/question posed or choose not sure (NS) with an opportunity to make a comment. The semi-closed questions give the respondent the choice to describe briefly the advantage or disadvantage (DB) of the statement/question posed or no effect at all/no support at all (NXAA) or not sure (NS). The semi-closed questions have questions limiting the respondents' answer to the following: meeting (NM), 1-3 meetings (1-3M), more than 4 meetings (M4M) and not sure (NS). The semi-closed questions also limit the answer for the respondent in the questions concerning education: education is given internal 1-2 times per year (EI1-2Y), education is given internal more than 3 times per year (EIM3Y), education is given by external 1-2 times per year (EE1-2Y), education is given by external more than 3 times per year (EEM3Y) and not sure (NS). The semi-closed questions also including the following limiting answers from the respondents: according to ISPS Code

[88] A copy of the questionnaires can be found in appendix A (shipping company) and B (port authority).

demands (ACD), more than the demands in the ISPS Code (MCD) and not sure (NS).

The closed questions give the respondent the choice between very good (VG), good (G), poor (P), very poor (VP) and not sure (NS) and very large effect (VLE) large effect (LE), little effect (LE), very little effect (VLIE) and not sure (NS). There are also closed questions which give the respondent the choice between yes (Y), no (N) and not sure (NS). After each open, semi-closed and closed question, there is an opportunity for the respondent to give a comment.

The questionnaires were also designed to be the foundation of the interview. Furthermore, the answers of the questionnaire and the answers of the interview from the respondents are held 100% anonymous, which gave the respondents the opportunity to express themselves freely regarding the information presented in Appendix C.

5.3 Response from the questionnaires and interviewed respondents

Twenty-one (21) respondents participate in the study. They represent key persons in the Swedish shipping companies representing tankers, general cargo ships, container ships and car carriers and key persons onboard ships; key persons in port authorities; key persons in professional and maritime industrial organisation; and finally key persons in the maritime administration working with the maritime security. Twenty (20) respondents answered the questionnaire and agreed to individual interviews. The reason that not all twenty-one (21) answered the questionnaires was that one of the respondents no longer worked in Sweden because of new owners. The questionnaires were sent in advance to each respondent before the individual interview took place so that the respondents had a reasonable chance to familiarize themselves with the subject.

5.4 Analysis and interpretations from the collected data

The analysis is made from the answers given by the respondents and the comments. The three different types of questions are presented in three different tables. The first table displays the analysis from the open questions. The second set of table shows the results from the analysis from the semi-closed questions. The final set of table indicates the result from the analysis made from the closed questions.

Open questions

Table 5:1. General data presentation over question 1, 2, 12, 15, 17, 18, 19 and 21.

Question	Describe briefly (DB)	Not sure (NS)
1.	20	0
2.	20	0
12.	20	0
15.	20	0
17.	16	4
18.	16	4
19.	16	4
21.	20	0

Semi-closed questions

Table 5:2 General data presentation over question 3, 4, 5 and 6.

Question	Describe briefly advantage and disadvantage (DB)	No effect at all/no support at all (NXAA)	Not sure (NS)
3.	19	0	1
4.	16	0	4
5.	16	0	4
6.	15	0	5

Table 5:3 General data presentation over question 11.

Question	No meeting (NM)	1-3 meeting (1-3M)	More than 4 meeting (M4M)	Not sure (NS)
11.	0	13	5	2

Table 5:4 General data presentation over question 13.

Question	Education internal 1-2/Y (EI1-2Y)	Education internal more 3/Y (EIM3Y)	Education external 1-2/Y (EE1-2Y)	Education internal more 3/Y (EEM3Y)	Not sure (NS)
13.	13	3	12	4	4+4

Table 5:5 General data presentation over question 14.

Question	According to ISPS Code requirements (ACR)	More than the requirements in the ISPS Code (MCR)	Not sure (NS)
14.	12	4	4

Closed questions

Table 5:6 General data presentation over question 7, 8 and 9.

Question	Very good (VG)	Good (G)	Poor (P)	Very poor (VP)	Not sure (NS)
7.	8	7	1	0	4
8.*	10%	40%	20%	10%	20%
9.	10	5	1	0	4

. ** Means question answered only by the shipping company and is presented in %.*

Table 5:7 General data presentation over question 10.

Question	Very large effect (VLE)	Large effect (LE)	Little effect (LET)	Very little effect (VLET)	Not sure (NS)
10.	12	4	0	0	4

Table 5:8 General data presentation over question 16 and 20.

Question	Yes (Y)	No (N)	Not sure (NS
16.	4	12	4
20.	1	15	4

5.4.1 The general knowledge and understanding of the ISPS Code from Swedish shipping industry and Swedish port authority

Questions 1, 2, 19, 20 and 21 relate to the general knowledge and understanding of the new maritime security legislation regime including the ISPS Code. **Question number 1** concerning the general opinion of the ISPS Code within the shipping company, their ships and the port authority was that the new maritime security legislation was implemented to 100%. According to the result of the question all 20 respondents answered that their opinion was that the company or the organisation had knowledge and understanding of the new maritime security regime including the ISPS Code. The analysis of the question does not show any indication if there is any different knowledge or understanding between company trading with tankers, general cargo ships, container ships and car carriers. However, the shipping companies trading with tankers comment that the new maritime security regime already had been implemented in the tanker companies through the oil companies' requirements of vetting and the port facilities requirement of safety and security and to prevent an oil spill. In addition, the respondents representing the oil companies comment that they had to change some routines and checklists when the new maritime security regime came into force. When comparing the answers from the respondents, it took longer time to implement the new maritime security regime within the port authority and the shipping company, even if the port facilities varied in size, and some of the shipping companies had fewer ships and employees than some of the port authorities. According to a few comments from the respondents this phenomenon could be derived from the high safety and security culture in the shipping industry especially tankers companies.

Question number 2 deals with the demands and challenges the shipping companies and port authorities have to set for obtaining an effective maritime security policy within the company or the organisation. The general opinion was that the top management has the responsibility to set the requirements and the demands in the

company or the organisation. The general opinion of the challenges to have an effective maritime security policy was to get all personnel educated properly and to have a proper administration to handle this within the company or the organisation. 70 % of the respondents did not feel that the administration within the company or the organisation was properly fit for handling all the administration generated by the new maritime security regime and that it was related to cost and the keen competition within the shipping market. More than 50% of the comments from the respondents answered that one of the large challenges to obtain a maritime security policy was the education of the employees. 80% of the respondents representing the shipping community requested a clearer definition of the responsibility and authority between the Swedish maritime security authorities. 80% of the respondents wanted clearer guidelines from the Swedish maritime authorities when setting up the SSP and PFSP. More than 80% of the answers from the respondents indicate that one of the challenges to keep a robust risk management security system is to have a harmonized maritime security system with Sweden's neighbouring countries. The analysis of the question does not show any indication whether there is any difference in opinion concerning the demands and challenges for the maritime stakeholders to obtain a proper maritime security policy between companies trading in different segments- tankers, general cargo ships, container ships and car carriers - and port authorities.

Question 19 shows that 100% of the respondents in the port and maritime community have developed methods through written routines, instructions and checklists to interpret and measure threats towards the company or the organisation. The result of the analysis also shows that 100% of the respondents use a qualitative method to measure a risk of a threat. The analysis does not indicate any differences between the port and maritime stakeholders in the opinion of question.

Question number 20 specifies that 75% of the respondents had not used the ISPS Code in a real attempt or attacks from terrorism and piratical activities. 5% of the respondents had been threatened and used the maritime security system.

Furthermore, they had good experience that their system had functioned well onboard and with the company CSO and the port facility PFSO. 20% NS is representing the maritime authorities, maritime professionals and maritime industry organisation. The question does not show any differences between commercial port organisations and shipping companies. The analysis shows that all maritime stakeholders are dependent on a well-structured and functioning maritime risk assessment to identify potential risks.

Question number 21 indicates a couple of comments from the respondents concerning improvements of the collaboration between the SSO and the PFSO when the ship is entering the port. In some cases there was no updated information about contact information to their PFSO. Improvements concerning harmonization, guidelines and education of risk assessment process which is included in the SSP and PFSP. More than 80% of the respondents connected to the shipping industry want improvements concerning formal requirements of the education related to maritime security from the Swedish maritime security authorities.

