Combined Joint Operations from the Sea
Centre of Excellence

Centre of Excellence for
Operations in Confined and Shallow Waters

Maritime Security Conference 2012 Proceedings
&
Maritime Security Conference Series Analysis
Report

Norfolk - Kiel

2013

Combined Joint Operations from the Sea
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Operations
in
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Part 1 - Maritime Security Conference 2012 Proceedings

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Combined CJOS COE / COE CSW
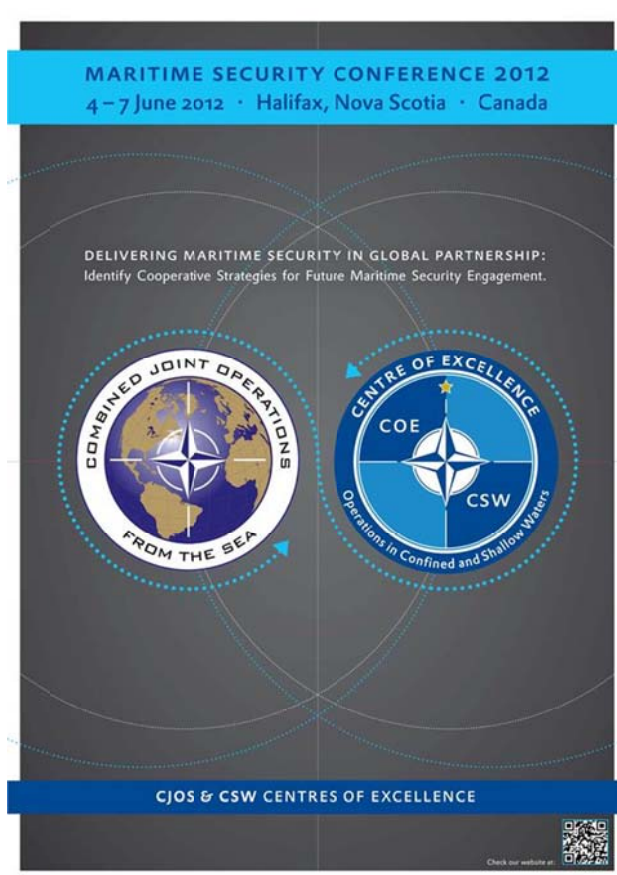# Maritime Security Conference Report

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Part 1

Maritime Security Conference 2012 Proceedings

Kiel
2013

Second Combined CJOS COE / COE CSW

Maritime Security Conference 2012 Proceedings

Executive Summary

The second Combined Maritime Security Conference with the theme of "Delivering Maritime Security in Global Partnership: Identifying Cooperative Strategies for Future Maritime Security Engagement" was held in close cooperation between the Combined Joint Operations from the Sea Centre of Excellence (CJOS COE) and the Centre of Excellence for Operations in Confined and Shallow Waters (COE CSW) at the Westin Nova Scotian Hotel, Halifax, Nova Scotia, Canada, from 4 to 7 June 2012.

There were 220 civilian and military professionals involved in maritime security and safety affairs from 30 countries gathered together in a collaborative setting to discuss challenging security issues and suggest solutions that will contribute to a more effective global network for maritime security cooperation.

The White Paper produced by CJOS COE entitled "A Framework for Enhanced International Maritime Security Cooperation and Awareness" identified the need for central governance and standards in order to coordinate regional efforts among various existing international organizations to establish an international framework for maritime security cooperation. This White Paper was evaluated between MSC 2011 and MSC 2012 by both of the COEs together with the Centre for Foreign Policy Studies (CFPS) at Dalhousie University at a maritime security workshop in October 2011. The publication resulting from the workshop, *Closing the Gap: Western Hemisphere Perspectives and Approaches to Future Maritime Security Challenges*, determined that the basic principles are sound, but that a bottom-up approach is more likely to be supported than the international governance model outlined in the White Paper.

Both studies, the White Paper and the CFPS analysis *Closing the Gap*, served as the central basis during the 2012 conference for all plenary and panel discussions.

Given the plethora of national and regional maritime security cooperatives already in place, it is increasingly necessary to define common strategies in order to synchronise the efforts of organizations on a cross-functional, inter-agency approach. The construct and conduct of the MSC series has been an effort to define, develop and find ways to implement corporate strategies.

The outcome presentations of all syndicates identified widespread agreement that there is a need for information sharing and, for this to occur, there needs to be a shift from the current 'need to know' mentality to a culture of 'need to share.' Additionally, it is evident that there is no consensus on what organization, agency or governing body should take the lead in fostering this information sharing and culture change. Working on a bottom-up approach to coordinate information sharing and help foster the 'need to share' mentality could be the focus of another workshop series.

MSC 2012 Conference

1.1. Set-up and Content

The MSC 2012 conference was structured with a plenary session to begin each day, followed by two concurrent panels on the first two days. The plenary sessions preceding the panels served to set the scene for the afternoon panel work and did not have outcomes in their own right. As a lesson learned from the MSC 2011 the Centre for Foreign Policy Studies (CFPS) co-moderated the 2012 conference on request of the Centres of Excellence in order to support the intellectual element of the conference.

During the first plenary session, members of the CFPS delivered a 'think piece' to the conference based on the findings of the 'Closing the Gap' workshop.

The plenary session on the last day served as a wrap-up of the conference. Each panel chair delivered a short Panel Outcome presentation summarizing the findings and proposing a way ahead.

With reference to the MSC of the previous year, the participants examined how cooperative strategies could be developed that would enable a more global approach to maritime security and awareness.

Four panels were created looking at four different topics:

- Enhance National Maritime Security Governance: develop a comprehensive, whole-of-government approach.
- Enhance Inter-regional Maritime Security Governance: develop the way ahead for international maritime security cooperation and awareness.
- Improve Capabilities - Data Fusion Systems, Design and Standards: design effective, interoperable and affordable maritime security cooperation and awareness infrastructure.
- Identify Future MS Challenges: provide a projection for maritime security challenges and how to engage them.

1.1.1. Plenary Sessions

After the formal opening speeches, the day 1 plenary session began with Mr. Chris Trelawny, Senior Deputy Director, Maritime Safety Division, at the International Maritime Organization (IMO), who presented "Interregional MS Cooperation: Building a Network of Trust and Transparency." Mr Trelawny provided a solid background on the threat, maritime security (MS) issues and the IMO conventions, before moving on to outline two current initiatives, the IMO/Maritime Organisation of West and Central Africa (MOWCA) forum and the IMO response to piracy. He highlighted that both of these efforts are multi-agency approaches, and since these agencies are from a number of states or are international themselves, they are an effective start to international MS cooperation and awareness.

Following the presentation by Mr. Trelawny, representatives of the CFPS at Dalhousie University used the results of the October 2011 Maritime Security Workshop to highlight regional maritime security perspectives and approaches from the North American context. CFPS representatives extended the principles of MS cooperation and awareness and introduced exemplars of regional approaches to MS to identify key themes, practices, challenges and gaps, but also to trigger the debate of global issues. The CFPS 'think piece' was based on a publication entitled *Closing the Gap* which came out of the 2011 workshop. As a more concise presentation for the conference, the CFPS part concentrated on institutional change, using an example from the United States and Canada to explore whole-of-government and military perspectives on change.

The Day 2 plenary session consisted of five speakers representing NATO, Chile, Sweden, Maersk Line and Japan. The presentations provided a mix of the four basic concepts of the conference, with both national and regional perspectives presented, as well as a look to future challenges. The presentation made by Mr. Gordon Van Hook of Maersk Line, entitled "An Industry Perspective on Maritime Security," was of great interest and illustrated a common agenda of the users of the maritime domain and those alliances, coalitions, states and

agencies involved in maritime security. His slide on commercial responsibilities for MS highlighted some key points to take forward into the afternoon panels like the importance of sharing best practices and information and seeking out opportunities for public/private partnerships.

1.1.2. Panel   Sessions

1.1.2.1.   Panel 1, National Maritime Security Governance

Panel 1 was rather hindered by the last minute cancelations of Professor Yongjin Zhang and Dr. Mika Aaltola. This meant that only Rear Admiral James Goldrick and Captain Martin Klüver gave presentations. Professor Zhang's paper was presented by Commander (Ret.) Ken Hansen of the CFPS at Dalhousie University. His paper was entitled "Three Level Game" and it stressed the need for cooperation, collaboration and coordination across the global, regional and national levels. This is exactly in line with the concepts in the White Paper and in the CFPS think piece. It also fits well into the objectives of both panel 1 and panel 2. It was unfortunate that Professor Zhang was not able to deliver his paper personally to answer questions about his thesis. If he had been present, his paper would have undoubtedly created much more discussion than it did.

Rear Admiral Goldrick's presentation was centred on the panel 1 objective. It outlined how Australia has coordinated its national maritime security through the Border Protection Command, providing some excellent lessons learned that states, but also regional organizations, could easily apply.

Captain Klüver's presentation aligned more with the panel 2 objectives than panel 1.However it highlighted the same items as Professor Zhang's paper and Rear Admiral Goldrick's presentation – the need for inter-agency cooperation.

The panel wrap-up slides highlighted the key point that without adequate national MS arrangements, regional/international arrangements are not possible. The final recommendation addressed two items which are in line with the CJOS White Paper. The two items were: "look at means whereby national and regional best practice and lessons identified can be better advertised internationally" and "consider networked COEs with regional/activity focus to support and guide local efforts."

Panel 1 provided good support to the overall goal of the conference. The recommendations gave a clear way ahead; help share lessons learned/best practices (LL/BP) and create centres to support local efforts.

These recommendations are also in line with the presentation "Multinational Experiment 7 (MNE7): Ensured Access to the Maritime Commons" made in panel 4, therefore following up on these two points could also help to implement MNE 7 products.

1.1.2.2.   Panel 2, Regional/Inter-Regional MS Governance

Panel 2 included presentations about regional and inter-regional maritime security governance. The focus was the way ahead for international maritime security cooperation and awareness (MSCA). The panel also acknowledged the need for regional and inter-regional collaboration as the key to international MS. Cooperative strategies are necessary to orchestrate MS efforts and to operationalize a more effective network of global cooperation.

Even though no mutually agreed definition for maritime security had been found, there was consensus on actual security problems. The group did not challenge the fact that a MS commons exists in the form of shared concerns and deviant activities which demand precautionary measures and appropriate actions to secure world trade and thus national wealth. The oceans are the foundation of the global system and enable the free flow of trade.

Dr. Manoj Gupta from the Defence Science and Technology Organisation (DSTO) in the Australian Department of Defence, outlined the path towards regional and inter-regional collaboration in what he referred to as the 3 Cs; collaboration, coordination and cooperation.[2] He also noted some of the usual MS difficulties

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[2]Addressed in Panel 1 as the "Three level Game" in ProfessoeZhang' s presentation.

to be solved on the 3 C track, namely the inconsistent nature of maritime operations and interoperability challenges, including suspicion, language, lack of common doctrine and the varying technology levels.

