

## **Maritime Surveillance as a Precondition for Maritime Security**

A European Approach

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*Everything can be found at sea, according to the spirit of your quest* (Joseph Conrad)

The character of the sea has changed. From an open space where freedom was the rule, it has become a shared, common good for humanity, vast but fragile, needing worldwide management and protection.

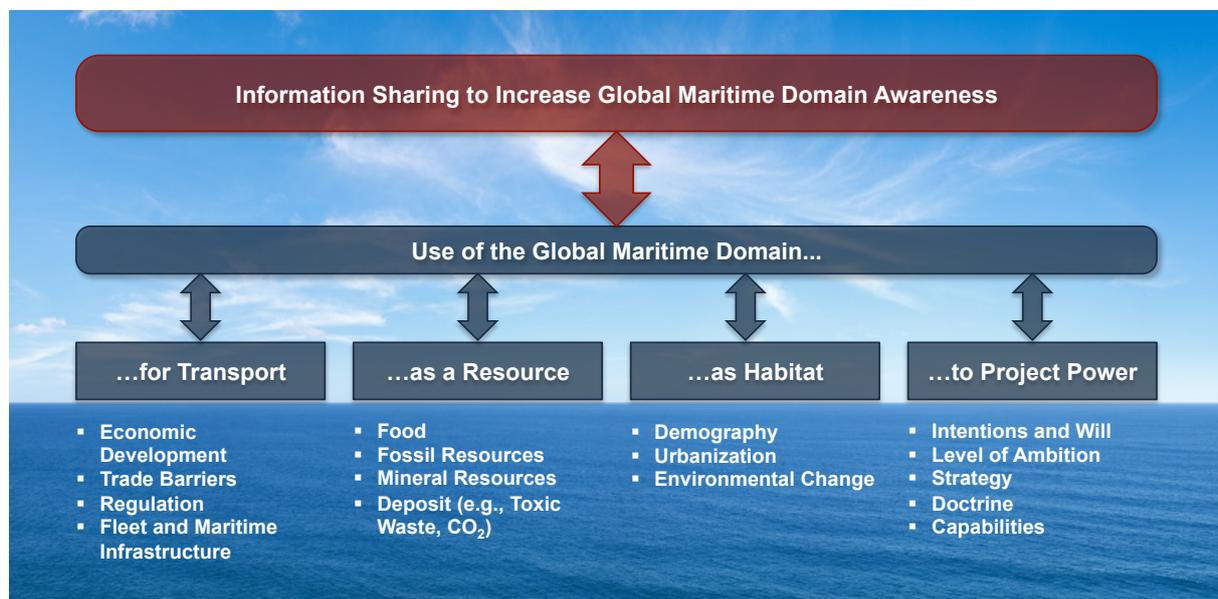
The maritime space, or better: the maritime domain, covers 70% of the surface of planet earth. The attention, or awareness, now provided to every activity at sea is a consequence of globalisation. To start with, global trade, as one of the driving factors, must be at the forefront of all security initiatives. Today, almost 95% of world trade is transported by sea, and - from a European perspective - around 25% of ships fly European flags.

The world Merchant Fleet comprises around 47,000 units of 300 GRT and a load-carrying capacity of 1,234 million deadweight tons and is engaged in international traffic under 158 different flags.<sup>1</sup> For an impression of the structure of this huge fleet, it is appropriate to list the vessels by type: 17,700 general cargo ships, 9,740 crude oil tankers, 7,770 bulk carriers, 4,700 container ships, 4,200 passenger liners, 1,490 liquid gas tankers and 1,330 chemical tankers are sailing the oceans. We realise that these different types of ships require quite different degrees of attention. They represent the grand total of ships that are registered and can therefore be called the “World’s Merchant Fleet”. These figures do not include the growing count of small and medium-sized feeders that connect the ever-increasing number of offshore installations with the ports. These installations together with world-wide underwater cables also require attention, and **maritime surveillance** is evidently one of the keys to achieving a picture of the situation at sea. Taking into consideration that there are around 14,000 naval vessels representing their flag states worldwide, together with an unknown number of ‘state vessels’, it is obvious that the character of the sea has really changed. And these numbers do not include the huge number of ships that are not officially registered and hitherto require no registration by any regulation: all ships of 300

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<sup>1</sup> Annual Report 2010 German Fleet Command, Facts and Figures 2010, Executive Summary, page 14 et seq.

deadweight tons and less.<sup>2</sup> Figure 1 provides an additional view that explains the dimension of this change.