5.4.2 The advantages and disadvantage of the ISPS Code from Swedish maritime stakeholders

Questions 3 and 4 relate to the respondents answer of the advantage and disadvantage of the ISPS Code. **Question number 3** indicates that the general advantage with the new maritime security regime is the increased officially permitted control and access of persons and companies visiting the shipping company, their ships and port facilities. 95% of the respondents answered that the new maritime security regime had affected their activities, both positive and negative. 75% of the respondents answered that the new maritime security regime had benefited them to increase their maritime security onboard their ships. 30% of the respondents also stated that the increased number of drills and training onboard and with company office had increased the awareness and understanding between the office and ship

concerning maritime security. 100% of respondents representing the port authority answered that they had benefited from the new maritime security regime regarding increased safety and security for the personnel working in the port, decreased the number of thefts, increased the number of property damages and decreased the number of accidents and injuries of people not working in the port and port facilities. 70% of the respondents comment that the control and access for the supplier and deliverer within the port facilities and to ships had been improved. The drawbacks were the time-consuming control of the irregular suppliers who only deliver once in a while. 40% of the respondents had delegated the access control to the suppliers. 30% of the redundant respondent belonging to the shipping company and professional and industrial organisations did not note any difference after the new maritime security regime came into force. 10% of the redundant respondents comment that the new maritime security regime involved a lot of bureaucracy and had lead to difficulty for seafarers to go ashore. The question does not indicate any differences between the commercial port organisations and maritime stakeholders.

Question number 4 shows that 100% of the redundant respondents within the shipping industry say that the new maritime security regime had affected their business partners' activities, both positively and negatively. 80% of the respondents answered that the control and access to ships and port facilities had been improved by the new maritime security regime. 100% of the respondents, representing the port authority, answered that they now in a legal way can designate restricted ISPS Code areas. This means increased maritime security in the port facilities and improved working environment for the personnel working in the ports. 30% of the respondents answered that their suppliers had problems with the security checks and as a consequence their ships were delayed. Even 30% of the respondents had extra costs due to these extra delays. 20% of the respondents representing the shipping company have incorporated the access control, routines and instructions in their international safety management system (ISM Code). 20% NS is representing the maritime authorities, maritime professionals and maritime industry organisations. The question

does not show any differences between commercial port organisations and shipping companies.

5.4.3 Management of evaluation the education and drills of the ISPS Code in shipping companies and in the port facilities

Questions 12, 13, 14, 16, 17 and 18 deals with the management of education and drills. According to the answers from the respondents in **question number 12**, 100% of them educated their own personnel through various education and training programmes. A part of the respondents about 30%, have develop their own interactive education and training programmes. The rest of the respondents' company or organisation bought the education and training programmes from different manufactures on the market. 80% of the respondents demands guidelines and instructions concerning the education and training of the ISPS Code. All respondents have education and training programmes for CSO, SSO, PFSO and the rest of the shipping company and the port facilities personnel. The analysis of the question indicates that all maritime stakeholders have a great need to ensure successful education and training among their companies or organisations, which means there are no differences between commercial port organisations and shipping companies.

Question number 13 indicates that 40% of the respondents educate their personnel between one and two times per year or more than three times per year. This is included all employees disregard there position within the company or organisation. 40% of the redundant respondents send their employees to an external company for education and training in issues related to maritime security. No respondents' company or organisation was educated by them selves or send their employees to external education and training courses on refresher courses in maritime security. 100% of the respondent answered that they wait until the authority set it to be mandatory to have refresher courses in maritime security. 8% of the redundant respondents are educated more than three times per year. One of the comments on

these issues is the cost related to the education and the size of the company or organisation. 20% NS is representing the maritime authorities, maritime professionals and maritime industry organisations. All respondents have a basic education and training for new employees. The analysis of the question does not indicate ay differences between port organisations and shipping companies.

Question number 14 indicates that 60% of the redundant respondents' company or organisation has training and drills according to the ISPS Code requirements. 20% of the respondents answered that they have extra exercises and drills in maritime security. The reasons according to the respondents are to improve the cooperation and collaboration between them and the local maritime security authority and the local shipping company and port authority. 20% of the respondents also answered that they want to improve the knowledge and understanding of the employees within the company or organisation. 20% NS is representing the maritime authorities, maritime professionals and maritime industry organisations. The question does not indicate any differences between the maritime stakeholders.

Question 15 concerning the construction of the exercise, is varied between the respondents. However, the resemblance between them is that they all follow the requirements of the ISPS Code. 80% of the respondents, representing the shipping company have included the ISPS Code related drills in the ISM Code training structure and that the ISPS Code drills are one part of the monthly training onboard their ships. The analysis of the question also identifies a need for proper training and drills and that it is vital for both commercial port organisations and maritime stakeholders.

Question number 16 indicates that 20% extended the training and drills with other local maritime security authorities and that 60% of the company or organisation have one larger exercise and drills per year with the company office or the organisation

headquarter. 20% NS is representing the maritime authorities, maritime professionals and maritime industry organisations.

Question number 17 concerning how the feedback from training and drills are handled, 80% of the respondents answered that the company or the organisation's policy is that, after each training a written report is made and distributed within the company or organisation. 90% of the respondents representing the shipping company also have debriefing onboard including the company office after a major exercise. The ISPS Code related drills and exercises are in 65% included in the ISM Code onboard according to the answers from the respondents representing the shipping company. 20% NS is representing the maritime authorities, maritime professionals and maritime industrial organisations. The analysis show the need for structure and standard when reporting lessons learned from exercises. The analysis also shows that there are no differences between commercial port organisations and maritime stakeholders.

The respondents answered with 80% in **question number 18** that all CSO and PFSO had been educated initially when the ISPS Code came into force by an external education company. 20% NS represents the maritime authorities, maritime professionals and maritime industrial organisations. All respondents answered that no CSO and PFSO had been to any refreshment course since the initial education. However, all respondents representing CSO and PFSO within the company or organisation participated at least once a year in some drills or company activities concerning maritime security.

5.4.4 The service and support from the Swedish Transport Agency, Maritime Department concerning issues related to the ISPS Code

Questions 5, 6, 7, 8, 9, 10 and 11, handle the result of the analysis of the service and support given from the Swedish Transport Agency, Maritime Department to the port and maritime stakeholders.

Question number 5, specifies that the support from the Swedish Maritime Administration was satisfactory with 80% in the initial phase of implementing the ISPS Code into the Swedish maritime security risk management. 20% of the respondents were NS.

The answer from the respondents concerning **question 6**, the support and service from the Swedish Maritime Authority now was that 25% experienced that the service and support were better before in the initial phase of the implementation of ISPS Code or NS, and 75% of the respondents experienced that the support and service was satisfactory.

The respondents' answerer to **question 7** was that 40% experienced that the survey and control of CSP, SSP and PFSP was VG. 35% experienced that the control was G from the authority concerning CSP, SSP and PFSP. 5% of the respondents experienced that the control was P from the maritime security authorities. The reason why 5% of the respondents experienced the control P was that they wanted to have stricter operational control and not only a document review. 20% NS represents the maritime authorities. A general analysis of the three questions shows the need for support from the maritime administration. The analysis also indicates that there were no differences between the maritime stakeholders.

Question number 8, only related to the shipping company and the answers from the respondents was varied, 8% experienced that the control was VG, 42% experienced

that the control was G, 25% thought the control was P, 8% thought the control was VP and 17% was NS. The reason for the different experiences concerning poor and very poor control was that foreign authorities interpreted the ISPS Code differently than the Swedish authorities so it became a problem for the CSO and the SSO onboard. 20% of the respondents experienced also that foreign PSC officers did not have sufficient knowledge about the new maritime security system. There were no differences between the different shipping companies concerning the answers.

Overall, in **question number 9**, the respondent experienced that the maritime security authority's turnaround time for issues related to maritime security was VG in 65% of all cases and 25% thought it was G. 5% experienced that it was P due to the fact that turnaround time was too long concerning changes to be approved in the maritime security plan. 20% thought it was NS. There was no difference between shipping companies or port authorities.

Question number 10, nearly 60% of the respondents answered that they had a VLE to create the maritime security plan by them selves and that the authority did not interfered with this work within the company or the organisation. 20% had nearly the same experience and thought that the have a LE of the development of the company or organisations maritime security plan and no particular interference from the authorities in this work. 20% NS represents the maritime authorities, maritime professionals and maritime industrial organisations.

The general opinion on **question number 11** was that 65% of the respondents' had been to meetings with the maritime security authorities and that they experienced that it was satisfactory. 25% had been to more than 4 meetings since the implementation of the new maritime security regime came into force and 10% was NS Their experience was that there were more meetings in the initial phase of the implementation but now there were few meetings. 70% of the respondents demanded more meetings and follow-ups concerning the maritime security from the Swedish

authorities. 90% of the respondents also demanded that the Swedish authority communicated their year of activity concerning issues related to maritime security and the plan of development for maritime security. The analysis of the question did not show any difference between shipping companies or port authorities

5.5 Summary of the results

A broad summary of the analysis of the results reveal that the general opinion from the respondents is that the ISPS Code is generally well–received within the Swedish shipping community to include, among others, shipping companies, port authorities, maritime professionals, and maritime industry organisations. According to the comments from the respondents the level of understanding and knowledge of the ISPS Code is more than satisfactory. However, there are still improvements, suggestions and recommendations to be made for the purpose of improving fine tuning the implementation of the new maritime security regulatory regime including the ISPS Code and to optimize the application of maritime security risk management principles. These are presented in the next Chapter.