No alternative to a global network of MS cooperation exists; it is even beyond the ability of the state with the largest navy in the world to ensure maritime security unilaterally. Consequently all states have a role and responsibility in securing absolute freedom of navigation (FON) in a broader scope, and elevating the efforts from a national up to an international level. Hence development of sufficient domestic capacities is a key enabler for cooperative arrangements, not purely an emphasis on a navy-to-navy relationship.

Collaboration starts with basic information sharing according to a realistic, manageable approach.
This effort can begin by simple means, including regular, ordinary phone calls and small cooperative efforts focusing on only one or two key issues. Ideally this engagement will lead to face-to-face interaction and a greater level of collaboration, coordination and cooperation. Through small cooperation focusing only on a few key issues, trust will grow and capacity can be scaled up. This will pave the way to a higher level of trust.

Data need to be kept classified to the minimum level required to prosecute or respond according to the security situation. Almost 90% of all information that is currently classified could be shared openly. Too much information is restricted, and it was recommended that a tiered approach for classifying and sharing should be created. This means that it is necessary to change the culture from 'need to know' to 'need to share' because this will avoid recurring policy and confidentiality problems among different national and international entities.

As soon as a certain level of cooperation and working together is reached, the necessary legislation and agreements such as port state control (PSC) and others will almost automatically be implemented and enforced. This is a good example of action seamlessly leading to legislation. This interaction will not, however, advance without challenges and questions that have to be taken into consideration. How can commercial interests and ownership and crewing of vessels be balanced with an effective MS response and law enforcement capability and legislation? Also, the levels of capabilities vary among states which will affect the nature and extent of cooperation. But opportunities have to be created. Any framework or roadmap will have to accommodate a variety of national models that differ in approaches to safety, security and defence mechanisms. Political will and positive popular opinion are critical to maintain cooperative arrangements.

A number of very functional regional regimes with inter-regional outreach are already in place. For example there are the Black Sea regional cooperation and the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against ships in Asia (ReCAAP). They could serve as role models for the establishment of such functional cooperative arrangements in other maritime regions in the world.

Following Dr. Gupta's statement, Rear Admiral Mustafa Ugurlu from the Turkish Navy provided insight on one of these two successful regional models of MS cooperation; the multinational effort embodied in the Black Sea. As part of this regional initiative BLACKSEAFOR established in 2001 as a confidence-building measure among the Black Sea states of Bulgaria, Georgia, Romania, Russia,Turkey and Ukraine, it is designed to promote cooperation, dialogue and interoperability among the navies in the region. Through this initiative, and others also cited by Rear Admiral Ugurlu, the Black Sea states aim to make best use of synergy amongst themselves in the littoral regions through information sharing and coordinated interdiction operations.

Mr. Yoshihisa Endo made the next presentation. He depicted the ReCAAP example of how regional cooperation can be done successfully. Founded on the three pillars of information sharing, capacity building and cooperative agreements, ReCAAP is in the sixth year of operation and now has 18 countries onboard. By nature MS regimes have clear intersections in mission, purpose and aim. ReCAAP and its contracting parties are concerned with piracy in Somalia and the Gulf of Aden because as one of the most current and critical MS challenges, it affects their interests. Consequently ReCAAP has agreed to expand its offices/representation to Dubai and the IMO to leverage effectiveness through improved cooperation and shared efforts.

According to Mr. Endo, regional and inter-regional cooperation just simply occurs when there are common interests, but there is no natural need for structured cooperation between maritime states in the first place. The intensity of the common concerns definitely determines the quality and extent of cooperation and any maritime relationship.

Unfortunately, according to Mr. Endo, none of the excellent and well-proven MS regimes could lend themselves to adoption at an international level. National disparities in law and policing rules, complex

international laws that are regionally fragmented and nationally dysfunctional, and also the plurality and complexity of those regulations hamper a unique approach to MS. Hence, it isn't possible to develop a skeleton model strategy from these existing regimes to establish MS regimes in other regions.

A 'bottom-up' approach starting at the national level, followed by the linkage to sub-regional security arrangements offers the greatest promise to achieving an international level of cooperation. The numerous successful regional initiatives and organizations suggest at least the possibility of a global MS network and cooperation. Their existence also suggests that there might be a desire for a potential global MS model. Separate solutions have to be brought in line with one common goal.

For some time it has been seen as unrealistic for an international authority to act as an executor for the common goal of MS on all oceans. Such a global body is required, however, as a facilitator for providing guidelines and a collaborative environment for all parties involved. The idea of a supranational maritime force or a UN Standing Maritime Force to conduct MS operations has also found no consensus. But a global MS forum for command, control and communication (C3) has been strongly welcomed and supported as one of the first steps to take.

Following Mr. Endo's presentation, Commander Oleg Bushuev, Maritime Operations Planning Officer from the UN Department of Peacekeeping Operations, outlined a number of ongoing maritime/riverine operations. As noted often when discussing MS, the challenges of lack of personnel, training and resources were a common theme throughout the briefing.

In addition to the deficiency of resources, Commander Bushuev explained that the UN lacks a sufficient mandate, and can only render assistance in activities that aim to introduce a global approach to MS. As part of its efforts, the UN has already developed and released the International Ship and Port Facility Security (ISPS) Code and the system of PSC as MS supporting measures.

Noting the impossibility of a universal model for establishing a global MS regime network, only one reasonable course of action was repeatedly confirmed by the panel 2 audience; the process of evolution through collaboration, cooperation and coordination to build up a required network of common interest.
Long before law enforcement becomes an issue, these steps are preconditions and key to cooperative strategies.

Stakeholders have to strive for improved collaboration through constant engagement, better cooperation by information sharing and effective coordination through cooperative agreements. These steps have to be cemented by capacity building to develop and accumulate the necessary means to safeguard the freedom of the seas. Based on its current capabilities, experiences and capacities, ReCAAP, for example, consistently puts its three fundamental principles of information sharing, capacity building and cooperative arrangements into action to enhance regional cooperation and maximize MS through enhanced outreach whenever possible. Therefore ReCAAP currently facilitates the installation of three Regional Information Sharing Centres (RISCs) – in Kenya, Tanzania and Yemen. Similar efforts to foster collaboration and cooperation have been undertaken in the Black Sea and Mediterranean Sea with confidence- and security-building initiatives such as:

- The   BLACKSEAFOR;
- Confidence and Security Building Measures in the Naval Field;
- Operation Black Sea Harmony (OBSH);
- The Black Sea Littoral States Coast/Border Guards Cooperation Forum; and
- Operation Mediterranean Shield.

In this regard the US-initiated Joint Inter-Agency Task Force South shows a Caribbean example of cooperation in one unified command against illicit activities related to the drug trade.

On a higher semi-global level, effective cooperative information procedures among shipping companies, flag and coastal states, regional MS organizations and the IMO are already in place. Thus, ReCAAP's flow chart of multi-channel warning and reporting in case of MS incidents involves all MS stakeholders worldwide. As well, a UN "Anti-Piracy Mechanism" model reflects warning and information requirements of MS entities that lift the coordination and cooperation up to a higher institutional level. It gives a vision for a global information exchange structure with the UN on top and equal before the law with all member states.

Sufficient capabilities are already at hand to counter maritime adversaries and violators worldwide, but these capabilities are mainly owned by national and regional MS regimes exclusively to serve their own needs. The critical question is how MS stakeholders and organizations with their immense potential and means can become interconnected to reach synergy by bundling common efforts to assure MS globally.

Only national regimes can facilitate a high degree of coordination towards an international MS organization. Global MS cooperation starts with national initiatives that are adjusted to regional initiatives that need to be aligned, connected and leveraged to higher levels. Crossing from national to regional/inter-regional collaboration will be challenging because it involves civilian, governmental and military organizations of different states with different capabilities and different cultures.

1.1.2.3 Panel 3, Improving Information Sharing and Management Capabilities

Panel 3 was the technical panel of the conference, exploring design standards, interoperability and architecture in support of maritime security. The purpose of panel 3 was to consider how to gather and share information, and how to manage and analyse data using common standards and designs in order to use technology more effectively and to achieve interoperability. The panel sought to identify the existing and future capabilities, and methods of aligning these systems to collect and manage MS information effectively among global MS stakeholders.

Today several combined coastal and ship-based Automatic Identification Systems (AIS) cover the littoral regions and deliver comprehensive ship and movement data. One of the broadest, the Maritime Safety and Security Information System (MSSIS), currently consists of a network of over 100 AIS base stations in more than 60 states providing AIS data for thousands of ships. AIS is a crucial component of MS because it lets you know who the 'good guys' are. But AIS is limited by the number of cooperative ships broadcasting their identification information and the limited reception range for VHF signals. The issue of limited reception range can be overcome by space-based satellite AIS receivers.

Mr. Guy Thomas kicked off the panel with a presentation about collaboration in space to create international global maritime awareness (C-SIGMA). This presentation examined technology and delineated the level of maritime awareness that is technically possible utilizing a blend of space, maritime and land-based systems in collaboration.

According to Mr. Thomas, one way to improve information gathering is to construct a global system utilizing satellites that are already deployed in the commercial world. Space is useful for global maritime surveillance, and satellite systems provide global maritime access. The very capable, conventional AIS-wide network connected and complemented with satellite systems such as space-based AIS systems (S-AIS) or International Space-Based Synthetic Aperture Radar (SAR Sats) would further extend coverage to remote ocean and polar areas. SAR Sats in particular have a great capacity and can even look through clouds. If the global MS governance issue could be solved, inexpensive and readily available commercial satellite technology could be shared and provide worldwide environmental monitoring. By further expanding the satellite information system and keeping the information distribution simple and easy, quick results could be readily available.

It is indisputable that maritime awareness cannot be done from space alone. Space technology would complement a broader system of systems including land-based tracking technologies, unmanned aerial vehicles (UAVs) and maritime surveillance aircraft and ships. Altogether, global asset and environmental monitoring, maritime and terrestrial sensor and data acquisition systems are critical enabling capabilities. But, the advantage of the global space technology initiative in concert with proven conventional methods should stimulate governmental action to assess this awareness effort as a viable technology to include in MS efforts.

The next three panelists explored design and information-sharing standards, interoperability and knowledge management.

Today the majority of organizations and national authorities responsible for different aspects of surveillance – for example, border control, safety and security, fisheries control, customs, environment or defence – collect data separately. Information sharing is necessary to avoid the same maritime surveillance data being collected several times. It was noted, however, that the goal of global maritime awareness requires not only enabling technology that can provide availability, worldwide coverage and flexibility but also process

automation. Global coverage will acquire massive raw data flow that calls for automated data processing. More and more data is collected but the number of operators has not increased as the information increases. Consequently the move from centralized architecture to federated architectures requires decentralized data processing techniques and fusion on demand.

In addition, data information standards are required to facilitate unrestricted data processing among MS entities. Different systems require common design standards so that data and other information can be exchanged easily through the use of modern technologies. This would provide interoperability and intensify cooperation among the different stakeholders. Information sharing also supplements maritime data generated by one source with additional information details delivered by a variety of different sources. Data fusion is the key, but it requires greater analysis and computational effort.