**Figure 1: Maritime Domain Awareness and the Use of the Global Maritime Domain**

Source: Adapted from Heiko Borchert, *The Future of Maritime Surveillance in an Era of Contested Maritime Domains* (Lucerne: Sandfire AG, 2011), p. 6.

The four dimensions depicted in the above figure –transport, resource, habitat, and power projection – offer one way to deal with the different aspects of maritime security. They are dependent on one another, and information sharing is an absolute prerequisite for strengthening **global maritime domain awareness**.

Three points, which need to be discussed, indicate ways to achieve more and better maritime security:

1. In comparison to land, space or even cyberspace, the sea is still relatively ungoverned, but all that happens at sea is somehow interconnected and recognises no borders.
2. A more integrated governance regime is needed.
3. At sea, informal ‘regimes’ or regional and local ‘regimes’ are the rule with the advantage of being very pragmatic and flexible in their progress.

As another important aspect of maritime surveillance, there are areas which demand greater attention due to their geography and the new threat dimension (the asymmetric threat). They are

<sup>2</sup> <http://www.gjenvick.com/SteamshipArticles/ShipTonnage/1932-06-28-ShipTonnageExplained.html>

known as ‘maritime chokepoints’ or ‘maritime hotspots’. These chokepoints may be areas with navigational hazards or areas with all manner of resources that have been newly explored and are to be mined using novel technologies. They owe their vital importance to the fact that they are located along major trade routes but may have a political impact as potential conflict areas. Regardless of these aspects, a reliable picture of the maritime situation is crucial for the littoral states and the global community. Chokepoints may be local or regional but their importance is global. This has an impact on the question of responsibility for maritime surveillance and maritime security in these narrow passages.

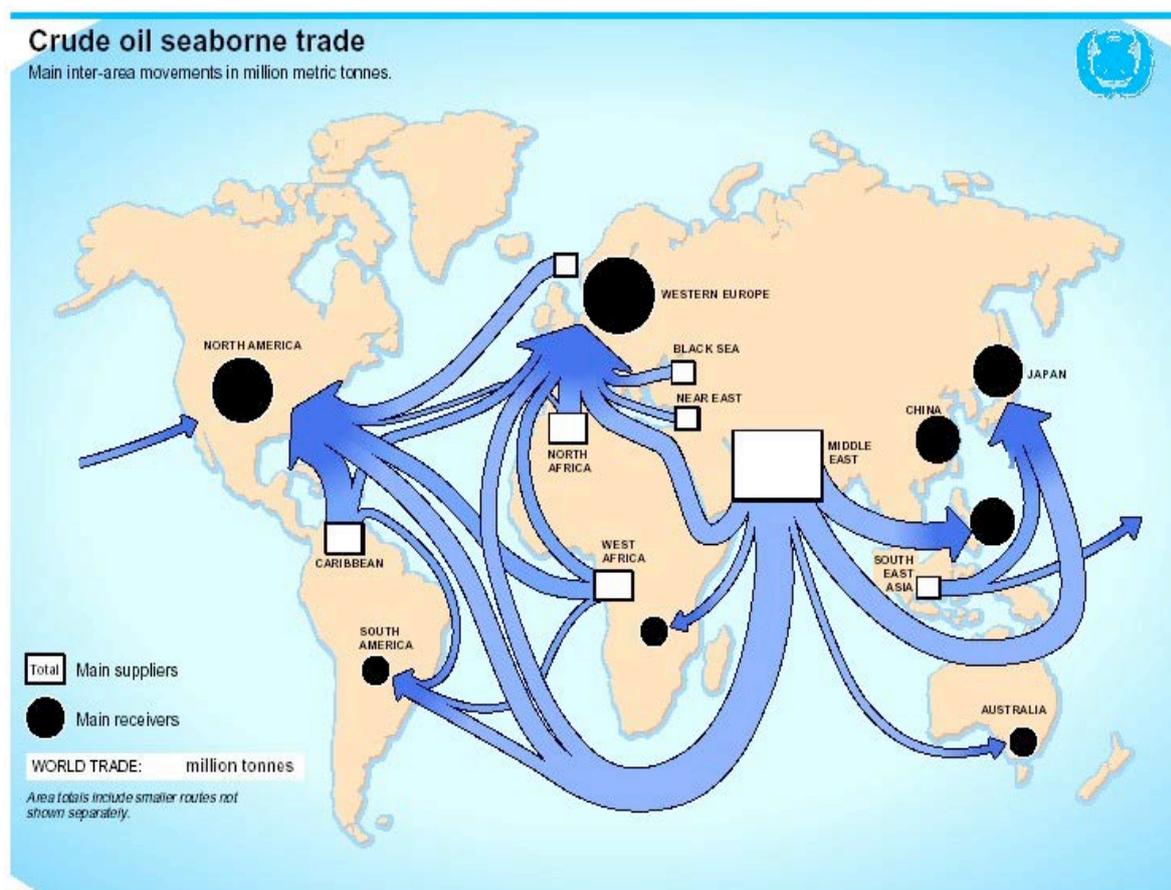
These three points broach these very sensitive issues. To understand their sensitivity it is necessary to know the chokepoints, which are listed below:

1. The Strait of Malacca, located between Indonesia, Malaysia and Singapore. It links the Pacific with the Indian Ocean and the South China Sea.
2. The Bab el-Mandeb Straits, located between Somalia, Djibouti and Yemen, linking the Indian Ocean with the Red Sea and the next chokepoint.
3. The Suez Canal, located in Egypt, linking the Red Sea with the Mediterranean
4. The Strait of Hormuz, located between the United Arab Emirates, Oman and Iran, linking the Persian Gulf with the Arabian Sea.
5. The Bosphorus Straits, located in Turkey, linking the Black Sea with the Mediterranean, and connecting the Caspian Sea
6. The Panama Canal, located in Panama, linking the Pacific with the Caribbean Sea and the Atlantic Ocean
7. The Danish Straits, located in Denmark, linking the Baltic Sea with the North Sea and Atlantic Ocean.
8. The English Channel, located between the United Kingdom, France, Belgium and the Netherlands, linking the Atlantic Ocean with the North Sea, the Norwegian Sea and the Baltic Sea.
9. The Taiwan Strait, located between China and Taiwan, linking the South China Sea with the East China Sea,
10. The Korea Strait, located between South Korea and Japan (Islands of Kyushu and Shikoku), linking the East China Sea with the Sea of Japan.

11. The Straits of Tiran, located between the Sinai Peninsula and Saudi Arabia, linking the Red Sea with the Gulf of Aqaba, Jordan and Israel.<sup>3</sup>
12. Strait of Gibraltar, located between Europe (Spain) and Africa (Morocco and Ceuta/Spain) linking the Mediterranean Sea with the Atlantic Ocean.

For political reasons we can now expect new and more chokepoints to emerge, as an outcome of growing maritime awareness. In addition to chokepoints the importance of Exclusive Economic Zones is rapidly increasing and requires more attention in relation to maritime surveillance and maritime security.

A general overview of the 'Highways of the Sea' (Figure 2) and chokepoints shows both the global aspect of maritime surveillance and the regional approach to achieving a recognized maritime picture. Here, crude oil serves as an example for all kinds of trade.



**Figure 2: Main crude oil seaborne transport corridors**

Source: Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland, Jahresbericht 2006, p. 2-5, simplified by the author.

<sup>3</sup> <http://www.eia.gov/todayinenergy/detail.cfm?id=330>

What are the main risks and threats to maritime security? They correspond to the four principal areas – resources, habitat, transportation and power projection:

1. *Risks and threats from the sea affecting both territory and citizens:*
  - Terrorism from the sea through the infiltration of commandos or the use of explosives or weapons of mass destruction
  - Human trafficking, which exploits illegal immigration, endangering the stability of nations
  - Narcotics and arms trafficking, including small arms
  - Navy to navy engagement on a small or medium level
2. *Risks and threats affecting global maritime interests:*
  - Piracy
  - Smuggling of goods of all kinds, sizes and value
  - Disputes over maritime borders between nations and the international community with a special focus on the Exclusive Economic Zones,
3. *Risks and treats affecting global resources at sea:*
  - Environmental degradation, such as dumping of toxic wastes at sea
  - Risks to biodiversity in sea basins
  - Illegal, unreported and unregulated fishing
  - Illegal pumping of oily bilge water into the high seas
  - Maritime accidents, collisions, groundings, and wreckings, which pose a continuous threat to ships, ports, all offshore maritime infrastructure and the global coastlines.