CHAPTER 6

6. Concluding discussion

6.1 Discussion and conclusion

The IMO by adopting the new maritime security legislation regime the ISPS Code, has provided a risk management system to bring order in the port and maritime security environment. A well structured and organised maritime security risk management system should support the organisation with a framework and a possibility to have an overview to prevent and minimise threats from terrorists, piratical and other criminal activities.[89] The research clarifies throughout the respondents' responses to the questionnaires and the comments in the individual interviews that there is a need for a port and maritime security system (in particular see especially section 5.4.2 in this dissertation). The research also confirm that there are no differences between the different maritime stakeholders concerning the need for a maritime security system They all need the system to increase the level of maritime security, these are confirmed in this dissertation. However, the only difference the research indicates are that the companies operating tankers implemented the ISPS Code faster than the other shipping companies, which could be derived from the high safety and security culture within these companies (see section 5.4.1, analysis of question number 1 in this dissertation). The research also confirms that the ISPS Code is implemented in the Swedish shipping community as a part of the maritime security risk management system and that there are a general knowledge and understanding of the ISPS Code. However, the research does not indicate the level of the knowledge and understanding though several shipping

[89] Steven Jones, (2006). Maritime security, A practical guide. *Security planning and practice (p175):* The Nautical Institute, London, UK.

companies and port authorities keep track of the results from their own education and training programmes. To get an insight of the level of knowledge and understanding of the ISPS Code every company or organisation has to evaluate the results from education, training programmes and exercises. The Maritime Administration should support the port and maritime security with guidelines for such education and training programmes to assist the shipping community to keep track of the level of knowledge and understanding of the ISPS Code. The research also indicates that the largest challenges to obtain a well functioning port and maritime security are to have proper and relevant education and training programmes for the personnel [90] and an understanding of the meaning of maritime security risk management.

The maritime security risk management system consists of four different elements: assess, evaluate, manage and measure the risks.[91] All four elements are found in the ISPS Code and the framework of the Code also provides the company or organisation to form processes and routines so that everybody working in the company or the organisation knows what to do regarding measures to prevent damages and losses and to minimise the damages and losses in case of an emergency. One of the important elements in the maritime security risk management system is the risk assessment which uses two methods to conduct the assessment: quantitative and qualitative. The research specifies that all the redundant respondents' use a qualitative method to conduct the risk assessment in their SSP or PFSP. There are advantages and disadvantages with both of the methods which are explained in paragraphs 2.7.1 and 2.7.2. However, the use of the two risk assessment methods quantitative and qualitative in a combination with each other with the purpose to avoid all the holes in the "Swiss Cheese"[92] should benefit the maritime security risk

[90] Detlef Nielsen et al. (2005). Maritime security and MET. The ISPS Code as a component of onboard resources in Bayesian analysis (p 218): WIT Press, UK.

[91] Hamilton, (1996). Risk management 2000. *What is risk management (pp68-69):* Studentlitteratur, Lund, Sweden.

[92] Douglas A. Wiegmann and Scott A. Shappell, (2003). *A human error approach to aviation accident analysis Reason's model of accident causation (p 47):* Ashgate Publishing, Ltd., Southampton, UK. These authors explain the Reason's model and his theory which is that accidents occur when there are breakdowns in the interactions among the components involved in the production process.

management system and create an entire picture in a perspective of how the problems related to maritime security best can be solved and how the resources can be used optimally to prevent and minimise action caused by terrorism, piratical and other criminal activities.

The research also identifies several comments and experiences from respondents concerning the advantages and disadvantages with the new maritime security risk management system, which are vital for the future development and administration of the ISPS Code. The ISPS Code is one of the fastest implemented legislation in the history of IMO. It took only 18 months from the approval of the amendment to SOLAS 74 until it entered into force.[93] However, such fast implementation has both advantages and disadvantages as indicated in the research. The major advantages of the enforcement of the Code are that it has increased the control of access to port facilities and onboard ships. It has also decreased theft and vandalism in port facilities and onboard ships. These advantages demonstrated by the ISPS Code are key elements to identifying risks. Risk identification is essential to ensuring that the maritime security risk management system functions well.[94] However, the fast implementation in the initial phase led to discussions and questions as to how the different responsibilities of the Code should be interpreted between different authorities, and between the authorities responsible and the port and maritime community; how the risk assessment should be identified and how it should be conducted in best practise; how the education should be established; how the information concerning changes in the different maritime security levels should be carried out; and how the new system should affect seafarers onboard ships and the personnel working in the port facility or with the port facilities business partners.

These minor breakdowns in the different layers transfer throughout the whole process until the end of it with a result of a major accident like holes in a Swiss cheese. This process can also be identified with the risk triangle which is explained in section 2.5 of this dissertation. Reason explains the model in greater detail in his book, Reason, J (1990). Human error: Manchester, UK.

[93] IMO, (2002). IMO adopts comprehensive maritime security measures: IMO, London, UK.

[94] Julio Espin-Digon et al. (2008). Lloyd's MIU handbook of maritime security. *Strategic risk management process (p 337-338):* CRC Press, UK.

The research indicates that such risk analysis was carried out during the formal meetings between the top manager of the maritime stakeholders and the top manager of the Maritime Administration. To solve operational questions concerning the implementation of the ISPS Code there were several meetings between PSC officers and the shipping companies' SSO and the port facilities' PFSO. However, the research does not indicate that any formal standard methods were used to identify, evaluate and make follow-ups of the risk and the obstacles generated when the ISPS Code was implemented. If maritime authorities had used a formal project standard, plan-do-check-act (the PDCA), it would have given the authorities and the maritime stakeholders a much-needed system for quality assurance in the ISPS Code implementation process.[95] This means that the parts in the Code which are open for interpretation had been clearly identified and discussed before it went to the next phase in the implementation of the ISPS Code. In order to increase chances for the success in intervening phase the research clearly identifies the need for a harmonised guideline to assist the authority in the work of supervising and controlling the maritime security system and to assist the maritime stakeholders in their implantation and adoption of future developments and future demands of the ISPS Code.

Furthermore, to clearly understand and comply with the requirements in the ISPS Code according to the part dealing with education, the company or the organisation has to have a well functioning education and training programme and have consistent drills and exercises.[96] The research shows that there is a varied amount of different education and training courses within the market. One of the dilemmas from the maritime stakeholders has been to identify the right training and education for the personnel working in the port and maritime security environment. One example of the dilemma is the education and training of an internal auditor within the company or organisation and how to conduct such internal audit for optimal results. Therefore,

[95] Vinh V Thai, (2009). Effective maritime security: conceptual model and empirical evidence: Maritime Policy and Management, Australia

[96] Steven Jones, (2006). Maritime security, A practical guide. *Security training and education (pp 131-132):* The Nautical Institute, London, UK.

there is a need to have support and harmonised guidelines at least within the EC concerning the education and training for the different positions stated in the ISPS Code such as SCO, SSO, PFSO and all other personnel involved in maritime security issues.

The support of the maritime security authority is vital both in the initial implementation phase and further on in the administration and development of the ISPS Code.[97] The result from the research indicates that the Swedish Transport Agency, Maritime Department has been cooperating well with the maritime stakeholders within the whole implementation process of the ISPS Code. The support and service in issues concerning maritime security have been given within a reasonable period of time and to the maritime stakeholders' satisfaction. However, the research does not indicate any joint database or other joint documentation system providing a complete picture of the experience from the different questions solved and solutions to problems which occurred in the initial phase of implementing the Code and in the present administration of the Code. This information is vital to the development of the different parts in the ISPS Code, especially for the development of the education and training programme.

The summary of the discussion and the analysis of lessons learned from the implementation of the ISPS Code have led to recommendations and suggestions to improvement of the maritime security system. The result of this is presented in the section that follows.

6.2 Recommendations

The international maritime security legislation regime is in general based upon UNCLOS, SUA and the 2002 security amendments to SOLAS 74. To gain and

[97] Nielsen et al (2005). Maritime security and MET. The ISPS Code as a component of onboard resources in Bayesian analysis (p 218): WIT Press, UK.

maintain knowledge and understanding of these legislations, there is a need for proper and consistent education and training programmes. To obtain this the research indicates the need for the Swedish Maritime Administration to produce and develop guidelines for such an education and training programme. This should include the positions mentioned in the ISPS Code including guidelines for education of internal auditors and also including refresher courses and further education of personnel dealing with maritime security related issues. The authority should also stipulate the time limit between the basic course and the refresher courses. The author suggests five years between the two mentioned courses. Additionally, the holder of an approved certificate should renew it in accordance with requirements for other additional and special certificates issued according to the STCW Convention.