Active and functional 'collaborative multi-sensor/source fusion and tracking' cooperation among MS stakeholders could be the start of an automated system that could evaluate and process contextual information and pattern recognition supported by integrated sensors.

The three big MS players, NATO, the European Union (EU) and the United States, launched initiatives in this regard but unfortunately only within their own areas of responsibility.

NATO is presently in the process of replacing its outdated Maritime Command, Control and Information System (MCCIS) with a modern system that is based on a new C3 classification taxonomy. The 'TRITON' project aims to deliver "functional services for command and control of maritime operations" to all NATO Command Structure (NCS) headquarters and centres, and it has been announced that it will come into service within the next few years.

The Common Information Sharing Environment (CISE) currently being developed by the European Commission aims to integrate existing surveillance systems and networks and will give all concerned authorities access to the information they need for their missions at sea.

The United States started off with an initiative to develop maritime information sharing standards and architecture. The plan was not to develop a new system but to establish a national maritime domain awareness (MDA) maritime information-sharing environment (MISE) which will be implemented through common data standards and common data architecture. This service-based architecture focuses on national information products and utilizes existing services. Many national issues have to be solved and this process reflects the same problems that usually emerge when cooperation becomes cross-boundary. This is the case when information crosses an agency boundary, including information sharing with international governmental and non-governmental organization partners. Issues such as funding, responsibilities, data generation and legal problems associated with analysing the data will cause trouble as will restricted national and institutional policy about data release.

Sharing the huge volume of data should not be a problem because it is unclassified data and the information has not yet been analysed. A learning process is necessary to diminish the general tendency to over-classify data in order to protect information. Once that tendency has been changed, there will still be questions. For example, what will be the classification of the data once it's fused, and can it be shared multilaterally?

What this panel made clear is that the technology to collect required data is available; the technical difficulty is the interfacing systems. But before anyone raises concerns about technical issues, there needs to be trusted cooperation of the willing to facilitate valid activities. A federated maritime domain awareness (FDMA) organization that binds together all actors, from military, port authorities, police, national security, coastguards up to R&D institutions (e.g., universities, technology companies) and industry is the sole solution to maritime security. Its MS job would be a plethora of operations that represent the sum of maritime situational awareness, law enforcement and military maritime security operations (MSO) plus military capacity building (MCB). A simple equation to illustrate what this federated organization would do is: MS = MSA + MSO (military/police) + MCB (political).

Enabling legislation is key to facilitate harmonized cross-sectorial and cross-border MSA. It has to provide a basis for addressing recurring challenges such as the coordination of governance at national, regional and trans-regional levels. As well, it is necessary to create the willingness to share data, a definition of data policy and a common security policy.

A global partnership needs to coordinate and organize all disparate technology efforts. In particular, it will need to ensure the availability of these capabilities to otherwise under-served entities to reach the end state of global MSA. The mission to improve the gathering and sharing of information is a natural addition to the triple-C approach, and is inherent in the evolutionary steps of cooperation, collaboration and coordination towards a global MS network.

The panel 3 recommendations and outcomes from the discussions addressed the following main issues and concerns:

- Willingness to share data.
- Governance at the national, regional, and trans-regional level – Who coordinates?
- Definition of common requirements.
- Data policy – "Need to know vs. need to share." (Multi-level classification data.)
- Stakeholders' participation – How to get stakeholders to participate?
- Legal concerns to be addressed.
- Funding to be addressed.

The panel on the technical aspects of maritime security concluded that there is no real technology gap. Sufficient technology exists, and is constantly being developed. The only tangible technological issue is a lack of standards and policies.

The key issues identified by panel 3 align quite well with panel 2 despite the seemingly diverse titles.

1.1.2.4 Panel 4, Future Maritime Security Challenges

Panel 4 explored future MS challenges. Due to a last minute cancellation of Royal Navy Rear Admiral Chris Parry's presentation, the Multinational Experiment 7 Maritime outcome was presented instead, giving insight into how the project aims to help establish and implement a more globalized MS concept.

Dr. Heiko Borchert started the panel 4 session with a presentation entitled "Where Are We Going? The Framework for Future Maritime Security Operations." His presentation provided a view on some of the key trends likely to shape the future maritime domain. He touched upon geo-strategic and geo-economic power shifts, the competition for marine resources, the impact of climate change, technology trends and the growing importance of inter-domain interdependencies.

Overall, he argued that the future use of the maritime domain will be shaped by four key drivers. First, maritime transport is a function of global trade and plays the key role in advancing economic globalization. Second, given the world's hunger for resources, marine resource exploitation is on the rise. Third, the increase of the world population is likely to necessitate advancement in new ideas on using the maritime domain as habitat. Fourth, different ambitions of state and non-state actors are about to threaten the stability of the maritime order. In order to illustrate the relevance of these four dimensions, Dr. Borchert provided several examples.

For example, he referred to maritime trade. He pointed out that already eight out of the world's 10 most important container terminals are located in the Asia-Pacific region. The importance of this region is likely to grow in the future, as current economic projections envision the region becoming the centre of economic gravity in the 21st century. Among other factors, maritime interests of emerging powers are shaped by the need for access to marine resources. Dr. Borchert illustrated this point with reference to Brazil's offshore resources and the role of the Brazilian Navy in protecting the offshore infrastructures and resources. Climate change represents the ultimate wild card providing new opportunities, but also creating new risks. A good example of this is the opening up of an Arctic transport route which provides new opportunities for trade, as passages from Europe to the Asia-Pacific region could be shortened by up to 20 days. However, the same global warming will increase sea levels which will affect coastal zones and thus important maritime infrastructures such as harbours and energy infrastructure.

Mr. Phillip Cornell from the International Energy Agency provided insight into how future energy demand will shape maritime interests and thus the use of the maritime domain. He started with a review of different scenarios for future energy demand. Whatever the mix of different sources of energy in the scenarios, energy trade will play an important role. This could help stabilize relations between countries as trade promotes mutual interdependence. But the same trend could also increase vulnerabilities and stir competition for access

to the resources as well as the transport corridors that are needed to bring energy resources to the consumer markets.

Among the issues that are particularly noteworthy for the maritime community, Mr. Cornell pointed out that maritime stability in the Indian Ocean and southeast Asia will be of key importance due to the region's reliance on energy imports. In addition, the growing relevance of natural gas could reinforce the dominant position of Gulf countries and Australia as the primary suppliers of liquid natural gas to Asian markets. At the same time, the frenzy about shale gas in the United States could turn the country into a leading gas exporter – a prospect that is likely to come with important geo-strategic implications.

Mr. Edward C. Gough, Jr., from the Centre for Maritime Research and Experimentation (formerly NATO Underwater Research Centre) in La Spezia,Italy, looked at important maritime technology trends. Today's technology makes it easy to gather large amounts of data. In order to avoid data overload, data analysis and tailored dissemination become much more important. Maritime security practitioners are grappling with this issue on a daily basis as they need to exchange information with different state and non-state stakeholders.

Mr. Gough also reminded the audience that technological change is increasingly driven by commercial practice. Therefore senior leaders – whether economic, political or military – should make sure that existing organizations are agile enough to cope with technological dynamism. Handling big data and the use of gamification[3] could provide new avenues for risk assessment, decision support and decision making. In order to leverage the potential of these trends, existing institutional stovepipes need to be overcome and decision-makers should be aware of how best to use the technology and the data.

Commander Mathias Peters from the German Naval Office rounded off the panel presentations with a look at ongoing activities within MNE7. The goal of MNE7 is to "develop a framework for the establishment of comprehensive regional and inter-regional maritime security regimes in order to ensure access to and freedom of action within the Maritime Global Commons Domain." The experiment was undertaken based on an understanding that there is a need for improved concepts and capabilities to ensure access to the four domains of the global commons, i.e., sea, air, space and cyberspace. In addition, there is the need to understand growing interdependencies among the domains.

MNE7 assumes that stakeholders with an interest in ensuring access to and freedom of manoeuvre within the global maritime common will engage in building maritime security regimes (MSR). These MSR would provide a platform for relevant state and non-state actors to advance mutual objectives. Current ideas have led to the development of a strategic-level framework concept and a more ready-to-implement handbook. In addition, several case studies analysing current real world MSR approaches have been conducted.

Overall, Commander Peters' briefing on MNE7 achievements provided an appropriate wrap up for the panel, showcasing a current effort to address the issues brought forth by the other panelists. Additionally, as mentioned earlier, the findings of panel 1 are also advocated by MNE7, and tie back to the CFPS think piece. MNE7 also illustrates that a bottom-up approach to globalizing MS is more likely to be supported than one that comes from the top down.

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[3]The application of game-thinking and game mechanics to a non-game problem.

1.2. Survey Results

In this section the reader will find a summary of the comprehensive analysis of the structured interviews and questionnaires which were conducted by a professional marketing expert from Beuth Hochschule Berlin, Lieutenant DEU Navy (Res) Professor Susann Erichson.

The survey data comes from 77 structured interviews and completed questionnaires. The analysis showed that in summary the vast majority of the participants were very satisfied with the general lay-out, organization and schedule of the conference. Yet, a variety of constructive criticism was articulated in order to improve the MSC series further.

The survey asked questions about the professional background of the participants, and results showed that the majority (62%) came from the military. The second and third largest category of participants came from industry (14%) and governmental organizations (13%). This shows that the advertising for the conference primarily stayed inside the professional community. Future efforts should be directed more to the academic and non-governmental world in order to attract more participants from that background.

Survey results indicate that the participants mainly came from Europe (53%). The fact that only 37% came from North America seems to indicate certain 'maritime security tiredness' due to a large number of events in the same field. The selection of Halifax as the location for MSC 2012 received mixed feedback in that about half of the participants stated that the location had a positive influence on their decision to attend, whereas the other half found it difficult and expensive to reach. In order to get sufficient numbers of participants in the next conference, the future location should be more central with widespread flight connections.

The conference schedule including the variety of speakers received excellent feedback. In fact, for many participants the presence of 26 flag officers from all over the world was a factor that influenced them to attend MSC 2012. The intellectual content of the conference was very positively assessed by 80% of the interviewed participants. As well, the networking opportunities and the panel work discussions generated a lot of positive comments. However, a great majority of attendees stated that the theoretical and conceptual views of MS have been discussed enough. In a next step the findings should be converted into a practical and comprehensive approach to deal with the broad range of dangers to MS. To achieve this – according to the general opinion – political decision-makers have to be involved much deeper, i.e., more participation by politicians in follow-up events should be a central aim.

Another benefit for most of the participants was the international nature of the conference participants as a whole. It was a good opportunity to exchange information, to network and to broaden the awareness of MS issues. This alone is a valuable argument for keeping the momentum of the MSC series going. Yet, a series of regional workshops seems to be favoured by many attendees in order to push maritime security issues further. A conference of the size of MSC 2012 within the coming year would probably fail to attract an adequate audience both in terms of quality and quantity.

The exhibits of the sponsoring companies throughout the conference generated very positive feedback by both exhibitors and attendees. The set-up of the exhibits made possible conversations and discussions amongst a wide range of experts with very different professional backgrounds and thus added a lot of value to the whole conference.