To recapitulate: The following are major threats to maritime security:

1. The *use of force* against the sovereignty, territorial integrity or political independence of a state.
2. *Terrorist acts* against shipping, offshore installations and other maritime infrastructure, unlawful acts, illegal transport and the use of weapons of mass destruction.
3. *Piracy and armed robbery* at sea.
4. *Transnational organized crime*, e.g. smuggling of immigrants, narcotic drugs, arms, and as a special threat for all stakeholders, small arms.
5. Threats to *resource security*, e.g. illegal, unregulated and unreported fishing
6. *Environmental threats*, e.g. major pollution incidents, illegal dumping.

The emphasis on the risks and threats described above is based on two experiences. Firstly, the still existing and wide-spread phenomenon of ‘sea blindness’, or the lack of ‘maritime situational awareness’, and secondly the strong belief that one or two maritime services can offer an adequate solution to achieving maritime security.

But we know from experience and research of various maritime disasters that this not a successful approach. Threats, risks and vulnerabilities run the entire gamut of life at sea. They are related to all stakeholders ashore who bear different responsibilities for the global maritime domain. This is a task both for state actors (e.g. governments) and non-state actors (e.g. all non-governmental organisations). The importance of maritime domain awareness is proven by this broad spectrum of threats, risks and vulnerabilities, and it is obvious that it must be mirrored by a broad spectrum of answers. Maritime surveillance is one key to finding a common approach to addressing growing insecurity at sea. There are different options for improving maritime surveillance, but some basic principles are valid regardless of perspective. Globally, regionally and even locally, the answers to maritime surveillance are mostly fragmented solutions, following an approach that is driven by the interests of the representatives of the sectors involved, e.g.:

- a. Border control at sea
- b. Fisheries control
- c. Defence
- d. Maritime safety and security
- e. Maritime environment
- f. Customs
- g. General law enforcement.

In general this means that the number of state actors comprises at least five different ministries, not taking into account agencies and non-state actors. It is obviously important that these different stakeholders adopt a similar way of thinking and embrace a change of mindset, which is not easy to achieve. Some ‘key messages’ to promote maritime surveillance are crucial for this change:

- The overarching principle must be a comprehensive or interagency approach to achieving maritime security through maritime surveillance.

- Future actions must follow the sequence: ‘Think globally, but act regionally and locally.’ It is important to develop all regional maritime surveillance and security initiatives in a global context.
- Therefore, all existing contributors to maritime surveillance have their own, but often very limited, part of the whole picture. But their part is of importance, and this importance will increase when they are willing to share their information with other contributors in an organised manner.
- ‘Information sharing’ is at the heart of maritime surveillance and maritime security. A change of mindset from ‘need to know’ to ‘need to share’ and finally ‘responsibility to share’ is urgently required.

The ‘need to know’ principle is restrictive as well as linked to a culture of secrecy. But living in the information age and knowing that only a clearly defined and very limited amount of information needs to be protected, this principle must be replaced by a ‘need to share’ mentality. It is obvious that a remarkable number of stakeholders still do not know what they do not know. Therefore they are unable to act in accordance with their responsibilities. Information sharing is the key to a better maritime situational awareness.

Another ‘key message’ deriving from the risk and threat assessment is the recognition that neither military nor a combination of civilian and military capabilities can alone deliver effective maritime surveillance and security. Three additional aspects should be taken into consideration:

1. The ‘step by step’ approach is based on the idea of achieving better and more reliable maritime surveillance by accepting the different actors’ capabilities and abilities.<sup>4</sup>
2. All national solutions are a fact, a given, which will remain as their contribution to better coordination, and cooperation must be the next step. Secondly, there is an urgent need to coordinate all capabilities in a region. This can be effected by the International Maritime Organisation (IMO) as a global actor, but regional agreements - like ReCAAP<sup>5</sup> in South Asia, SUCBAS in the Baltic Sea<sup>6</sup>, V-RMTC<sup>7</sup> in the Mediterranean and Black Sea, and MSSIS,