In the interest of promoting the improvement of education, it is recommended that the authority together with the maritime stakeholders create and develop a national database for reporting experience and occurrences similar to the "Insjö"[98] reporting system used by the Swedish shipping industry for reporting near misses, incidents and accident. The research also identifies weaknesses in the conduct of a proper risk assessment using an exclusively qualitative method which is explained in section 2.7.1 and 2.7.2. To improve and further optimise the maritime security risk management system, it is suggested that the Maritime Administration develop guidelines for using risk assessment using a combination of the two methods: qualitative and quantitative. This will ensure maximal benefit in preventing and minimising the actions related to terrorism, piracy and other criminal activities. The use of a combination of the two methods should support the authority and the maritime stakeholders when making vital decisions in the maritime security environment. In addition, one of the important findings is the lesson learned from the

[98] Shipping community and the Swedish Maritime Administration, "Insjö" (Shipping community and the Swedish Maritime Administration, 2001), http://www.insjo.org/Startsida/Startsida.asp Insjö is developed by the shipping community together with the Swedish Maritime Administration. The main purpose of the system is to share experience and information from near misses, incidents and accidents involving ships. The reporting is voluntary and the database is used to create knowledge and understanding of the human factors errors in a purpose to higher the standard in the education of maritime officers.

short timetable for implementation of the Code. This means if the authority and the maritime stakeholders in the future face the same challenges in implementing a complex system like the ISPS Code in a short time period the recommendation and suggestion is that the authority create a structure that applies well-established project management principles. Such would include in the initial phase a pilot study of the affected areas and a risk analysis to identify and clarify the risks and the consequences to implement such system. This should ensure quality and trustworthiness when implementing such complex systems as the ISPS Code. Furthermore, the Maritime Administration must improve the communication and information flows to the maritime stakeholders concerning issues related to maritime security. This can easily be solved through an Internet based document laying out the authority's annual maritime security work programme and making it available to the maritime stakeholders.

Finally, the research shows a number of effects that have caused delays within the maritime transport and supply chain resulting in increased costs and loss of goodwill in the business as well as the denial of shore leave to seafarers. However, the research also shows that the ISPS Code is a complex legislation to implement because it affects a large number of different elements in the shipping business, and requires increased levels of assess control which has led to an increased maritime security environment. This also shows the positive effect the new maritime security legislation regime has given the shipping community in preventing and minimising the possibilities of an attack from terrorists or pirates. The research does not consider the cost or loss of goodwill if such attacks occurred in the shipping business. Considering this, further research is necessary within the subject of the maritime security environment.

6.3 Further research

The implementation of the ISPS Code has necessitated the establishment of a special administrative system to handle all the issues related to maritime security both for the authority and the maritime stakeholders. Further research is recommended in areas that deal with the administration of the system with the purpose of minimising the work load onboard and making bureaucracy more effective then dealing with issues concerning maritime security. It is suggested that the research investigate whether the different authorities can combine their reporting systems into a unified database, so that the ship only has to report into one system from which the different authorities could then collect the specific need of data they require. Further effort is also needed cost-benefit analysis looking into areas concerning cost related to the ISPS Code and the negative cost of not implementing such system for the shipping community. Further investigation and research are also needed in areas concerning the best practice to control the supply chain of maritime transport and the effect of this control both in cost for the industry and the benefits of it.

This dissertation has presented the results of an investigation into the effects of the ISPS Code on ship and port facility security and how, in the Swedish context, the people working in these two different activities have interpreted the security level before and after implementation of the ISPS Code. The discussion and conclusions presented can hopefully be useful in any effort related to the future development of the ISPS Code implementation in Sweden. This research has endeavoured, obviously within its restricted parameters and limitations, to contribute to clarifying levels of awareness and comprehension within shipping companies and port authorities covered by the Code. This can hopefully be used not only in improving education and training programmes for maritime professionals – shipboard crew, port facility personnel, ISPS Code inspectors and other persons involved in maritime security – but also in contributing to a more secure maritime environment based on the optimal implementation of the ISPS Code.

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Appendix A

A. Questionnaires concerning shipping company

Questionnaire ISPS Code

Shipping Company ☐

Company Office ☐

Ship ☐

Position:

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1) During 2004 the ISPS Code came into force within the shipping business, what is the general opinion on ISPS Code within the company/ship?

☐ Please, describe briefly:

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☐ Not sure, comments:…..……..…..……..……...……

2) What are the constraints and challenges affecting effective maritime security policy within the company?

☐ Please, describe briefly:

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☐ Not sure, comments:…..……..…..……..……...……

3) How has the ISPS Code affected the company's own business/ship's crew?

☐ Please describe briefly the advantage and disadvantage:

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☐ No effect at all, comments:...…..……..……...….....

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☐ Not sure, comments:.....……..…..……

4) How has the ISPS Code affected the company's business partners, suppliers to the ship and port facilities connected to the company's ship's?

☐ Please describe briefly the advantage and disadvantage:

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☐ No effect at all, comments ……...……..……

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☐ Not sure, comments:.....……..…..……

5) What support has the shipping company/ship's SSO been given by the maritime administration during the implementation of the ISPS Code?

☐ Please describe briefly the advantage and disadvantage:

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☐ No support at all, comments:…....……..……

……...……

☐ Not sure, comments:.....…...……

6) What support was the shipping company/ship's SSO been given now from the maritime administration on issues concerning the ISPS Code?

☐ Please, describe briefly:……..……
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☐ No support at all, comments:..…….....

☐ Not sure, comments:.....……..……..
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7) What is the company's/ship's SSO opinion about the control of the security plan during a survey or a PSC carried out by the SMA?

☐ Very good, comments:……...
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☐ Good, comments:……..…..……
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☐ Poor, comments:……...
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☐ Very poor, comments:…..…..…..……..…..……...
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☐ Not sure, comments:.....……
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8) What is the company's/ship's SSO opinion about the control of the security plan onboard during a survey or a PSC in other countries maritime administrations?

☐ Very good, comments:...…….…….
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☐ Good, comments:……..…..……
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☐ Poor,
comments:…….……
..……

☐ Very poor,
comments:…….……..…….....
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☐ Not sure, comments:.....…….
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9) What is the company's opinion about the time to handle the ISPS Code related issues at the maritime administration?

☐ Very good, comments:……
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☐ Good, comments:……..…..……..
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☐ Poor, comments:……..…….
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☐ Very poor, comments:…….…..…….....
……...……..

☐ Not sure, comments:.....……...
……...……..

10) How large effect in a co-operation with the maritime administration did the company have when setting up the security plan?

☐ Very large effect, comments:...……...……..……
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☐ Large effect, comments:…….…..……..
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☐ Little effect, comments:…...……
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☐ Very little effect, comments:…..…….…….....
……...……..

☐ Not sure, comments:.....……...
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11) How many meetings has the company participated in during the implementation of the ISPS Code with the maritime administration?

☐ No meetings at all, comments:……
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☐ 1 - 3 meetings, comments: …..…..……..
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☐ More than 4 meetings, comments:……
..……...……

☐ Not sure, comments:.....……...
……...……..

12) How many levels of education do the company have related to the ISPS Code?

☐ Please, describe briefly:
..……...……

☐ Not sure, comments:……..……...……

13) How often does the education programme take place in the company/ship and who has been the assessor?

☐ Education programme is carried out internal by the company 1 – 2 times per year, comments:

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☐ Education programme is carried out internal by the company more than 3 times per year, comments:

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☐ Education programme is carried out by a external company 1 – 2 times per year, comments:

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☐ Education programme is carried out by a external company more than 3 times per year, comments:

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14) How many drills are conducted per year within the company/ship?

☐ According to the demands in the ISPS Code, comments:

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☐ More than the demands in the ISPS Code, comments:

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☐ Not sure, comments:…..……..…..……...……

15) How is the scenario of drills and exercises constructed within the company/ship?

☐ Please, describe briefly:

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☐ Not sure, comments:…..……..…..……...……

16) Does the company/ship arrange/participate in drills and exercises with other stakeholders or other authorities? If the answer is yes: how often and with whom?

☐ No,
comments:……...……..……..

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☐ Yes, please, describe briefly with who and how often it has occurred?

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☐ Not sure, comments:…..……..……..……...……

17) How does the company/ship handle the feedback from drills and exercises related to the ISPS Code?

☐ Please, describe briefly:

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☐ Not sure, comments:……

18) How often does the company have education courses for the CSO?

☐ Please, describe briefly:

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☐ Not sure, comments:……

19) How does the company interpret the ISPS Code definition of threat and how does the company measure it?

☐ Please, describe briefly:

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☐ Not sure, comments:……

20) Has the company been threatened according to the ISPS Code definition of terrorism, piratical and other criminal activities?

☐ No, comments:.....……..……
..……...

