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SOCIETALLY ACCEPTABLE AND ETHICALLY SUSTAINABLE WAY OF PERFORMING MARITIME SURVEILLANCE

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Executive summary

The aim of this deliverable is to aid the RANGER developers, maritime surveillance experts and end-users, as well as the commercializers to take into consideration ethical and societal dimensions of the proposed RANGER solution.

The aspects of maritime surveillance discussed in this deliverable includes border control, safety and security, customs, fisheries control and environment. The ethical and societal considerations of the RANGER solution encompass the RANGER technology, how this technology will be used in various maritime surveillance activities, as well as the whole RANGER business model/procurement as part of the European Maritime Surveillance ecosystem.

The biggest ethical challenge concerns the use of RANGER in the border control, namely the tension between the humanitarianism and (internal and external) security, including rights of both EU citizens and migrants. On the other hand this is not only a challenge for RANGER, but for the whole EU maritime surveillance policy. In addition and especially in the context of RANGER the displacement effects on the irregular immigration traffic are important issues to be investigated.

Data security and data management of RANGER is a general ethical issue in the context of all maritime surveillance activities using RANGER. Privacy and protecting personal data is a concern although the current radar technology cannot capture sensitive or personal information. However, since the RANGER data combined with other data can violate privacy and personal data protection, the adaptation the Privacy by Design/Default –approach anticipated in the coming new EU Data Protection Regulation (coming into effect in 2018), as well as proper data security architecture is essential. Even more relevant issue from the ethical and societal viewpoint is, however, the data security, the right way of utilizing the data, and the avoidance of leakage and misuse of that data, which includes also military tracks.

RANGER's impact on the wildlife and humans is a third ethical issue which emerged especially during the initial societal impact assessment workshops organized as part of this deliverable work. Nevertheless the impact on wildlife and humans is real or only a fear, it is ethically and societally important issue to take into account. How to tackle these challenges concern both the design of the RANGER technology, the location and installation of the radars, as well as the use of the technology in various maritime surveillance activities.

In this deliverable, we will first describe the RANGER project and the maritime surveillance activities it supports. After that, we will shed light on the value basis of the maritime surveillance operations, and discuss the most relevant ethical challenges in the context of RANGER. In the fifth chapter, we will provide initial societal impact assessment on the RANGER. Finally, we will



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provide ethical and societal guidelines for the development of the RANGER solution and its business modelling.

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1. Introduction

The aim of this deliverable is to aid the RANGER developers, maritime surveillance experts and end-users, as well as the commercializers to take into consideration ethical and societal dimensions of the proposed RANGER solution. The focus is on the ethical sustainability of the proposed RANGER solution aiming for benefits of less human suffering, saved lives and reduced harm from illegal activities. The aspects of Maritime surveillance discussed in this deliverable includes border control, safety and security, customs, fisheries control and environment.

EU Maritime Surveillance concerns the effective understanding of activities carried out at sea that could impact the security, safety, economy or environment of the European Union and its Member States. This includes also duty to render assistance, that is manifested primarily as search and rescue (SAR) operations. The RANGER aims at re-enforcing this by combining innovative radar technologies with novel technological solutions for early warning, and by integrating them into EU maritime surveillance ecosystem, including CISE and EUROSUR. The ethical and societal considerations of the RANGER solution therefore encompass the RANGER technology, how this technology will be used in various maritime surveillance activities, as well as the whole RANGER business model/procurement as part of the European Maritime Surveillance ecosystem.

However, since the aim of the RANGER project is also to promote the commercialization the RANGER technology outside the EU, ethical dimensions of RANGER are applicable even in a wider context.