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<sup>4</sup> [http://www.eda.europa.eu/libraries/documents/marsur\\_wise\\_pen\\_team\\_report\\_-\\_26\\_april\\_2010.sflb.ashx](http://www.eda.europa.eu/libraries/documents/marsur_wise_pen_team_report_-_26_april_2010.sflb.ashx)

<sup>5</sup> <http://www.recaap.org/>

<sup>6</sup> <http://www.sucbas.org/>

<sup>7</sup> [http://de.wikipedia.org/wiki/Virtual\\_Regional\\_Maritime\\_Traffic\\_Centre](http://de.wikipedia.org/wiki/Virtual_Regional_Maritime_Traffic_Centre)

<sup>8</sup> [http://www.dialogo-americas.com/en\\_GB/articles/rmisa/features/security\\_technology/2011/01/01/feature-01](http://www.dialogo-americas.com/en_GB/articles/rmisa/features/security_technology/2011/01/01/feature-01)

which aims at global coverage and comprises 66 nations who are willing to share basic information, are encouraging examples for the step by step approach.

3. The regional approach is inherent in the “step by step” approach. From a European point of view regional approaches are the only acceptable way to achieve progress in maritime surveillance. The existing examples, SUCBAS and V-RMTC, are supplemented by another: MARSUNO<sup>9</sup> a pilot project of the European Commission for maritime surveillance in the Northern Sea Basin, which was completed in May 2012 and awaits implementation. Another project in the Mediterranean, BlueMassMed<sup>10</sup>, follows a different approach due to individual requirements and attitudes to maritime surveillance and security. It was completed last July and provided a set of findings that should be integrated in subsequent efforts to achieve a cooperative system of maritime surveillance for Europe. One way to facilitate the different regional approaches is to identify and single out focal points that must act as interfaces and gateways for internal and external data, information and knowledge sharing.

Coherence and coordination of all, hitherto fragmented, activities are essential for achieving greater efficiency. The regional approaches with different solutions and different ways to proceed need both: the same standards and procedures but different ways to achieve them. Coherence could be reached by a template, which should be developed in a consensus. One way is to start with regional solutions, implement them as pilot projects, and establish them as regional systems with a global reach, where required.

Safety was the prime driver behind the efficient situational awareness that civil aviation has achieved today. And safety was the prime driver for the IMO, the United Nations Guardian for all aspects related to safety at sea. But the increasing importance of maritime security has for a long time been underestimated. It was a crucial decision of the IMO, to take responsibility for maritime security in addition to maritime safety.

The ‘key messages’ reflect the progress, already achieved in identifying and defining both areas of responsibility: safety and security. Both are dependent on maritime situational awareness, and a common approach to achieving or improving this awareness is maritime surveillance. Maritime situational awareness is the ‘sine qua non’ of maritime security and depends on surveillance and information sharing by the international community. Current capabilities to achieve that

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<sup>9</sup> <http://www.marsuno.eu/PageFiles/598/Final%20Report%20111222,tryck.pdf>

<sup>10</sup> [http://www.bluemassmed.net/index.php?option=com\\_content&view=section&layout=blog&id=6&Itemid=56](http://www.bluemassmed.net/index.php?option=com_content&view=section&layout=blog&id=6&Itemid=56)

awareness are developing but remain inadequate and poorly coordinated. On the other hand, we can identify some encouraging examples on regional and local levels.

The requirements for effective maritime surveillance extend far beyond simple positional data: the nature of cargo, ports of departure and the final destination, previous and next ports of call, track log and the identity of crew members must be recorded and transparent to safety and security regimes.

Moreover the autonomy, mobility and range of ships mean that maritime situational awareness for security reasons cannot be guaranteed simply by the surveillance of a particular region or choke point. A ship bound for Europe may well have sailed from a remote port on the other side of the world. If the integrity of cargo is to be assured, the entire passage must be monitored.

The IMO and other international and national authorities with maritime responsibilities have been alert to these considerations and have implemented measures such as the International Ship and Port Facility Security Code, ISPS, in recent years to increase security in the maritime domain and in ports.