Regarding the way ahead after MSC 2012, the majority of attendees strongly supported the idea to meet regionally in workshops led by the hosting COEs and create concrete, practical products. Such workshops should also be used to revise and develop the MSA Strategic Framework (White Paper) in order to circulate it to political decision-makers.

A follow-up conference hosted by the maritime COEs could be envisaged after the conclusion of the workshop series, but it should shift the focus towards maritime capacity building.

In summary, MSC 2012 was valued by the vast majority of attendees as a superbly organized and interesting event, which offered excellent value for money. Almost all surveyed attendees would definitely attend a follow-up event, whether a workshop or a conference. The preferences regarding the frequency of the conferences were fairly evenly split – 49% would like to have an annual conference, whereas 48% preferred it biannually, with workshops in between.

The decision of CJOS COE and COE CSW to continue the work on maritime security issues in a series of workshops before organizing the next international conference appears to be supported by the majority of the attendees.

1.3. Analysis and Conclusions

The plenary session on the final day served as a wrap-up of the conference, with each of the panel chairs delivering a short Panel Outcome presentation. These outcome presentations not only summarized the findings of the panels but also helped determine the way ahead.

Despite the four panels being centred on different aspects of maritime security, the outcome presentations identified some common statements, findings and recommendations. If four independent panels with diverse membership and a distinct focus identify the same issues and provide the same recommendations, it is likely that these are overarching, critical issues in the area of MS.

All four panels identified information sharing as critical. The recommendations from the panels on how to establish or enhance information sharing were slightly different, but they were not contradictory.

Panel 1, National Maritime Security Governance, noted that "technology is no longer the main issue in MDA" and that there is an "information classification culture shift/change going on." Panel 1 recommended determining how national and regional 'best practices' (however defined) and lessons identified can be better advertised internationally and using networked COEs with regional/activity focus to support and guide local efforts.

Panel 2, Regional/Inter-Regional MS Governance, identified information sharing as a key point and noted the requirement to keep classified data to the minimum required level to prosecute and/or respond to MS emergency events. Panel members reiterated that there needs to be a change in culture from 'need to know' to 'need to share.' Panel 2 also recommended that an international body should have a role in facilitating the creation and adoption of standard operating procedures (SOPs) developed by engaged states.

The panel follows the White Paper insofar as it sees an international body such as the IMO as an active player for the foundation of global MS and that leads the top-down activities in a way that is complementary to the regional and inter-regional bottom-up initiatives. This has to be accomplished by defining and adopting standards and procedures and the facilitation of legislation. It will in turn leverage cooperation on all levels. The COEs are in a well-established position to lead the community of interest (i.e., the MSC series participants, maritime COEs etc.) to energize the bottom-up enterprises by generating and promoting functional common standards on both regional and inter-regional levels. The proposed workshop series could examine a number of MS regimes and test them against one or two security issues in order to improve existing regime rules and procedures and develop a set of standards.

Panel 3, Improving Information Sharing and Management Capabilities, echoed panel 2 by noting the 'need to know' vs. 'need to share' philosophy change. Unlike the other panels, the recommendations of panel 3 addressed all MS stakeholders on all levels, regions and services and not specific actors. States, federations and international organizations were asked to take actions if this is within their capacity. But the panel also asked the main question "who would coordinate governance at national, regional and trans-regional levels?"

Developing and implementing MS strategy, policy and standards is unrealistic for the Centres of Excellence and the MS community of interest. It would be far beyond their responsibility and power to stimulate top management, politicians and decision-makers in NATO, EU and the United States to harmonize the current MS enterprises.

The COEs leading a MS community of interest could take the challenge and develop, promote and implement interoperability on the operational level which could later be used to leverage the standards up to a strategic echelon. This would include the definition of common operational requirements and interoperability standards with the aim to nurture a federated maritime domain awareness partnership from the bottom up.

Panel 4, Future Maritime Security Challenges, identified the need to facilitate global information exchange between regional MS regimes. This is the one panel that did not directly address the question of who should

help to coordinate the information exchange. The panel just noted that there is a need for technical solutions that enable information sharing and platforms to bring experts together.

It seems clear from these outcome presentations that there is widespread agreement that there is a need for information sharing, and for this to occur there needs to be a shift from the current 'need to know' mentality to a culture of 'need to share.' Additionally, despite panel 4 not addressing the 'who' question, it is also evident that there is no consensus on what organization, agency or governing body should take the lead in fostering this information sharing and culture change. Panel 2 stated that it should be an international body and panel 1 suggested networked COEs. While this was not intended to mean the COE CSW or CJOS COE specifically, it is reasonable for the hosts of the Maritime Security Conference to continue to bring MS professionals together to address the information-sharing issue.

In his speech about the way ahead, Rear Admiral Thomas E.P. Jugel announced that CJOS COE and COE CSW intend to arrange a series of workshops, and that the COEs will form a community of interest and invite relevant MS stakeholders to work together to produce tangible results. Working to identify or develop an international body to coordinate information sharing and to help foster the 'need to share' mentality will almost certainly be a central focus of this workshop series.

Annexes

Annex A: Main Findings from the MSC 2012 Panel Work

A.1. Enhance National Maritime Security Governance: Develop a Comprehensive, Whole of Government Approach

Key Points	Recommendations & Action Items
- No two countries are the same! - Without adequate national arrangements, the foundation does not exist for adequate regional/international arrangements. - Inter-agency disputes may be a cloak for competition for the budget. - CHALLENGE: It is important to establish shared understanding within each state of the issues as precursor to efforts to implement concrete measures. - Technology is no longer the main issue in maritime domain awareness (MDA). - There is an information classification culture shift/change going on. - Open source material provides 80-90% of information. - Significant MDA operational capacity can be created at very low cost in systems and sources. - CHALLENGE: The human dimension needs to be the priority for national investment.	- Follow the money – who gets the funding? - Follow the money – who would benefit from better maritime security arrangements? (Understand your common interests as well.) - Establish a shared meaning for 'maritime security.' - Consider multi-level education/training activities to establish a constituency. - Look at means whereby national and regional 'best practices' (however defined) and lessons identified can be better advertised internationally. - Consider networked COEs with regional/activity focus to support and guide local efforts. - Remember – no two countries are the same! - Keep sea room for all approaches (top-down, middle, bottom-up). - Any approaches that are chosen must understand national contexts. - First priority/focus should not be on equipment but on the human element – understanding, governance and training. - Capability must be introduced with an eye to the long term (may require VERY long-term commitment). - MDA/Surveillance capacity can be international/multilateral but response capacity may need to be very clearly national.

A.2. Enhance Inter-Regional Maritime Security Governance: Develop the Way Ahead for International Maritime Security Cooperation and Awareness

Key Points	Recommendations & Action Items
- Cooperation between maritime states does not need to be structured. - Regional and inter-regional cooperation occurs when there are common interests. - Common interests and the intensity of these interests determine the nature and extent of the cooperation and relationship. - Although there are a number of excellent regional models, none of them can be adopted at an international level. - Regardless of the region, there are common elements which include information sharing, cooperative arrangements, capacity building and trust. - A bottom-up approach starting at the national level, followed by the linkage of sub-regional security arrangements, offers the greatest promise to achieving an international level of cooperation. - Inc entives: - Oceans are the foundation of the global system. - Free flow of trade 70/80/90 (explain the % rule). - Comm onality: - Disruptions in any part of the global system affect all stakeholders – e.g., piracy or tsunamis. - Operational practices of navies, although not standardized, are highly similar. - Capacity Building: - All states have a role and responsibility. - Development of domestic capacities is a key enabler for cooperative arrangements. - Does not necessarily have to be navy to navy. - Building Trust: - Start simple – regular phone calls – technology can assist. - BUT must focus on face-to-face interaction. - Information Sharing: - Tiere d approach/model. 90% should be openly shared. - Keep classified data to a minimum required to prosecute or respond. - Change in culture to need to share from need to know.	- Examine the feasibility of discontinuing those current commercial practices that create complications in determining ownership, registration, crewing, safeguarding and cargo. - The primary area of focus for maritime security capacity building should be to strengthen national 'policing' of territorial waters. - An international body should have a role in facilitating the creation and adoption of standard operating procedures (SOPs) developed by engaged states. - Activities or measures that facilitate or increase information sharing, capacity building and trust, should be incorporated into cooperative security arrangements. - Examine mechanisms to create more effective implementation of Port State Control and ISPS regulations/legislation. - Consider alternate models for creating cooperative security arrangements such as a 'community policing model.' - Create mechanisms to share communication strategies for developing and maintaining political will and popular support. - Other maritime stakeholders (NGO, IGO, non-NATO, and non-military) and other related disciplines and practitioners need to be engaged in developing maritime security solutions. - MAJOR FOCUS: Develop a workshop focused on one maritime security issue, across all jurisdictions and regions.

• Best Practices:
    o When building trust and capacity start small and scale up.
    o Focus on one or two key issues.
    o "Just Do It!"
 	
• Success and Difficulties:
    o Legislation and agreements need to be implemented and enforced.
    o Port State Control and ISPS.	

A.3 Improve Capabilities: Data Fusion Systems - Design and Standards: Design Effective, Interoperable and Affordable Maritime Security Cooperation and Awareness Infrastructure

Key Points	Recommendations & Action Items
- Global social and economical prosperity is based on safe Sea Lines of Communication (SLOCs): needs maritime security (MS). - MS = MSA + MSO (military/law enforcement) + MCB (political). - MSA → Comprehensive Approach, starting from: - National integrated effort (navy, inter-depts/agencies, intelligence agencies, port authorities, R&D, industry, etc.). - Towards a federation of different networks/systems based on a common architectural framework, using Service Oriented Architecture (SOA) paradigm (e.g.,commercial space may have a large role. Could be forcing function). - Information sharing at national, regional and trans-regional level: - Policy verse legal issues. - Data is just data until processed. - Standard data format. - User defined operating picture.	- Identify common requirements for a harmonized cross-sectoral and cross-border MSA. - Identify a common security strategy, define a data policy and implement the related action plan. - Adopt a federated/distributed architecture. - Participate in a cooperative development of technological solutions and standards, using the same framework design and SOA paradigm. - Share and optimize as much as possible all available resources (SATs, naval aviation, coastal radars, etc.). - Use common regional funding (if available) through direct financing of governments for future projects (e.g., EU BlueMassMed). - Verify interoperability among current and future MSA initiatives (e.g., NATO TRITON Project). - Investigate the feasibility of using commercial space and a collaborative manner for maritime surveillance. - Include broader range of participants in future maritime security events.