☐ Yes, please, describe briefly the experience of it?
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☐ Not sure, comments:…..……...……..……...……

21) Kindly give any more comments or views about this questionnaires:

☐ Please, describe briefly:
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☐ Not sure, comments:…..……..…..……...……

Appendix B

B. Questionnaires concerning port authority

Questionnaire ISPS Code

Port Facility ☐

Position:

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1) During 2004 the ISPS Code came into force within the shipping business, what is the general opinion on the ISPS Code within the organisation?

☐ Please, describe briefly:

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☐ Not sure, comments:…..……..…..……..……...……

2) What are the constraints and challenges affecting effective maritime security policy within the organisation?

☐ Please, describe briefly:

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☐ Not sure, comments:…..……..…..……..……...……

3) How has the ISPS Code affected the organisation's own business?

☐ Please describe briefly the advantage and disadvantage:

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☐ No effect at all, comments:...…..……..……...….....

……...……

☐ Not sure, comments:.....……..…..……

4) How has the ISPS Code affected the organisation's business partners, suppliers to the ship and port facilities connected to the ships?

☐ Please describe briefly the advantage and disadvantage:

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☐ No effect at all, comments ……...……..……

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☐ Not sure, comments:.....……..…..……

5) What support has the shipping organisation /PFSO been given by the maritime administration during the implementation of the ISPS Code?

☐ Please describe briefly the advantage and disadvantage:

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☐ No support at all, comments:…....……..……

……...……

☐ Not sure, comments:.....…….……

6) What support has the organisation/PFSO been given now from the maritime administration on issues concerning the ISPS Code?

☐ Please, describe briefly:……..……

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☐ No support at all, comments:..…….....

☐ Not sure, comments:.....……..……..

……...……

7) What is the organisation's/PFSO's opinion about the control of the security plan during a survey or a PSC carried out by the SMA?

☐ Very good, comments:……...

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☐ Good, comments:……..…..……

……...

☐ Poor, comments:…….....

..……

☐ Very poor, comments:…..…..…….…..……...

……...

☐ Not sure, comments:.....……

……...

8) What is the organisation's opinion about the time to handle the ISPS Code related issues at the maritime administration?

☐ Very good, comments:……
..……

☐ Good, comments:……..…..……..
……....

☐ Poor, comments:……..…….
..……...……

☐ Very poor, comments:…….…..…….....
……...……..

☐ Not sure, comments:.....……...
……...……..

9) How large effect in a co-operation with the maritime administration did the organisation have when setting up the security plan?

☐ Very large effect, comments:...……...……..……
..……...

☐ Large effect, comments:……..…..……..
……....

☐ Little effect, comments:.…...…….
..……...……

☐ Very little effect, comments:…..……..…….....
……...……..

☐ Not sure, comments:.....……...
……...……..

10) How many meetings has the organisation participated in during the implementation of the ISPS Code with the maritime administration?

☐ No meetings at all, comments:.…….
..……...

☐ 1 - 3 meetings, comments: …..…..……..
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☐ More than 4 meetings, comments:……
..……...……

☐ Not sure, comments:.....……...
……...……..

11) How many levels of education does the organisation have related to the ISPS Code?

☐ Please, describe briefly:
..……...……

☐ Not sure, comments:……..……...……

12) How often does the education programme take place in the organisation and who has been the assessor?

☐ Education programme is carried out internal by the company 1 – 2 times per year, comments:

……...……...……

☐ Education programme is carried out internal by the company more than 3 times per year, comments:

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☐ Education programme is carried out by a external company 1 – 2 times per year, comments:

..……

☐ Education programme is carried out by a external company more than 3 times per year, comments:

……

13) How many drills are conducted per year within the organisation?

☐ According to the demands in the ISPS Code, comments:

……..……...…….……

..……

☐ More than the demands in the ISPS Code, comments:

…..……...……

……..……

☐ Not sure, comments:…..……..…..……...……

14) How is the scenario of drills and exercises constructed within the organisation?

☐ Please, describe briefly:

..……...……

……

……

……

☐ Not sure, comments:…..……..…..……....……

15) Does the organisation arrange/participate in drills and exercises with other stakeholders or other authorities? If the answer is yes: how often and with whom?

☐ No,
comments:……...……..……..

……....

☐ Yes, please, describe briefly with who and how often it has occurred?

....……

……..…..……..….

☐ Not sure, comments:…..……..……..……...……

16) How does the organisation handle the feedback from drills and exercises related to the ISPS Code?

☐ Please, describe briefly:

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☐ Not sure, comments:……

17) How often does the organisation have educations for the PFSO?

☐ Please, describe briefly:

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☐ Not sure, comments:……

18) How does the organisation interpret the ISPS Code definition of threat and how does the organisation measure it?

☐ Please, describe briefly:

……

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……

☐ Not sure, comments:……

19) Has the organisation been threatened according to the ISPS Code definition of terrorism, piratical and other criminal activities?

☐ No, comments:.....……..……

..……...

☐ Yes, please, describe briefly the experience of it?

…….....

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☐ Not sure, comments:…..……...……..……...……

20) Kindly give any more comments or views about this questionnaires:

☐ Please, describe briefly:

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☐ Not sure, comments:…..……..…..……...……

Appendix C

C. Results and comments from the questionnaire used in the survey

C.1 Introduction

The respondents representing the shipping community (tankers, container ships, general cargo, car-carrier and passenger ships), port authority, professional and industrial organisation and the Swedish maritime authority have given the inputs to the questionnaire. The twenty-one questions including question 8 which is only addressed to the shipping companies are the foundation in the survey and the result and comments from that are presented in this appendix. The choice of the respondent was made randomly and with a wide circulation with the purpose of collecting a large data of as varied opinions as possible to get a representative value for the survey. To get the optimal result of the questionnaire and to clear out misunderstanding concerning the questionnaire all respondents have also been interviewed individually.

C.2 Feedback and comments from the respondents

All data and parts of the comments from the twenty-one questions and the individual interviews are presented in this section in its entirety. Each question is presented in a figure which shows the total result of the analysis of that particular question. All the respondents' comments are connected to each particular question. The result of the analysis was designed and structured so that the figures are presented in percent of the result of what all respondents have given for answer.

Q1. During 2004 the ISPS Code came into force within the shipping business, what is the general opinion on ISPS Code within the company/ship/organisation?

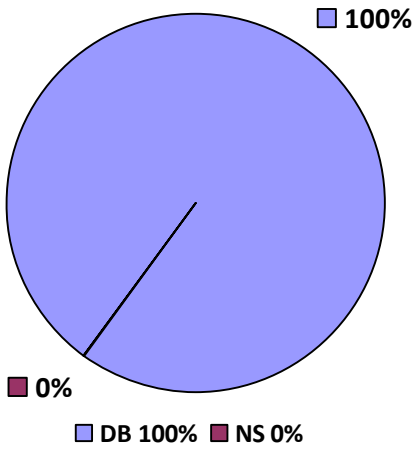

Figure C.1. Question number 1, presentation of data.

COMMENTS

- The general opinion is that is a good thing and in general it had been accepted within the maritime stakeholders and the shipping industry.
- The general opinion in the port is that the Code is well accepted, but it cost money and is time consuming.
- It is not so large changes for us working in the Tanker business.
- The wetting and PSC is more time consuming and the ISPS Code.
- ISPS Code is good though it have increased the control of access in the port and in the ship.
- It is about time that we onboard have the legal instrument to control and check people coming onboard.
- Within our company we have a very user friendly data system to file people coming onboard and it is no problem to educate and to run it and we have only one system for all our ships.

- We have had increased security onboard and better routines to check refugee and stowaways, which have led to decreased cost for the company. Otherwise the company has to pay for this type of people.
- We only see improvements with the new legislation to protect the port facilities against criminals and terrorists.
- The ISPS Code is an empty gesture and a waste of effort.
- It does not harmonize with the rest of national legislation concerning maritime security.
- Nothing new with this legislation, we have had this for many years.
- The Code has an obtuse angle and it is too much bureaucracy.
- The thing which can be improved is the pre-arrival information from the port authority, which is coming and visiting the ship while in harbour.

Q2. What are the constraints and challenges affecting effective maritime security policy within the company or organisation?

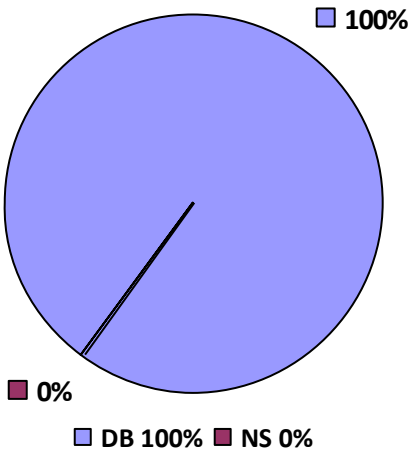

Figure C.2. Question number 2, presentation of data.