The global actors involved in maritime security are well known, but focussing on the major actors gives an impression of who the current and incoming authorities at sea are:

- Firstly, the United Nations is a global actor through the IMO, with great experience, great patience in negotiations, but limited power to implement necessary regulations.
- Secondly, we have the United States through its Navy, Coast Guard and Marine Corps, and their common ‘maritime strategy’<sup>11</sup>. While not having ratified UNCLOS,<sup>12</sup> the United States government is a supporter of the IMO and a facilitator of many international processes.
- Thirdly, NATO, with its Maritime Strategy<sup>13</sup> and its Maritime Operations Concept, representing many navies of the world, is a provider of maritime security and offers a large number of maritime issues for further discussion and development. With a focus that is no longer purely military. the organisation now takes account of all maritime aspects in its principal concepts.

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<sup>11</sup> <http://www.navy.mil/maritime/Maritimestrategy.pdf>

<sup>12</sup> [http://www.un.org/Depts/los/convention\\_agreements/texts/unclos/unclos\\_e.pdf](http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf)

<sup>13</sup> [http://www.nato.int/nato\\_static/assets/pdf/pdf\\_2011\\_03/20110318\\_alliance\\_maritime-strategy\\_CM\\_2011\\_23.pdf](http://www.nato.int/nato_static/assets/pdf/pdf_2011_03/20110318_alliance_maritime-strategy_CM_2011_23.pdf)

In the wake of the UN, US and NATO, the European Union through its Commission and, to a limited degree the EU Military Staff, has developed a European Security Strategy<sup>14</sup> named 'A Secure Europe in a Better World' and an Integrated Maritime Policy.<sup>15</sup> The European Union Military Staff has promulgated a Maritime Security Operations<sup>16</sup> concept, which follows an interagency approach.

The African Union has taken encouraging steps towards a better understanding of its security interests at sea, with a strong emphasis on Africa's territorial waters and the EEZ, by drafting an indigenous African Maritime Security Strategy.<sup>17</sup>

In addition to these different organisations with individual responsibilities, capabilities and political ambitions, non-aligned nations like Brazil, China, India, Pakistan, Russia, and - to a certain degree - Turkey, have maritime ambitions and strategies that will have a serious impact on maritime security and the further development of international laws, standards, procedures and regulations.

In essence, all stakeholders have responsibilities on three levels: strategic, operational and tactical. The European Union has chosen 'maritime surveillance' for a lot of reasons, but the most important is that maritime surveillance is a contributor to all stakeholders at sea: governmental, commercial and non-governmental. "Maritime surveillance is the effective real time understanding of all man-made and natural occurrences at sea including their past background." The purpose of maritime surveillance is to create the necessary knowledge to allow effective supervision over such occurrences at sea. The scope of maritime surveillance covers the EU maritime domain, consisting not only of the member states' territorial waters and exclusive zones but also all international sea areas of European interest.

The actors of maritime surveillance are of a great number, they perform seven functions: border control, customs, defence, fisheries control, general law enforcement, marine environment and maritime safety and security. These seven functions give rise to many different initiatives on national, regional and EU levels. Figure 3 illustrates potential user communities.

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<sup>14</sup> <http://www.consilium.europa.eu/uedocs/cmsUpload/78367.pdf>

<sup>15</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0575:FIN:EN:PDF>

<sup>16</sup> <http://www.nato-pa.int/Default.asp?SHORTCUT=2087>

<sup>17</sup> [http://www.africa-union.org/root/au/Conferences/2010/october/situationroom/Brief%20of%20the%20CPS%20\\_2\\_.pdf](http://www.africa-union.org/root/au/Conferences/2010/october/situationroom/Brief%20of%20the%20CPS%20_2_.pdf)