A.4. Identify Future Maritime Security Challenges: Provide a Projection for Maritime Security Challenges and How to Engage Them

Key Points	Recommendations & Action Items
- Changing energy flow patterns: growing Asian demand; reduced US imports; rising European dependence. Impact on regional interests and activity preferences to guarantee the maritime order. - Growing importance of offshore and deep water energy reserves. - Offshore energy reserves affect maritime territorial claims and inter-state competition and prompt new capability requirements. - Climate change could have an impact on energy infrastructures and could put additional pressure on stability in the littorals. - Huma nitarian Assistance (HA)/Disaster Relief (DR) operations are likely to become even more important (single set or multiple set of capabilities?). - Technological change accelerates every day and is increasingly driven by commercial practice. - It is important to make sure that existing organizations are flexible enough to cope with technological dynamism (agility!). - Big data and gamification open new avenues for risk assessment, decision support and decision-making. - In the age of technological 'smartness,' tangible Science & Technology (S&T) effects are decisive to assure political support and thus funding. - Maritime security and access to the maritime domain can best be assured by maritime security regimes. - In designing maritime security regimes there is 'no one size fits all.' - Information exchanges are at the heart of MSR. - It is crucial to protect critical maritime infrastructure (e.g., subsea cables). They constitute high-value targets and thus require full spectrum protection. - Deploy and Sustain.	- A comprehensive approach requires navies to engage and advance interoperability of C2 systems with inter-agency partners and industry (supply chain security!). - It is important to identify information and knowledge management requirements of different types of operations together with inter-agency and non-governmental partners. - The scope of maritime domain awareness should be broadened (issues for consideration include: inter-domain vulnerabilities, resource extraction, more frequent use of maritime unmanned systems (MUS)/Unmanned Aircraft Systems (UAS)). - Facilitate the global information exchange among regional maritime security regimes. - Engagement is crucial. Provide scalable engagement capabilities for (1) law enforcement at sea, (2) deep-sea operations and (3) inter-domain concepts of operations. - Boost identification capabilities to deal with (1) individual actors/actor groups and (2) non-cooperative objects (e.g., MUS/UAS). - Leverage the opportunities provided by these trends to overcome institutional stovepipes and educate operators, planners and decision-makers in how to make the best out of it. - Rethink business model of S&T organizations and S&T delivery mechanisms (experimentation!). - MSR should build on multi-stakeholder approaches involving all relevant state, international, non-state and corporate partners. - Local ownership and the identification of issues that matter to all stakeholders are key elements for regime success. - There is a need for technical solutions that enable information sharing and platforms to bring experts together. - It is important to increase public-private security approaches to protect offshore and deep-sea installations and services (e.g., energy, transportation, communication) - Monitor sovereignty claims beyond the EEZ that control and limit freedom of action in international waters (beware of 'lawfare!') - Beef up capabilities to counter adversarial A2AD postures including intelligence on nonstate actors.

Combined Joint Operations from the Sea
Centre of Excellence

Centre of Excellence for
Operations in Confined and Shallow Waters

Part 2

Maritime Security Conference Series Analysis

Norfolk
2013

Maritime Security Conference (MSC) Series Analysis

Executive Summary

The maritime environment of today is experiencing a wide range of national, regional and global challenges which require both a collective approach and collective effort to address. Maritime security (MS) is a requirement for the smooth functioning of the global economy and this should provide the impetus to bring international players together in cooperation, irrespective of geographic locations and political positions.

Threats to MS include obstacles to freedom of navigation, piracy, terrorism, illicit trafficking, proliferation of weapons of mass destruction (WMD), cyber attacks, climate change, and constraints to mineral and resource exploration/exploitation. The revolutionary development of technology and the new opportunities this technology offers adversaries (state and non-state) in turn means new and more dangerous tools to influence the global economy. Therefore, the fight against these threats is well beyond the capabilities of any one state; maritime security is only possible with coordinated and determined efforts of all state and non-state organizations.

In recognition of this, the Combined Joint Operations from the Sea Centre of Excellence (CJOS COE) has organized annual Maritime Security Conferences since 2008 with the objective of improving international maritime security cooperation and awareness globally. Since MSC 2011, the Centre of Excellence for Operations in Confined and Shallow Waters (COE CSW) has joined the CJOS COE as co-organizer. In uniting forces to organize the last two conferences, it set an example for other organizations in the endeavour to address global maritime challenges in a comprehensive manner.

The conferences promoted constructive dialog among global partners to help resolve complex maritime security issues. Of the many topics addressed, three stood out most prominently: maritime security cooperation; maritime situational awareness (MSA); and maritime security governance. All three issues are interwoven and interdependent. Although these topics can be treated separately, the latter two could be considered and addressed as subsets of the overall topic of maritime security cooperation.

The Maritime Security Conference (MSC) series fostered considerable awareness of MS and led the way to new initiatives for international maritime security cooperation. To capitalize on the success of the MSC series, the decision was taken to forego a conference in 2013 in favour of a series of workshops to deliver a maritime security concept for NATO. CJOS COE and COE CSW will examine the status of ongoing MS projects with an announcement expected in early summer 2013 as to location and focus for MSC 2014.

2.1. MSC Conference Series

2.1.1. MSC Themes and Objectives

The Maritime Security Conferences were organized with the following themes:

– *MSC 2008:* "Structuring a Global Maritime Information Sharing Environment."

– *MSC 2009:* "Delivering Maritime Security in Global Partnership: Improving Collective Capabilities."

– *MSC 2010:* "Delivering Maritime Security in Global Partnership: A Comprehensive Approach for Mutual Benefit."

– *MSC 2011:* "Delivering Maritime Security and Safety in Global Partnership: Creating a Strategic Framework for Maritime Security Cooperation."

– *MSC 2012:* "Delivering Maritime Security in Global Partnership: Identify Cooperative Strategies for Future Maritime Security Engagement."

Global partnership and cooperation have always been the backbone of the MSC. Over the years, MS has been discussed and explored from a variety of perspectives. The focus was on information sharing in 2008, improving collective capabilities in 2009, building a comprehensive approach in 2010, creating a strategic framework in 2011, and identifying and developing cooperative strategies to address future challenges in 2012.

International maritime security cooperation is the foundation of MS. Cooperation is essential in order to address potential threats within a dynamic maritime environment. The ultimate goal for enhancing global maritime security is to implement uniform security measures around the world.

The MSC series was aimed at enhancing global MS by focusing on how to implement cooperative and capable security measures across the globe. As such, the characteristics and establishment of a framework for international maritime security cooperation were discussed extensively. The adoption of this type of framework would help establish policies and standards that promote an integrated approach to information sharing and international cooperation.

2.1.2. Participation and Geography

The MSC target audience has always been global maritime stakeholders in general rather than limited to military or NATO countries. An inclusive list of participants was essential due to the transnational nature of MS which requires international cooperation among the civilian and military organizations around the world.

Participants have ranged from strategic level political/military leaders to operational mid-level decision-making support personnel. Throughout the MSC series, widespread geographic representation was one of the highest priorities, especially in the selection of speakers and presenters. This broad representation was crucial to the identification and discussion of regional issues that would then lead to potential solutions and best practices to the benefit of the wider audience.

Another consideration for participation was to achieve a balance between civilian/governmental and military leadership, both as speakers and attendees. MS issues and responsibilities are distributed among different agencies within government, requiring a collaborative and coordinated effort among those agencies and authorities to share information, mitigate risks and respond to maritime threats.

The goal of inviting participants and speakers from a wide variety of locations and backgrounds was achieved and to that end the MSC profited from global representation. These speakers provided knowledge and best practices not only for their specific state but also from their regions. Participants were also well distributed and came from countries with varying levels of capabilities. While the conference helped in the evolution of thinking about maritime security issues, it also provided a platform to which everybody could contribute and from which they could draw information and expertise as needed.

The choice of conference location was also key to attracting and facilitating wide participation. The MSCs were not held in one location but rather the location was changed from year to year. Selecting different locations in Europe and North America undoubtedly enhanced the exposure to a wider professional and academic audience than had the conferences been static.

2.1.3. MSC Achievements

The first achievement of the MSC series was an improvement in international maritime security cooperation and awareness. Proving a venue for discussion and the publication of the CJOS COE White Paper "A Framework for Enhanced International Maritime Security Cooperation and Awareness" have created significant awareness of the characteristics and challenges of maritime security. These efforts have also generated new initiatives and a greater potential for the implementation of an international framework for maritime security cooperation.

The second achievement was the creation of an extensive global point of contact (POC) database for stakeholders. The first step to cooperation is knowing the stakeholders, and the proper people with whom to cooperate. This database includes a cross-section of senior maritime leaders and decision-makers brought together from the military, civilian government and commercial maritime communities, plus international organizations and academia from around the world. This database will be very useful for future workshops, but, like any database it will need ongoing maintenance to be of future use.

The third achievement was the provision of a model and forum for continuing to pursue global MS. The last two combined conferences with COE CSW set a model for other organizations to work together in the endeavour to address global maritime challenges in a collaborative comprehensive manner.

The fourth achievement was the coordination with academia, staff colleges and other national/international bodies to improve the intellectual quality of the discussion about challenges and solutions to global maritime security. As part of the lessons identified from previous conferences it was considered important to invite not only stakeholders who have understanding of their area of the maritime world, but to solicit the opinions of academics who study the broader picture of security, institutional frameworks and the oceans. Academic partnership became one of the objectives for MSC 2012. Taking advantage of the location in Halifax, CJOS and CSW COEs partnered with the Centre for Foreign Policy Studies (CFPS) at Dalhousie University to increase the intellectual quality and profit from academic support.

The fifth achievement of the construction and conduct of the MSC series was to facilitate the effort to define and develop strategies for international maritime security cooperation. While obviously this effort remains a work in progress, the majority of the discussions were founded in this objective and the discussion of international maritime security cooperation issues figured prominently throughout the MSC.

The final achievement of the conference series was the production of a number of deliverables. These products include: a CJOS COE White Paper, the MSC 2011 Proceedings, the MSC 2012 Proceedings and the MSC Series Analysis. The CJOS COE White Paper "A Framework for Enhanced International Maritime Security Cooperation and Awareness" identified the need for central governance and standards in order to coordinate regional efforts among various existing international organizations. This coordination of effort would help to establish an international framework for maritime security cooperation. The CJOS White Paper has been central to the MSC series and was analysed and discussed between MSC 2011 and 2012 by the CFPS at Dalhousie University at a maritime security workshop in October 2011. The resulting publication, *Closing the Gap; Western Hemisphere Perspectives and Approaches to Future Maritime Security Challenges*, examines some of the strengths and weaknesses of the CJOS paper by exploring cases of cooperation in the Western Hemisphere.

2.2. MSC Discussion and Analysis

The MSC series began with the aim to create awareness about maritime security. Over the years this goal has been achieved, and we can now talk about a common understanding of MS and its fundamentals. This is a huge achievement – we cannot meet challenges and solve problems in the absence of common understanding of all aspects of maritime security. The educational aspect of MSC has always been an important part of the conference series, as has the global involvement of stakeholders with different levels of capabilities.

The prosperity of the world in today's interconnected economic system is dependent on safe sea lines of communications and commerce. Ensuring maritime security provides the means to that end.

The theme of global partnership was an element of all the MSCs. Discussion topics revolved around three mutually dependent main pillars. The three pillars are maritime security cooperation, maritime situational awareness/information sharing and maritime security governance. The first pillar is the most inclusive, and the other two pillars could be included in this category, although it is helpful at some stages to discuss the pillars separately.