COMMENTS

- The company only has one system a QMS which is the framework and it contains everything, process, routines, instructions and checklist.
- The company has consistent review and follow-ups of the safety and security system.
- That the organisation has adopted a good safety and security culture.
- That the authority and the people working in the company understand the differences between safety and security.
- That the cooperation between the SSO and PFSO is proper established when the ship is in harbour.
- That there is a proper education of ISPS Code available on the market and that it is controlled and supervised by the maritime authority.
- When the company do the risk assessment process and routine we thought in terms that the ship always should be seen like a preventive threat and a bomb. Out of this we made the risk assessment process.
- The organisation has better control of access to the different port facilities now.
- The ISPS Code system is time consuming and cost a lot of money to administrate. But we do not want any incidents or attracts though it destroy our reputation.
- One of the largest challenges the organisation had have is the education and the contract with Security Company and to clear out for them what the purpose of ISPS Code.
- The maritime authority must increase their awareness and knowledge concerning cost and how the shipping business is function in a operational way.
- The maritime authority must increase their awareness and knowledge of how the maritime transport supply chain functions and operates.

Q3. How has the ISPS Code affected the company's own business/ship's crew/organisation?

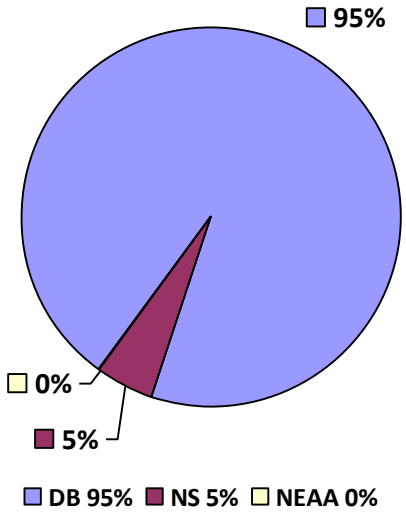

Figure C.3. Question number 3, presentation of data.

COMMENTS

- It is more time consuming now than before, even if the company always consistent worked with security related issues.
- More paperwork for the office and the ships officer and captain.
- Difficulties for the ship crew to go ashore not so much in Sweden but we have had troubles in foreign countries.
- It is very good that the port authority now have to give the captain onboard information in advance of people coming onboard.
- Too much information to handle onboard and for the company, it had been better if we only had to report in one system to the authority.
- It is not easy to motivate the crew when the SSP is classified, this should be semi-classified instead.
- In some foreign port the crew has been treated like criminals, which is not the purpose with the Code.

- To improve the share of information the maritime authority should use exciting system ship reporting system then can the port by them self take necessary information without disturbing the ship or its company.
- Our general opinion is that there are more law and order in the port facilities now than before.
- The system generates large logistic cost for our company.

Q4. How has the ISPS Code affected the company's business partners, suppliers to the ship and port facilities connected to the company's ship's/organisation?

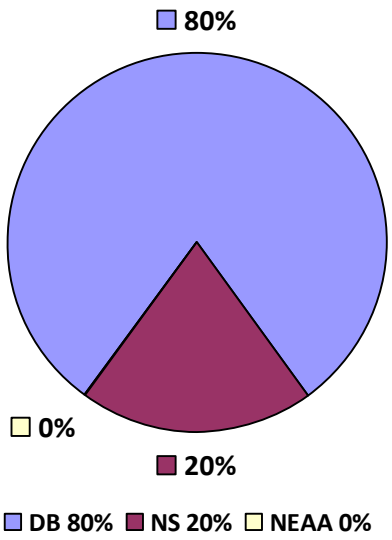

Figure C.4. Question number 4, presentation of data.

COMMENTS

- It is difficult for the ship crew to do document review of the gods and supply coming to the ship. Often is the document written in local language and no English is available. Therefore this issue have to be harmonized in every country.

- To much different standard in the authority processes and routines when they check suppliers especial the suppliers which come irregular for maintenance on the ships equipment is there problems.
- We have lost some of our suppliers due to the increased cost for them so we had to change, which had led to an increased cost for us.
- Too much different interpretation of the Code depending in what port the ship entering and too much interpretation between PSC officers and this includes Sweden. The authority should use a QM system to sort this thing out and to have guidelines and a harmonised vision on this matter.
- We need more information from maritime authorities to give our business partners.

Q5. What support has the shipping company/ship's SSO/PFSO been given by the maritime administration during the implementation of ISPS Code?

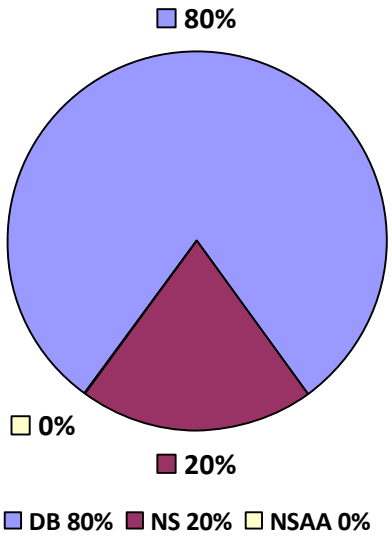

Figure C.5. Question number 5, presentation of data.

COMMENTS

- Everything you can imagine, very good.
- In the beginning it was more difficult nobody really know how to do it, but the authority had given all the there experience they had and have.
- An ok advice then the organisation had asked for it.
- Very good dialog with the SMA in the implementation phase and it still is a very good one.
- If the authority has a QM system it would be easy for them to write down different interpretations, now in our opinion it is up to the local survey officer to decide and this is base on subjective judgement.
- In other countries the police do the risk assessment. In our case the organisation need more support and education from the maritime security authority to handle this issue. This is the most vital thing in the SSP and for the country's maritime security risk management plan or the country's contingency plan.
- More guidelines and instructions from the maritime authority's so the maritime community know that they do the right things.
- In a central level it is jumbled, but it is very good in the local level in the district.

Q6. What support has the shipping company/ship's SSO/PFSO been given now by the maritime administration on issues concerning the ISPS Code?

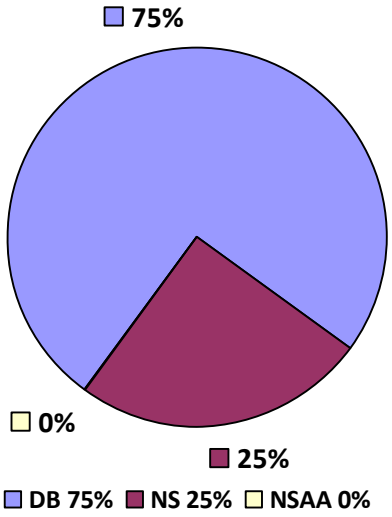

Figure C.6. Question number 6, presentation of data.

COMMENTS

- They have more experience now and give always good support.
- There still missing information concerning of transfer of threats from one business to another business. An example is a threat transferred from road to sea.
- Due to the denial letting seafarers go ashore it could for sure effect the future recruitment of them. This is negative in the shipping business, which already face this problem.

Q7. What is the company's/ship's SSO/PFSO opinion about the control of the security plan during a survey or a PSC carried out by the maritime administration?

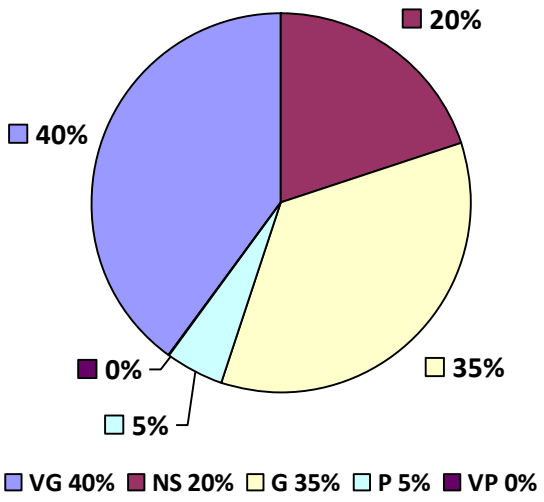

Figure C.7. Question number 7, presentation of data.

COMMENTS

- It is good but the knowledge about ISPS Code is various depend on which inspector doing the inspection or the survey. To solve this authority should establish a QM system with a common definition of the Code.
- It is poor and the knowledge have to be improved concerning the legislation, often we in shipping industry know more.

Q8. What is the company's/ship's SSO opinion about the control of the security plan onboard during a survey or a PSC in other countries maritime administration?