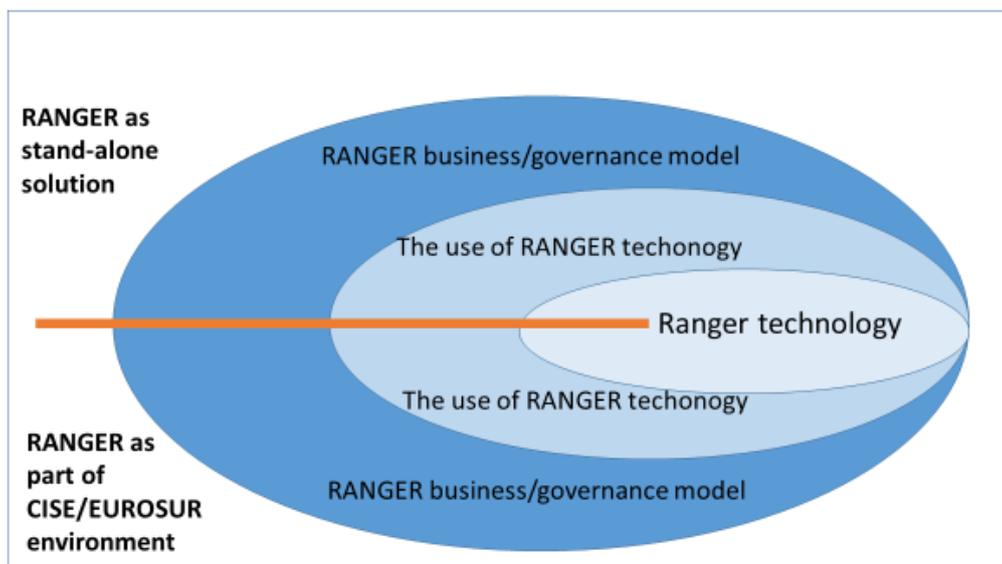


Figure 1: RANGER’s ethical dimensions

The biggest ethical challenge concerns the use of RANGER in the border control. This is related to the tensions between humanitarianism and security, and the human rights of both EU citizens and migrants. On the other hand, this is not only a challenge for RANGER, but for the whole EU maritime surveillance policy and practices which - according to several scholars - are more focused on safety, technology and security businesses than on human rights and saving lives. In addition, and especially in the RANGER context, the displacement/balloon effects on the irregular immigration traffic are important issues to be investigated.

Data security and data management of RANGER is a general ethical issue in the context of all maritime surveillance activities from border control, customs, search and rescue operations to fisheries and environment control. Privacy and protection of personal data are a concern with the use of RANGER although the current radar technology cannot capture sensitive or personal information. However, since the RANGER data combined with other data can violate privacy and personal data protection, the adaptation the Privacy by Design/Default –approach anticipated in the coming new EU Data Protection Regulation (coming into effect in 2018), as well as proper data security architecture is essential. Even more relevant issue from the ethical and societal viewpoint is the data security: the right way of utilizing the data, and the avoidance leakage and misuse of that data, which includes also military tracks.

RANGER's impact on the wildlife and humans is a third ethical issue which emerged especially during the initial societal impact assessment workshops organized as part of this deliverable work. This challenge is real. Regardless of whether the impact on wildlife and humans is real or only a fear, it is ethically and societally important issue to take into account. How to tackle these challenges concerns both the design of the RANGER technology, the location and installation of the radars, as well as the use of the technology in various maritime surveillance activities.

This deliverable has been produced in the early stage of the RANGER project, when end-user requirements and business models are not yet defined. Therefore, it provides only general considerations and guidelines for the design of the RANGER solution and business model. The ethical and societal investigation of the RANGER project will continue during the whole RANGER project life-span, including the pilots. The deliverable has been designed to be quite short (including several tables and pictures) and without too many academic arguments because of a practical reason: Based on our experiences the partners in technology project may not be very familiar with ethical issues. Therefore the deliverable has to be interesting to the point and easy to read – and to give incentives to consider ethical and societal issues further during the project. It is also worth to mention that in the end of the RANGER project, the second version of this deliverable will be provided (D3.2).