There are other aspects of MS that have been discussed over the years that sometimes overlap with or are sub-topics of these three main pillars. These include, for example, maritime security operations (MSO), the future threat environment, technical capabilities, intelligence, surveillance and reconnaissance (ISR), climate change, management of natural resources, protection of the marine environment, and cyber security.

Climate change, the management of natural resources located in the marine environment, and protection of the marine environment are fairly new issues in the discussion of MS. Adding these elements increases the complexity of the maritime environment in terms of actors, technology, capability, motivations and consequences. These issues will need to be further developed in the future.

Cyber vulnerability is an area that is just starting to be recognized, both on land and in its maritime dimensions. Given our increasing reliance on technology and global communications, we are extremely vulnerable to attacks on the technological infrastructure that carries and facilitates our communications. Communication cables on the seabed carry 95% of the world's cyberspace traffic and any disruption of information can easily jeopardize the international economy as well as the safety and security of the maritime domain. A great deal more needs to be done to have security measures in place that comprehensively address these cyber vulnerabilities.

Inter-agency cooperation has been identified as one of the key elements of MS, therefore inviting civilians who have experience in MS to participate has been one of the MSC focus areas. The conferences have given governmental representatives the chance to share their experience and vision with other stakeholders, and other governmental representatives. In some cases learning about the experiences of others offers some best practices to those who are going through similar steps. This informal knowledge transfer was enhanced through the MSC series both at the events and through the networks forged during the events.

2.2.1. Maritime Security Cooperation

Given the alarming proliferation and adaptability of criminal and piracy activities involving the illegal and malevolent use of maritime environment, keeping the sea lines of communication open is becoming more and more important for the states (and not only maritime states) that are connected to the global economy. Disruptions in any part of the global system will affect all states and it is likely that this will continue as the world becomes more interconnected. Therefore establishing better maritime security cooperation now is a critical step to preserving MS in the future.

Achieving MS globally is an enormous task and no one state has sole ownership of this capability. The only alternative is to build a global network of maritime security cooperation, whereby all states have a role and responsibility in securing the maritime domain against the broad challenges that exist today, from the national up to the international level.

2.2.1.1. Maritime Security Cooperation Key Issues

A more effective network of global MS cooperation needs to be instituted. MS requires a comprehensive approach starting from a national integrated effort involving each state's navy, coast guard, government agencies relating to maritime activities (for example, fisheries, environment, immigration/border services), port authorities, research and development (R&D) organizations and industry. From this foundation we can work towards a network of networks/systems involving multiple states and international actors, preferably based on a common framework. These synchronized efforts among the different entities and states are the key to the success of MS cooperation.

Inter-agency cooperation is one of the fundamental elements of MS. The civilian and military counterparts that have separate MS tasks allocated by law should work very closely and in harmony. Information must flow seamlessly among civilian, constabulary and military security networks. Jurisdictional constraints may limit the type, source or sensitivity of information, but trust and relationships must pre-exist that facilitate the sharing of critical time-sensitive information when there is an operational imperative.

Political will is the driving force to increase cooperation at all levels, within and across jurisdictions. Without support from the political leadership, cooperation will be limited to a low level, and activities that do occur will fail to bring all the stakeholders together and will not orchestrate MS efforts. Political leadership is even more critical to achieve international (bilateral, multilateral, regional, inter-regional) engagement.

International MS cooperation should unite regional initiatives. We must recognize that regional and inter-regional cooperation occurs when there are common interests. If maritime actors have common interests that are served by cooperation, then there will be a significant motivation to cooperate. The importance of the common interests and the intensity of the desire to serve these interests determine the nature and extent of the cooperation and relationship. The challenge to establish MS on an international level is often to find the common interests and convince actors that these interests can best be served by cooperation. The MS challenges on an organizational or national level can be extrapolated to regional/international MS where they are joined by additional concerns such as language, cultural differences, national tensions/conflicts, suspicion, lack of common doctrine, leadership, interoperability and varying technology levels.

Collaboration, coordination and cooperation on a regional level offer unique opportunities and challenges. There are even more challenges to implement and maintain one overarching international body to deal with maritime security. If there is one overarching body, it is likely to be not only far away but also unaware of the dynamics particular to each region. These challenges will complicate the process and make the organization either insensitive to or unaware of local concerns, or potentially create resentment that it is not addressing problems as well as regional actors who understand the area might. Decision-making processes will work more efficiently among countries that have common challenges, concerns, connected by the realities of their geography.

Regional MS initiatives should have a vision to cooperate with other regional bodies, considering the connectivity and the interdependency of the maritime environment. It is essential to establish a more effective network of MS cooperation in order to be able then to talk about international MS.

The basic form of cooperation is information sharing. A problem with information sharing is that information is often closely guarded by the agencies that collect it. States tend to over-classify and over-protect information; information should be classified to the minimum level required so that more of it can be shared. Institutional and cultural change will be necessary to bring about greater cooperation among all MS entities and build the core of MS cooperation. Information sharing will be more likely, widespread and efficient if there is a certain level of trust and transparency among the stakeholders. These are critical challenges because significant information sharing may make some countries/agencies uncomfortable. It may be viewed as reducing their sovereign rights and/or jeopardizing their security.

We are witnessing a geo-strategic and geo-economic power shift away from the West. Emerging states are becoming increasingly involved and integrated into the global economic and security system. As a result, we are now seeing changes in global shipping routes to meet the demands of these states to move their exports and imports to other markets and connect them to the global system.

The capabilities of navies are insufficiently exploited. The limits and definition of the role of navies to provide MS are still not clear and vary from state to state, but the capabilities that navies offer, especially for blue

water, remain irreplaceable. Some people would argue that MS is not one of the traditional warfare roles for which navies trained and equipped. To the contrary however, MS tasks have been carried out by navies for centuries, and around the world the MS operational practices of navies are highly similar – although not standardized.

As important as it is to include all relevant actors in the pursuit of MS, we must realize that there may be different specific motivations for cooperation that will complicate the picture. Thus, commercial companies have different concerns than governmental agencies, including navies. Companies focus on profit – MS isn't the biggest concern, except how it relates to profits. So, while states may welcome and appreciate new international regulations to increase cooperation and information, increased MS applications such as the International Ship and Port Facility Security (ISPS) Code are considered a threat and a costly inconvenience for businesses. Commercial shippers will, however, be interested in other MS measures that directly relate to their costs. For example, they will be interested in countering piracy because piracy affects the costs that shippers must expend to ensure their ships arrive safely at their destination. The question, therefore, is how can commercial interests, including ownership regulations and cost-effective crewing of vessels, be balanced with an effective MS response and law enforcement?

An important point to note is that there are a number of excellent regional models in existence in the world today, but none lend themselves readily to expansion to become an overarching body at the international level – a solution as to who or what or even if such an organization is necessary has not yet been found.

2.2.1.2. Maritime Security Cooperation Recommendations

The engagement of MS actors in cooperation should be guided by a long-term, participative strategy that will help to energize public and political interest. Political will and popular opinion are absolutely critical to maintaining cooperative arrangements. But the same strategy to engage the public cannot be used everywhere. The overall strategy needs to be tailored to an understanding of local cultures and incentives that appeal to that region's specific characteristics and needs. A shared understanding of the issues should be established within each state as a precursor to efforts to implement concrete measures.

The imperatives of MS and roles and responsibilities among stakeholders should be defined. Roles and responsibilities may differ but the emphasis should be placed on achieving common goals based on common interests. This will help to foster better cooperation.

The broadest array of maritime stakeholders – including non-governmental organizations (NGOs), international governmental organizations (IGOs), non-NATO states, military and non-military actors, and other related disciplines and practitioners – needs to be included and engaged in developing maritime security solutions.

Existing governance structures and inter-agency networks should form the launch point for inter-regional cooperation. Levels of capabilities may vary among states but the key is to create opportunities that create the will to cooperate. Observation of current regional MS initiatives reveals that even though the levels of capabilities are not the same, cooperation is still possible. Building on existing networks, and interacting/cooperating through them, will also work as a capacity-building tool for states seeking to enhance their own MS capabilities.

The question as to who will coordinate the international MSC efforts and bodies is a crucial one. Discussion at the MSCs points toward an institution/group of institutions that can best bring a wide range of government, military and academic bodies, and non-government organizations together with the same goal. The United Nations (UN)/International Maritime Organization (IMO) has always been the first organization that comes to the fore, but the IMO is definitely not the only option. This question needs to be further explored, and organizations should be examined for their potential to assume the role of global MS coordination.

Current commercial practices that create complications in determining ownership, registration, crewing, safeguarding and cargo should be examined and adjusted. In this it will be important to convince commercial entities that their stake in maritime security is a significant one, and that they will have to accept and conform to regulations that enhance their security. This task is becoming more important as MS migrates to an operational level.

It is key to engage with private sector actors, including the commercial entities that are outside the normal

sphere of maritime dialog. In particular this means including actors that will provide different perspectives and were not included in the earlier MS networks, such as resource-extraction industries.

A bottom-up approach starting at the national level, followed by the linkage of sub-regional security arrangements, offers great promise to achieving an international level of cooperation. Bottom-up approaches ensure that there is support among those actors who are responsible for establishing, maintaining and enforcing networks. As noted earlier, however, political will is important to get arrangements started and to clear the path of regulatory, cultural and institutional obstacles. This means that top-down approaches should also be used in parallel to set the scene and the initial framework to start, accelerate and, if necessary, maintain the momentum of the progress to greater cooperation.

The specific concerns of the parties have to be taken into consideration in order to ensure that this interaction advances. Cultural differences between national and international entities can be vast. The best way to overcome the differences is to start at a basic level and expand the cooperation based on increasing experience. Following an incremental step-by-step approach, consistent and necessary legislation and/or agreements would be implemented and enforced as progressive levels of cooperation are reached.

Understanding differences is necessary to reduce cultural barriers. This does not imply rendering a judgment on what is better or worse or right or wrong, but simply an understanding of differences. This deviates from the current mindset, but it is an essential consideration – we need to understand the cultures involved. It is a paradigm shift in the way to do mission analysis, and will affect campaign planning and MS regime design. This is a key concept, and will be recorded as an action item as we try to move forward in designing comprehensive frameworks for MS.

Building trust is easier said than done, not only at the international level but also at the national and organizational levels. Even within a single government, bureaucratic competition is unfortunately common; particularly in a time of decreasing government budgets. Given the lack of cohesion at national levels, we should not under-estimate the difficulties of overcoming lack of trust at the international level. The stakeholders need to be synchronized at all levels – global, regional and national. They have to work in consonance with each other. The stakeholders are geographically different and often culturally different and this will make it difficult to bring them into synchronicity. Until there is sufficient structure for cooperation, the best way to start is by simple, basic information exchange. The relationship will evolve over time. Knowing the people who are your counterparts in other departments and/or countries is key for MS cooperation. We have a long way to go to get to cooperation for MS operations, but the process starts with forging relationships to share information based on a realistic approach and common interest.