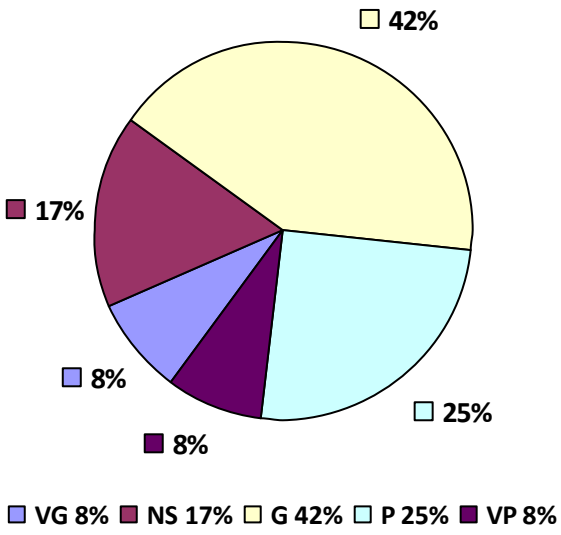

Figure C.8. Question number 8, presentation of data.

COMMENTS

- SMA has been very flexible and reasonable based on common sense and best practise.

Q9. What is the company's or organisation's opinion about the time to handle the ISPS Code related issues at the maritime administration?

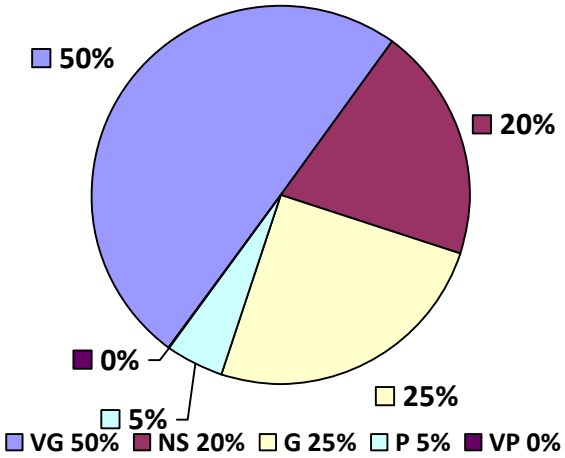

Figure C.9. Question number 9, presentation of data.

COMMENTS

- Good dialog between the company and SMA, because it is based on common sense and best practice for both of us.
- In general it is good, but we miss some kind of advance notification it would be good to have this so we can make plan for re-investment or to prepare education for our employees.
- It is in general good but in completed questions it takes time to get an answer. The authority as not enough resources to do the administration and make decisions. They need more people.

Q10. How large effect in a co-operation with the maritime administration did the company or organisation had then setting up the security plan?

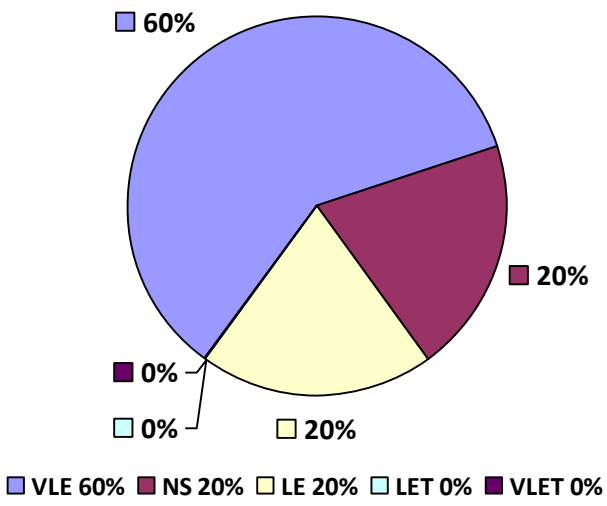

Figure C.10. Question number 10, presentation of data.

COMMENTS

- A good dialog with SMA based on common sense and best practice. The Swedish inspectors do a very good work and are very high qualified in the subject.

Q11. How many meetings has the company or the organisation participated in during the implementation of the ISPS Code with the maritime administration?

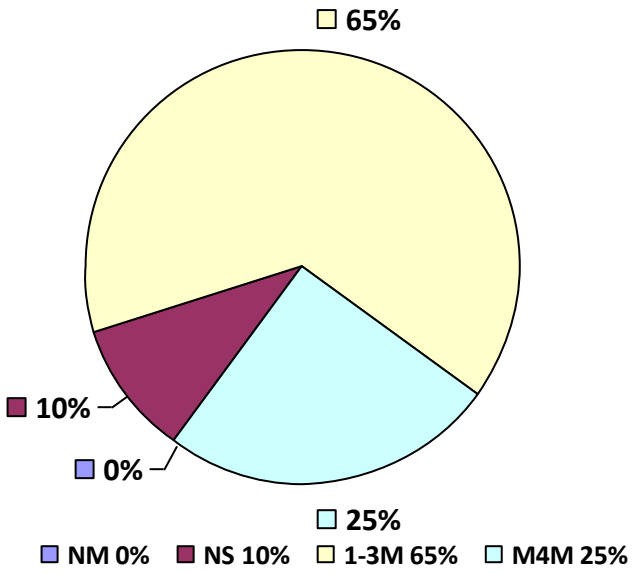

Figure C.11. Question number 11, presentation of data.

COMMENTS

- It was good in the initial phase when the Code was implemented but now it is to fewer meetings. More meetings and that the authority is in charge of them.
- It was good in the beginning but we miss the central meetings now to discuss the future of ISPS Code.
- The maritime business need more assistance from the maritime authorities concerning doing analyses of the threats surrounding world of the maritime community.

Q12. How many levels of education does the company or the organisation have related to the ISPS Code?

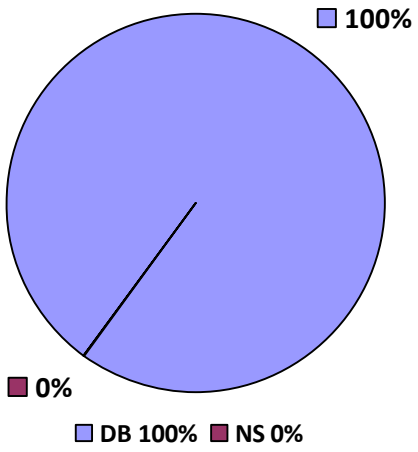

Figure C.12. Question number 12, presentation of data.

COMMENTS

- The company have three levels, CSO, SSO and other personnel. The company use computer based education from external company.
- The organisation has three levels, PFSO, other internal personnel and suppliers and other external personnel who have access to the port facilities.
- The shipping community need guidelines and a harmonisation of the education in maritime security from the authority.
- The organisation uses the education from umbrella organisation Swedish ports.

Q13. How often does the education programme take place in the company/ship/organisation and who has been the assessor?

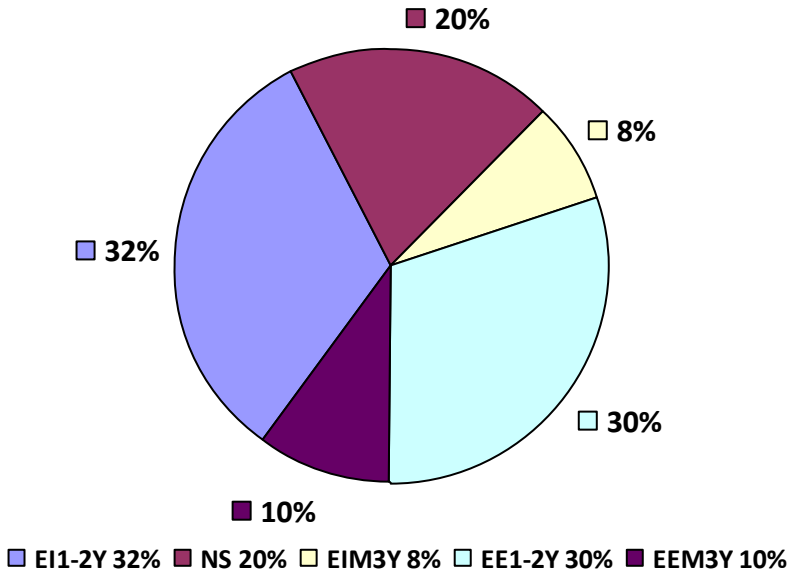

Figure C.13. Question number 13, presentation of data.

COMMENTS

- The company send CSO and SSO on external courses to be educated in security and other personnel we educate by our self. We also send personnel who are becoming internal auditor to courses, but we use the ISM Code courses.
- The company has continuously education and training of the personnel working for us.

Q14. How many drills are conducted per year within the company/ship/organisation?

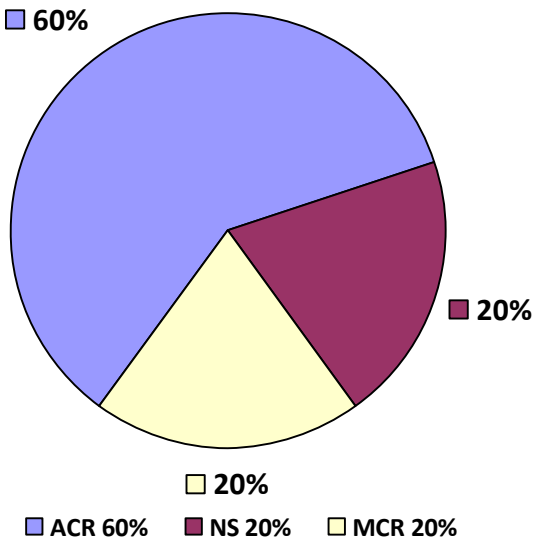

Figure C.14. Question number 14, presentation of data.