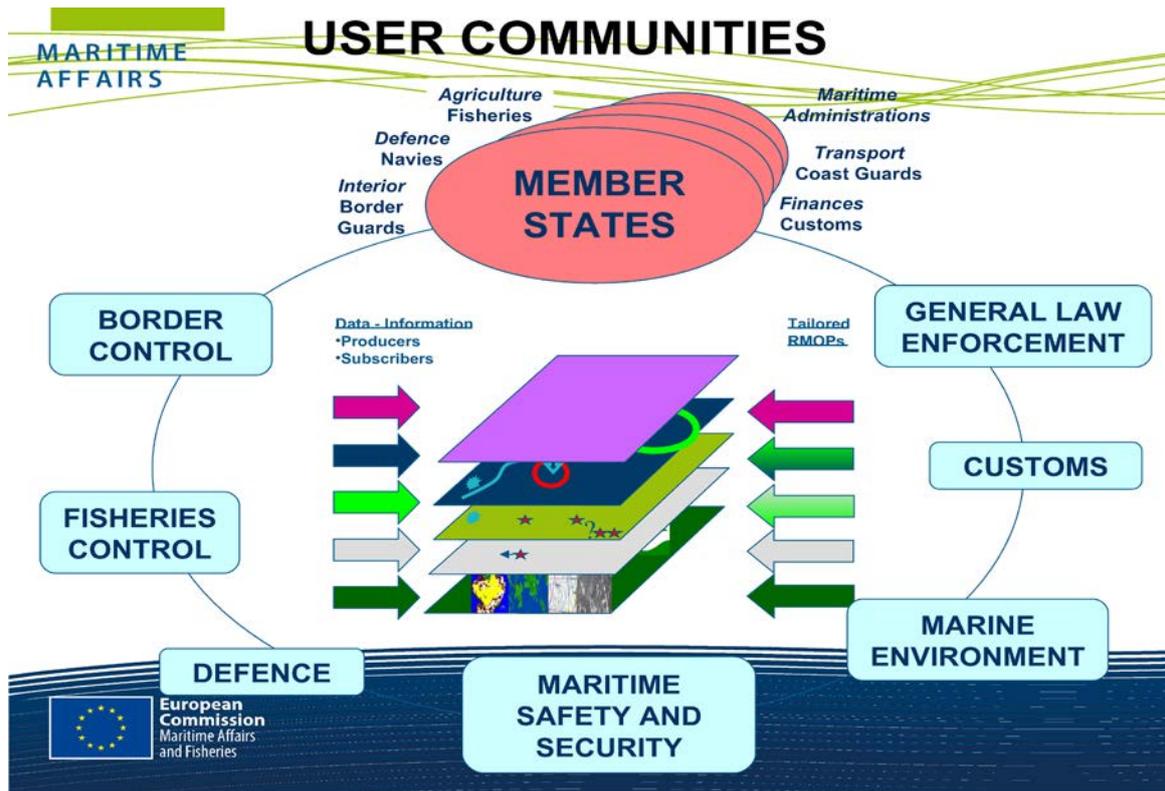


Figure 3: User Communities in the Maritime Domain

Source: European Commission, DG MARE

Taking account of the current situation, principles, key messages, threats and risks as well as international initiatives like ReCAAP, the European Union has decided to overcome the obstacles by creating a ‘Common Information Sharing Environment’<sup>18</sup> for the European maritime domain and international sea areas of European interest.

The overarching objective of CISE is to improve the efficiency and cost effectiveness of maritime surveillance in the EU maritime domain by enabling appropriate, lawful, secure and effective data and information sharing across sectors and borders throughout the European Union. Figure 4 below shows the four areas concerned with information gathering: sensors, platforms, intelligence, reporting and, as a facilitator, communication. Information sharing is the core of “the big picture”:

<sup>18</sup> [http://ec.europa.eu/maritimeaffairs/policy/integrated\\_maritime\\_surveillance/index\\_en.htm](http://ec.europa.eu/maritimeaffairs/policy/integrated_maritime_surveillance/index_en.htm)