*D3.1 – SOCIETALLY ACCEPTABLE AND ETHICALLY
SUSTAINABLE WAY OF PERFORMING MARITIME
SURVEILLANCE*

In this deliverable and after the introduction, we will first describe the RANGER project and the maritime surveillance activities it supports. After that, we will shed light on the basic values of the maritime surveillance operations and discuss the most relevant ethical challenges of RANGER. In the fifth chapter, we will provide initial societal impact assessment on the RANGER. Finally, in the sixth chapter, we will provide ethical and societal guidelines for the development of the RANGER solution and its business modelling.

2. Background: Maritime surveillance, Ranger and ethics

In this chapter we will first describe the main features of RANGER, based on the information provided in the RANGER Grant Agreement. After that we will demonstrate the maritime surveillance activities which RANGER aims to bring value. Finally we will provide a short snapshot on the current ethical academic discussion around the theme of maritime surveillance and its technology. The idea is to give the reader an orientation base for the further chapters discussing the RANGER ethics and societal impact more in detail.

2.1 Ranger platform to be developed

2.1.1 RANGER solution in a nutshell

The objective of RANGER project is to provide a complete solution for traffic surveillance and search and rescue (SAR) operations. This solution offers vessel detection, recognition and identification capacities far beyond existing radar in terms of both targets size and distance, ranging over-the-horizon. The OTH radar stands out for detecting targets at large distances compared to the state of the art radar systems, whereas MIMO radars as part of the RANGER solution stand out for achieving extremely high resolution, detect small, fast manoeuvring objects with line of sight ranging limitations.

The RANGER architecture will be designed to be both scalable and modular in terms of its components and outputs. In this way RANGER can easily perform any necessary adaptation steps that need to be followed so as such a platform to be deployed on European “hotspots” of expected illicit activity. Further, the RANGER platform will be developed in a way to achieve sustainable integration with the CISE framework of services and EUROSUR framework, while being also available as stand-alone version. For the time being we foresee three distinct RANGER CISE-compliant services: the OTH radar track service, the PA-MIMO radar track service and the RANGER EWS service.

The RANGER Advanced User Interface is a component specifically designed to provide multiple categories of users (e.g. radar designers, operational users, result stream subscribers) with the functionalities required to operate and exploit the results of both the OTH and MIMO radars, according to their needs and without requiring extensive training. This is a rather challenging objective as, for instance the operation of OTH radars require a solid expertise in particular to change in real-time the radar configuration in order, for instance, to better interpret results, focus processing on uncertain cases, and filter out false positives and noise.