A key step to begin the process of cooperation is to create partnerships based on common interests. In this it will be important to follow the money. Those who benefit from better maritime security arrangements will likely be among the most enthusiatic allies.

It is critical to explore and make use of common regional funding for future projects through direct financing of governments with interest in that particular region. This type of regional engagement can compensate for the varying differences in resources often related to the level of maritime security capabilities among countries. This financial support may be critical for those who lack the basic capabilities.

It is imperative to determine how commercial interests can be balanced with an effective MS response. Opportunities need to be created to better engage commercial partners in MS efforts. Any framework or roadmap will have to accommodate a variety of national and corporate models that differ in approaches to safety, security, defence and commercial mechanisms. In particular, to elicit commercial engagement, the benefits of participation will need to outweigh the potential costs.

In the process of creating maritime security cooperation, it will be necessary to incorporate MS governance objectives into key exercises, particularly multinational series. This is necessary to explore different aspects and identify the actions required to prove MS networks and reactive capabilities.

2.2.2. Maritime Situational Awareness (MSA) and Information Sharing

In order to reach the required information superiority in the maritime environment, there is a need to achieve a mature level of maritime situational awareness (MSA). MSA is the enabling capability for MS. We must have information about, and a common understanding of, the maritime domain in order to plan and execute

operations effectively. MSA is a global challenge and therefore it involves coordination and cooperation with a variety of national/international stakeholders that collect, support and provide information to enhance awareness of the maritime world.

2.2.2.1. Maritime Situational Awareness Key Issues

MSA requires effective inter-agency cooperation at the national level. This is because the related responsibilities do not reside within one single ministry but rather maritime security tasks are distributed among various organizations. Having a common inter-agency structure may be ideal but it is far from reality because of the vast differences in national structures and legislation. It is necessary to have a structure and means through which information is shared.

Global MSA requires international cooperation and there are a number of national and regional maritime security cooperatives already in place. However, there is a growing necessity to define common strategies in order to synchronize the efforts of these organizations on a cross-functional, inter-agency approach. This requirement will only grow exponentially as more state and non-state partners are entwined into the network of networks. This returns the discussion to as to who will coordinate this process.

There are two tasks that must be accomplished in terms of maritime information collection and sharing. First, the sources of information must be increased and second these sources need to be connected. Building capacity for information exchange with law enforcement agencies and commercial entities is of paramount importance. The challenge will be to integrate with international and national (military) command and control systems without being overly redundant.

Lack of trust and over-classification of information continue to be barriers to sharing. Too much information is classified, despite the fact that open-source material provides around 90% of the data. As well, agencies and states have restrictions on what and with whom they can share even though much of that information may be unclassified. Multi-level classification of data is necessary in recognition that MSA agencies are not interested in the data that create releasability concerns, especially the information that originates from commercial companies. In order to accomplish this, however, trust must be built. Building trust is still the biggest issue even within the different agencies of a single state and it is even more difficult between states.

Current technology is providing necessary tools for MSA data transfer and information sharing, and this will undoubtedly continue into the future as technology evolves. When we take a look at today's MSA systems, we see that technology is no longer the main obstacle. Technology exists to collect and share information about MS – this creates both new opportunities and new challenges. As the volume of data grows, there will be a need for more effective tools for risk analysis and threat assessment, and the continuing issue of distribution of classified information. All of this capacity and technology may require additional funding but this is not a prerequisite to start the information sharing for enhanced MSA.

As just noted, with new technology come new challenges. Therefore, in addition to an overload of information, we now have to consider the threat of cyber attacks on MS information systems. Cyber threats pose a particular risk, and technology and its vulnerabilities must be continuously examined in detail. Disruptions in any part of the global system affect all stakeholders, whether from cyber attack or natural disaster.

Development of domestic capacities is a key enabler for cooperative arrangements at the regional and global level. All states have a role and responsibility to police their own territorial waters, which should further be expanded to international waters in coordination with other states.

In addition to acknowledging the challenges posed by new technology, there are other areas that have traditionally been neglected when considering maritime situational awareness. Underwater and deep sea situational awareness have been neglected for a long time. Development of undersea surveillance systems to include unmanned systems needs to continue to keep pace with the evolution of the capabilities and tactics of adversaries. Globalization and information technology developments have made it easy to access new technologies, equipment and knowledge at very low cost for all actors and this is changing the threat environment.

There are many initiatives that operate and share data with different systems and standards. However, there is no standard international definition or framework that exists among the organizations that provide the elements of the comprehensive maritime domain picture. Having a common standard may help to overcome

interoperability issues but it is not a prerequisite. What is important is the information itself and the timeliness of the information, not the format of how it is to be exchanged.

The main challenge is overcoming the lack of willingness to share data. Closing the 'gaps' and 'seams' in information-sharing practices will not be accomplished by a change in technology. Instead it will require a change in culture and institutions. It will be necessary to adopt an information policy of 'need to share' rather than 'need to know.'

2.2.2.2. Maritime Situational Awareness Recommendations

A common information-sharing strategy should be developed that defines policy, data management and implementation of a related action plan. Common requirements for harmonized cross-sectoral and cross-border MSA should be identified. Such a strategy will have common structures and framework to enhance information sharing, create awareness, and overcome sea blindness by increasing public consciousness of the importance of the maritime domain for all aspects of security and the economy. COEs have a enabling role in this with their outreach capabilities. Capability must be introduced with a view to the long term, which may equally require a long-term commitment.

Domestic MSA programs need to strive to create efficient inter-agency cooperation. MSA involves law enforcement, economic, environmental and political aspects, therefore the involvement of the relevant governmental agencies must be ensured.

There are a number of national and regional initiatives that have already reached a certain level of capability. These networks need to be connected and the associated best practices shared with similar organizations to help them establish their own organizations and procedures. Regional organizations are able to act as catalysts for intra-state, inter-agency cooperation and information sharing. Additionally, the use of regional bodies not only increases coverage but also helps to break down sectoral and cultural barriers.

When it comes to the question of who will coordinate this international information sharing, there is no widespread consensus. While there is consensus that an overarching body is required, there is no agreement on what organization, agency or governing body should actually take the lead in fostering the information sharing and culture change necessary to achieve global MS. The objective of identifying or developing an international body should be a central focus of work in the future.

Although conference participants did not agree on what organization should coordinate global MS information sharing, there was agreement on key future steps.The discussions at the conference illustrated widespread agreement that building trust and breaking down cultural barriers are key to improve information sharing. Cultural differences need to be taken into account when we are trying to set up common structures. As well, informal exchange of information should be encouraged between communities with different responsibilities whenever formal interaction is not possible or is difficult.

Having a common standard for information sharing among different MS initiatives may help to facilitate interoperability but it is not a prerequisite. As noted earlier, what is important is the information, not its format or the method by which it is exchanged. Practical approaches to achieve cooperation and critical information sharing between different interest communities are possible.

This illustrates that technology is not the real issue. The technology to collect and share information already exists, it might be improved in the future but there is no need to wait further for more technology. The challenge now is that we have to start to share information internationally. Political leadership will be needed to lead the process, and as noted earlier, there must be a shift from the current 'need to know' mentality to a culture of 'need to share.'

Whether the Internet is an appropriate backbone for maritime security information sharing and the extent and nature of cyber threats are issues that need to be further examined.

Although technology is not the main challenge for information sharing, there are matters relating to technology that can be improved;

- We have to share and optimize as much as possible all available resources (satellites, naval aviation, coastal radars, etc.);

- We must make better use of social media and private means of information collection (for example, fishermen, recreational boaters, social networks, etc.) to detect anomalies;

- We must verify interoperability between current and future MSA initiatives;

- We must increase the use of unmanned systems and commercial space in a collaborative manner for maritime surveillance;

- We must establish appropriate data protection protocols;

- As technological change accelerates every day and is increasingly driven by commercial practice, we must engage the private sector to help shape that technology;

- We must ensure that existing organizations are flexible enough to cope with technological dynamism;

- We must adopt a federated information distribution architecture; and,

- Reliance on an open-source internet can be problematic as it is easily compromised if not properly safeguarded. We must develop tertiary procedures to lessen the dependence on the open-source internet.

2.2.3. Maritime Security Governance

When governance in the maritime domain is discussed in terms of a multi-layered approach – global, regional and national – it must be understood that different perceptions of public order and security are going to come into play. Governance processes must be created that enable a common understanding of governance at multiple levels. These governance frameworks will need to be acceptable to all parties and effective, and thus enable constructive dialog and discussion.

2.2.3.1. Maritime Security Governance Key Issues

Regional and inter-regional cooperation occurs when there are common interests, but there may be occasions where there is no natural need for structured cooperation among maritime states. The intensity of common interests determines the quality and also the extent of the cooperation and relationship.

At every level, MS governance has to be driven by a strategy. In many cases in MS that strategy is absent. When we talk about the underlying governance theme for MS regimes we need to address the comprehensive strategies to create multi-layered governance structures at the global, regional and national levels.

We can learn both from existing examples and from regions where there are no existing structures. There are good examples of regional MS governance, such as ReCAAP, MARSUR and in the Black Sea. There are also some regions in which there is no sustainability and supportability of maritime security governance or infrastructure. We can learn from strengths and best practices of both in dealing with different maritime regions.

Governance at national, regional and trans-regional levels is required to orchestrate the maritime security efforts. The governance must include cooperative strategies and a conceptual framework at all these levels. Over time, the question of who will coordinate the governance will need to be addressed.

In designing MS governance models, there is no 'one size fits all' model. However, regardless of the region, there are common elements. These commonalities include the sharing of information, creation of cooperative arrangements, efforts to build capacity, and attempts to build trust. Commonalities need to be considered but the structures may differ depending on the requirements of the specific region.

What are the right questions to ask when trying to formulate a maritime governance structure or regime? We have to determine where it would be helpful, where we need true common standards, and where we need to establish only minimum requirements. This understanding is important when dealing with security partners

who have very minimal capacity.

It is recognized that public and political support will make the creation of MS governance much easier. However, there are formidable challenges in educating the public and leaders (political and military) on the whole need for maritime security. Strategic communication is one of the missing parts of MS initiatives.

One of the key issues that underpin the ability to act as a coalition is the need to build political will. This must be done at multiple layers in multiple dimensions – at the national, regional and international levels. It is not just the political will of the coalition of participants that must be targeted but the political will of all the international actors involved. There is a need to understand their motivation, and the advantages and disadvantages of participation. The majority of players who should be engaged to address the immediate security imperatives of today, such as piracy, terrorism, illicit trafficking, have not been included in the network of MS initiatives.

The fact that there are no set standards or policies that promote an integrated approach to governance should not be used as an excuse for inaction. The real issue when discussing governance for maritime security is determining to what extent established policies and standards are really necessary rather than simply convenient.

There is no need to re-invent the wheel. Existing government structures and inter-agency networks can be leveraged to enable trans-regional cooperation. We also need to be able to leverage existing commercial governance structures where those structures control the private sector.

Governance requires significantly different approaches at global, regional and national levels. Because you are dealing with sovereign states, when you talk about governance at the global level, you are really talking about governance by consent and consensus. The need for consent drops exponentially when addressing governance at a domestic level where a legal framework can be relied upon. There is, however, an increased need for public legitimacy of that framework in the domestic context.