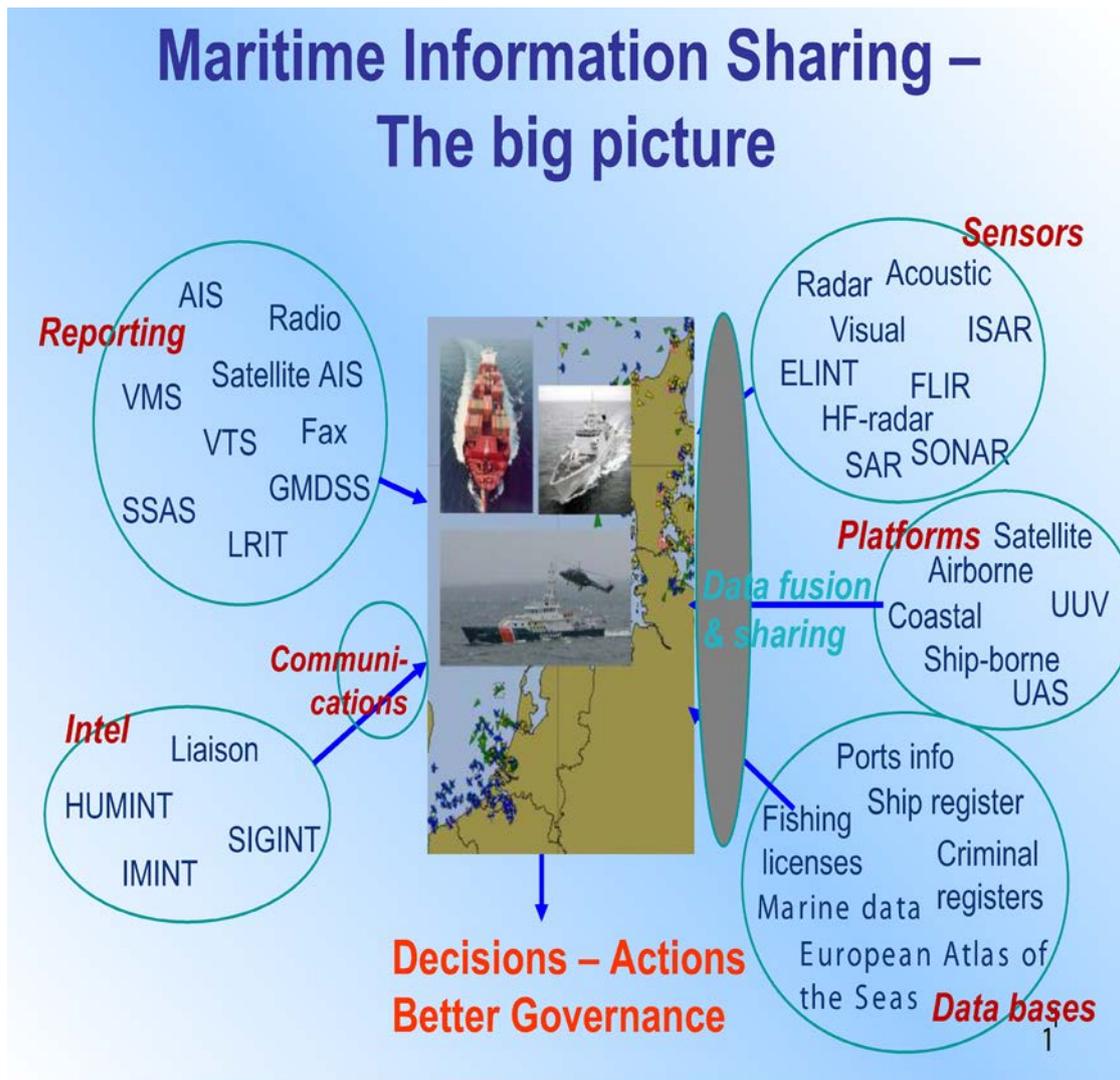


Figure 4: Sources Relevant for Information Sharing in the Maritime Domain

Source: European Commission, DG MARE

This Common Information Sharing Environment is to be achieved by following a six-step roadmap, which comprises both fundamental preliminary work to be performed before establishing the CISE and a process with a value of its own. The implementation of these six steps creates maritime domain awareness in the European Union, its member states and different agencies. The steps are:

- Step 1: Identifying all user communities
- Step 2: Mapping of data sets and gap analysis
- Step 3: Identifying common data classification levels
- Step 4: Developing the technical supporting framework for CISE
- Step 5: Establishing appropriate access rights
- Step 6: Ensuring respect of legal provisions

These steps are essential for identifying and establishing the legal, technical and operational understanding of CISE.

In addition to this process both pilot projects - MARSUNO in Northern Europe and BluemassMed in Southern Europe - were initiated to accompany and confirm the fundamental ideas of CISE and hence to improve maritime surveillance in Europe and likewise maritime security, so as to finally achieve a better governance at sea. Moreover, this example can serve as a facilitator or blueprint for other parts of the global maritime domain.