COMMENTS

- According to the requirements in the ISPS Code.
- The company have built in the requirements from ISPS Code into the demands from the International Safety Management (ISM Code).

Q15. How is the scenario of drills and exercises constructed within the company/ship/organisation?

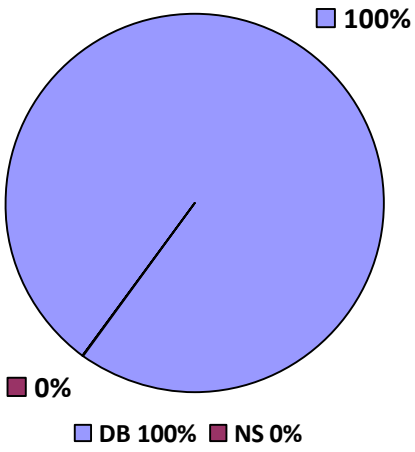

Figure C.15. Question number 15, presentation of data.

COMMENTS

- According to the ISPS Code requirement.
- The company have improved the drills according to the new demands from the Code. We have now better evacuation drills with search and rescue.
- The company have expended the drills also included how fast the ship can leave port which is also valuable in case of emergency due to strong wind force.

Q16. Does the company/ship/organisation arrange/participate in drills and exercises with other stakeholders or other authorities? If the answer is yes: how often and with whom?

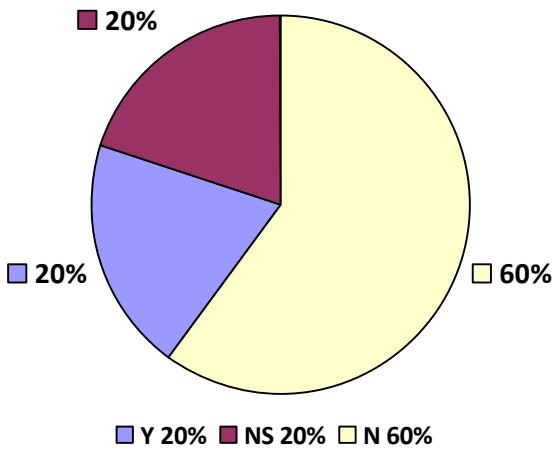

Figure C.16. Question number 16, presentation of data.

COMMENTS

- The organisation also have drills with local police a, local coast guard and local military force.
- The company also have drills with the Security Company.

Q17. How does the company/ship/organisation handle the feedback from drills and exercises related to the ISPS Code?

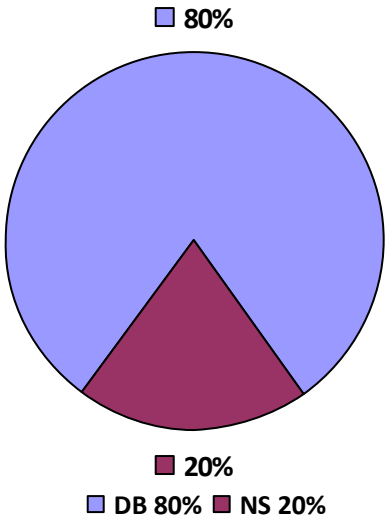

Figure C.17. Question number 17, presentation of data.

COMMENTS

- Through debriefing after a training programme and after a drill. It is always a written report from SSO to the CSO and then company management make a review of it and give feedback to all ships within the company. It is in our QM system.
- The company have regular meetings with almost all captains involved with a fixed agenda. The agenda contain working environment, ship environment and improvement of handling cargo and other environment related issues.

Q18. How often does the company or the organisation have education courses for the CSO/PFSO?

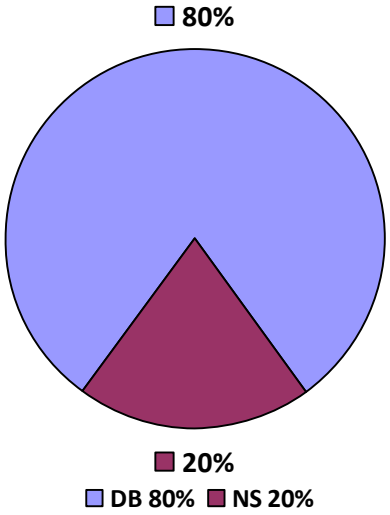

Figure C.18. Question number 18, presentation of data.

COMMENTS

- Then there is a need for it. An example is the there is a new CSO in the company.
- Through education over seas, through drills and training with ships and education together with the maritime security authority within Sweden.

Q19. How does the company or the organisation interpret the ISPS Code definition of threat and how does the company or the organisation measure it?

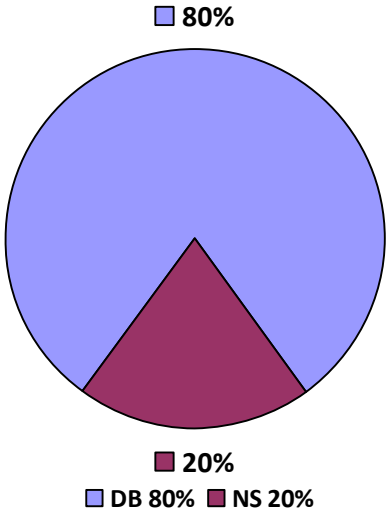

Figure C.19. Question number 19, presentation of data.

COMMENTS

- The company have defined the terminology of the word and it is written in the SSP. It is up to the CSO and SSO and their judgment to measure it.
- Company need more support from authority to educate in risk assessment, though it is a difficult thing to do.
- The organisation does a qualitative risk assessment and it is based on decision from PFSO.
- It is defined in SSP which contain routines, instructions and checklists.

Q20. Has the company or the organisation been threatened according to the ISPS Code definition of terrorism, piratical and other criminal activities?

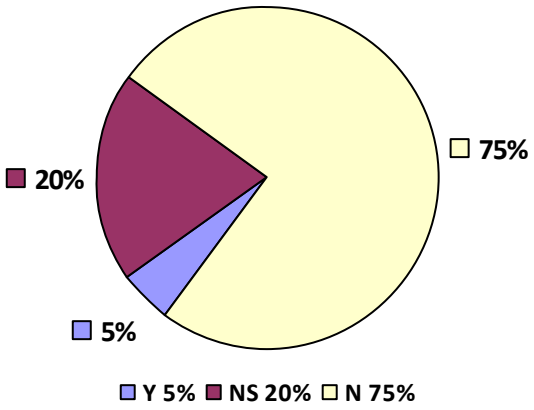

Figure C.20. Question number 20, presentation of data.

COMMENTS

- Yes, and we use the ISPS Code to treat it and we had good experience of that in this case.

Q21. Kindly give any more comments or views about this questionnaire:

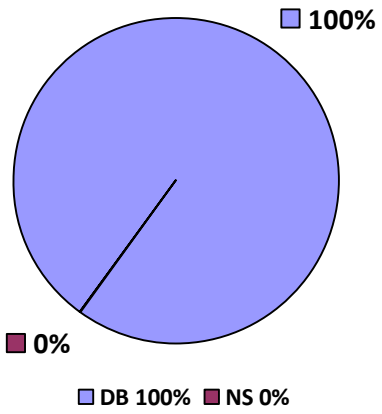

Figure C.21. Question number2 1, presentation of data.

COMMENTS

- Use the VTS to inform the maritime security level in Sweden to the ship.
- Better information which authority how is in command then setting the maritime security level and give feedback when change it.
- The maritime security authority should give an annual report of the security related activities so that the maritime stakeholders now and is updated what is happen in the issue. Better operational control of the SSP, not only a review.
- A guidelines and harmonisation from the maritime authority in the parts of the Code which is open for interpretation.
- Better understanding and awareness from the authority that the ship often gives the responsibility to a ship agent to hand over information that is mandatory and sometime it is not the fault of the ship when there is something wrong with it.
- Improve the national legislation on issues concerning ships who is placed on a ISPS quay for a long time.
- To improve the system the maritime authority have to do more operational controls and if we have any more of this type of new complex legislation the authority have to make first a project of it to implement it properly. There everybody in the maritime industry can read the purpose and goal with port and maritime security
- There is a need to have a chart over the National Police Board plan, SMA and Swedish Coast Guard organisation for the maritime security issues.
- More information from the maritime authority's how the threatening picture is against Sweden and in other countries concerning maritime security.
- More training and drills together with MRCC, maritime authority's and the maritime stakeholders, in a purpose to check the SSAS system and that the ISPS process and routines is function. Shipping community has very high safety and security culture and we have lived with SOLAS since the tragic loss of Titanic.