Governance structures operate on different principles at different levels – for example, based on consent among states at the international level, and based on lines of enforcement at the domestic level -- demanding different approaches. Decisions are authoritative and made by an appropriate national authority at the lowest levels. The decisions become less authoritative at the regional level and are at their least authoritative level in global regimes where decisions are predominantly based on consent.

The context is important when examining challenges or disputes in establishing MS governance. In inter-agency disputes, for example, there may be other dynamics in the background that affect cooperation in terms of MS. These background dynamics might include budget competition which can make it harder to manage inter-agency cooperation.

Increasing exploitation of marine mineral resources (MMR) raises additional difficult questions. It will be increasingly important to answer the following questions: Who owns MMR? Who has the right to access and exploit MMR? Whose responsibility is it to protect the environment? Each of these issues presents a host of challenges especially in international or disputed areas.

There are good examples of MS governance, but none of these examples provide a model readily adoptable to international level cooperation. National disparities in law and policing rules, complex international laws that are regionally fragmented and nationally dysfunctional, and the plurality and complexity of those regulations all challenge the creation of a single universal approach to MS.

2.2.3.2. Maritime Security Governance Recommendations

One of the first steps that must be taken is to develop a long-term strategy to create mechanisms for developing and maintaining political will and public support for MS. This strategy should be tailored to an understanding of different cultures and incentives, and any framework or roadmap will have to accommodate a variety of national models. Sound strategy on this subject will promote cooperation and interoperability among maritime security organizations.

The existing governance structures and inter-agency networks should be enhanced to enable inter-regional cooperation. Regional/local approaches should be examined to understand their prioritization and sequencing

and, by learning this, fill maritime security governance gaps. Simple governance solutions that can be easily implemented and eventually linked would be a good starting point to nurture and develop trust among the stakeholders.

Cooperation among maritime states does not necessarily need to be structured in the beginning – it can be informal and/or ad hoc. But adequate arrangements need to be made to establish the foundation for bilateral, regional and international cooperation.

MS information exchange, cooperation and governance should build on multi-stakeholder approaches, involving all relevant state, international, non-state and corporate partners. Private sector actors, including the commercial entities that tend to be thought of as outside the sphere of maritime security dialog (for example, resource-extractive industries), should also be engaged.

Consent and consensus must be built on a myriad of issues. We will therefore need to accommodate different perceptions of public order and security needs, as well as perception about the operational concepts that enable joint inter-agency cooperation. Additionally there will be different perceptions about the multinational and multilateral capabilities that work effectively to address maritime security.

States must demonstrate a willingness to make compromises in order to advance MS issues. As well, there are existing laws that are not effective because they have not been adopted, implemented or enforced by all interested parties. States must interpret and implement existing legal regimes and apply them in practice.

MS can benefit from best practices. Simple governance solutions should be sought that can be easily implemented and eventually linked. Perhaps this will mean adopting a regional or local approach to prioritization and sequencing to address maritime security governance gaps. Also, we must look at niche governance capabilities to nurture or develop in these key areas.

Efforts need not commence on a grand scale. Through small cooperation activities focusing on only one or two key issues, trust will grow and capacity can be scaled up. As soon as a certain level of cooperation is reached, logically consistent and necessary legislation and agreements, such as port state control, can be implemented and enforced.

It must be acknowledged that new risks are emerging and that these issues need to be further examined. These risks include exploitation of marine mineral resources, accidents and natural disasters that affect offshore resource-extraction industries, climate change, and cyber threats to surveillance, navigation or shipping. These challenges are complicating the maritime environment even more, and this increases both the importance of and the difficulty of achieving MS – we are not yet able to address the *current* MS challenges effectively.

On of the most crucial step towards building regional/international MS cooperation is capacity building. The primary area of focus for maritime security capacity-building should be strengthening national 'policing' of territorial waters.

An international body should have a role in facilitating the creation and adoption of standard operating procedures (SOPs) developed by engaged states.

MS efforts should not be distracted by attempting to create a perfect structure and perfect legislation. A sufficient legal framework exists for information sharing, prosecuting crimes, etc. There is no need for other legal instruments. States should use the existing tools and legislation. UNCLOS can address most of the questions regarding MS (although it has not been signed or ratified by all states).

It is important to use common regional funding if it is available through direct financing of governments for future projects (e.g., EU BlueMassMed).

Mechanisms to create more effective implementation of Port State Control measures and the International Ship and Port Facility Security (ISPS) Code need to be examined.

Much can be learned from domestic programs, including the consideration of alternate models for creating cooperative security arrangements such as a 'community policing model.'

The best practices of existing and regional MS governance models should be examined in order to develop a skeleton model and strategy to help establish and develop MS regimes that could be linked regionally, inter-regionally or even globally.

2.2.4. CJOS COE White Paper "A Framework for Enhanced International Maritime Security Cooperation and Awareness"

CJOS COE published a White Paper entitled "A Framework for Enhanced International Maritime Security Cooperation" based on previous conferences and research in concept development in MS. The White Paper was prepared for MSC 2011 and following the discussions during MSC 2011 it was further evaluated and refined to set the scene for the discussions of MSC 2012. It has been the central intellectual driver for the last two MSCs.

The paper outlined and identified the need for central governance and standards in order to coordinate efforts among various existing international organizations with emerging regional maritime security regimes to establish an international framework for maritime security cooperation. This was considered the most promising approach to achieve international maritime security cooperation so that all can collaborate more efficiently to form a global network for a secure maritime environment.

The CFPS at Dalhousie University, as an academic partner for MSC 2012, also worked on this paper. CFPS held a MS workshop in October 2011 to examine the fundamental principles of the White Paper by testing the ideas and the concepts in the Western Hemisphere. As a more concise presentation for the conference, the CFPS workshop concentrated on institutional change as well, using an example from the United States and Canada to explore institutional, whole-of-government and military perspectives on change.

The CFPS workshop examined exemplars of regional and whole-of-government approaches to MS to identify key themes, practices, challenges and gaps that could be directly translated to actions or to inform the debate about global issues. Combined with the workshop results, CFPS has produced an analysis of the White Paper entitled *Closing the Gap; Western Hemisphere Perspectives and Approaches to Future Maritime Security Challenges*. This publication discusses four key areas of convergence in the cases examined.

First, it was agreed that some basic organizational structure is essential for even the most rudimentary forms of MS cooperation. However, the organizational structure should also be able to accommodate a broad spectrum of participation and collaboration. It was noted that this flexibility of governance via a bottom-up approach would better address local and regional interests than a top-down approach.

Second, the CFPS workshop report supported the emphasis of the White Paper on the need to establish standards and best practices to guide state responses to a broad range of MS challenges as a precondition for any collaborative effort. It was further evaluated that these standards and best practices must be sufficiently permissive both to encourage widespread participation and to accommodate differences in national capacity.

Third, the workshop noted that we lack a truly global enforcement mechanism for effective international action. For that reason local and regional coalitions are considered more likely to generate practical initiatives involving numerous government and non-government agencies than a global coalition.

Fourth, it was identified that institutional governance cultures vary enormously between different states and even between different agencies. In particular they vary with respect to their capacity and willingness to embrace technological and doctrinal change. Norms of trust and cooperation must be worked constantly via regular interaction, training exercises and personnel exchanges.

The CFPS review of the CJOS White Paper affirmed that the basic principles of the White Paper are sound but suggested a more bottom-up approach. The CPFS report suggested that this had a greater chance to lead to the implementation of maritime security cooperation than the international governance model proposed in the White Paper.

2.3. Conclusions and Way Ahead

2.3.1. Conclusions

MS is crucial for the global economy which depends on having sea lines of communication safe and open. Therefore any complication or threat to this desired status will have a negative impact for all states.

The complexity of challenges in the maritime domain is growing. Asymmetric threats demand more from our traditional security and defence strategies. We will have to create an answer to those threats in which national and international, military and civilian authorities cooperate in a preventive, effective and coherent way.

As there are new MS challenges, such as the revival of piracy, illicit trafficking, mass migration and resource exploitation, there is increasing pressure to coordinate the collective response activities. At the same time, there is pressure to coordinate these responses under the guidance and standards of a centralized/ international governance body to make better use of operational resources and processes to secure the maritime environment.

No country can tackle the MS challenges alone. Therefore a more effective network of global MS cooperation needs to be instituted, synchronized and operationalized.

We must remember that military power alone will not be able to address MS challenges. Multi-stakeholder involvement – including political actors, governmental departments, legal institutions, law enforcement agencies, academics, international organizations and non-governmental organizations – is crucial for success.

There are numerous successful regional bodies conducting MS initiatives. They all display at least the possibi lity to be a model for a global MS network and cooperation. Separate solutions have to be brought in line with one common goal. The responsibility starts at the national level with a vision to interact with regional and international MS actors. A bottom-up approach starting at the national level, followed by the linkage to sub-regional security arrangements offers the greatest promise to achieving an international level of cooperation.

MS engagement should be guided by a long-term participative strategy that will help to activate political and public attention. The overall strategy needs to consider organizational, national and regional differences to reduce cultural barriers.

There is already sufficient structure for cooperation; it is time for action. The best way is to start with simple, basic information exchange as the first step. Based on the success of this experience, it will evolve to broader cooperation. Taking small steps will help to deal with the trust issues. In some cases it may be very difficult to build trust among certain partners but, even so, cooperation on small matters will establish the practice of working together. There is still a long way to get to the desired level of international cooperation for MS operations, but small steps are a start.

MS initiatives need to create efficient inter-agency cooperation as MS requires multi-stakeholder engagement including all relevant state, international, non-state and corporate partners. They have to work in consonance with each other.

The question – who should coordinate and lead international maritime security cooperation? – is still unanswered. Is it an existing organization like UN/IMO, or a new body formed by a group of likeminded states, or a confederation of all the regional initiatives?

It may be unrealistic to expect one international authority to act as an executor of the common goal of secured MS on all oceans. However, such a global body is required as a facilitator for developing guidelines and a collaborative environment for all parties involved. Working to identify or develop such a body should certainly be a central focus of our upcoming work.

2.3.2. MSC Way Ahead

The Maritime Security Conference series created significant awareness and identified the need to work together for improved MS. The solution to MS challenges requires global participation, and our conferences have always aimed at achieving this goal. The MSC series has inspired and lead to new initiatives for international maritime security cooperation.

Because we have succeeded in setting the larger picture, both COEs agree not to hold an MSC annually but instead to organize a series of workshops. These workshops will be organized focusing on specific Program of Work projects. The workshops may lead to international conferences to discuss and further develop the issues with broader participation and perspectives.

In 2013, CJOS COE and COE CSW, in conjunction with other supporting COEs and relevant NATO Commands, will seek to formulate a strategic campaign plan and consequently a concept development plan which will enable NATO to implement the NATO MSO concept.

This topic may then be further expanded and introduced to the international community at another MSC which may be held in 2014. At this future MSC, global requirements and practices of maritime security operations can be examined in detail.