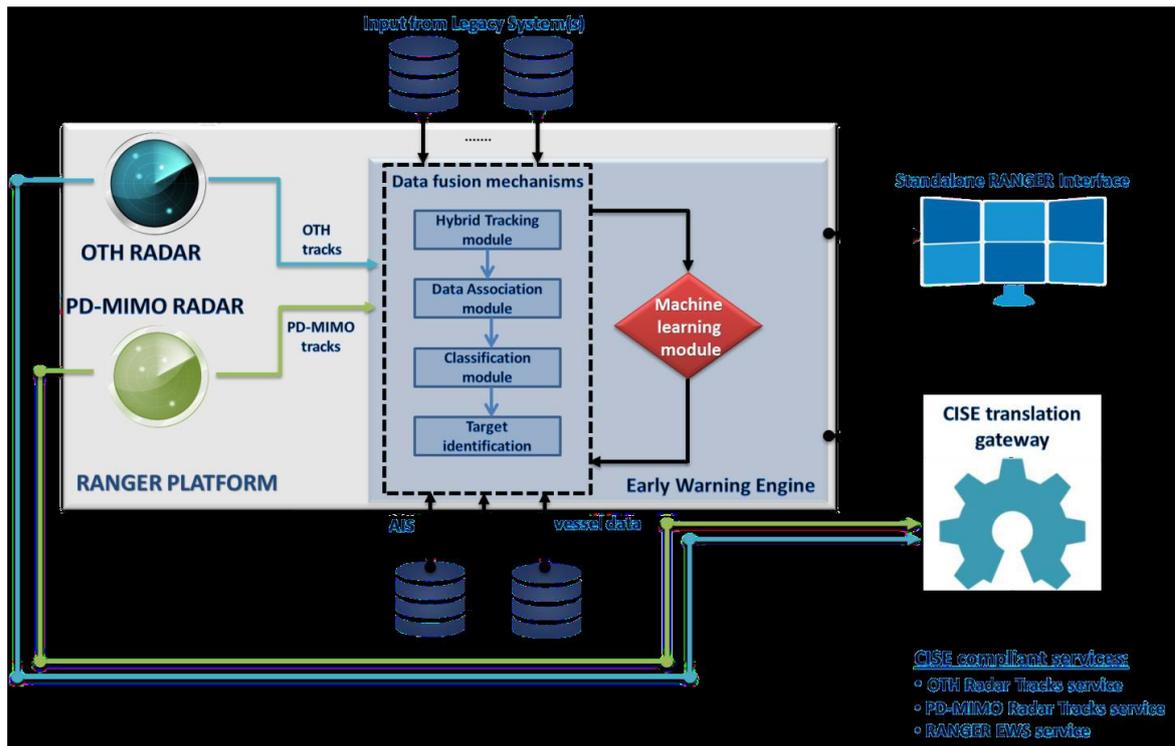


Figure 2: Ranger platform

The substantial advantages provided by the two ground-breaking Radar technologies developed in RANGER are the enormous detection range that extends over the horizon and the unprecedented high resolution that allows for the accurate detection of small, fast manoeuvring vessels. RANGER will leverage the combination of these two complementary to each other technologies, to take a step further towards the design, implementation and provision of a system that not only detects targets, but has the ability to identify and track vessels within the range limits of its sensors detection capability. Thus, RANGER will develop a platform that supports maritime surveillance operators and consequently maritime security operations, by providing early warnings, alerts and recommendations to its users.

To achieve this, RANGER EWS collects data from a variety of sensors (OTH and PA-MIMO radars), legacy systems (AIS, electro-optical/infrared (EO/IR) cameras) as well as databases information to correlate data and present it into an intuitive and understandable advanced visualization module. Technologically, EWS will be built upon advanced Data fusion algorithms and architectures as well as novel deep machine learning structures to provide:

- a) A threat classification of all simultaneously detected targets based on AIS data, historical data in available databases as well as manoeuvring patterns of detected and tracked vessels.
- b) Automatic Target Recognition (ATR) through cross correlation of Radar and AIS data.

- c) Target Continuous Tracking, especially valuable for high-threat vessels.
- d) Alarms including collision warning, boundary violation and proximity alerts.
- e) Recommendations on required interventions based on risk assessment and self-training of threat detection models.

2.1.2 RANGER as part of the CISE –environment and EUROSUR – network

RANGER platform will be developed in a way to achieve sustainable integration with the CISE framework of services and the current EUROSUR framework, while being also available as stand-alone version.

CISE is an information sharing platform among *EU* member states' maritime authorities. The idea of CISE is to gather together maritime domain's surveillance data from numerous national and independent surveillance systems in order to picturise and to maintain the best possible situational awareness, readiness and cost effectiveness from the European sea borders, sea territories and areas related (*e.g. Search and Rescue Regions*). The user communities of CISE represent maritime safety, maritime security and prevention of pollution caused by ships, Border control & surveillance, Fisheries control, Customs, Environment, General law enforcement and Defence. (EU 2010). Currently, CISE is ongoing as a prototype, it is planned to be operative by 2020.

EUROSUR (launched in 2008) is a common framework for the exchange of information and for the cooperation of Member States among themselves and with Frontex. The main purpose of EUROSUR is to improve the "situational awareness" and reaction capability to prevent irregular migration and cross-border crime at the EU's external land and maritime borders. It provides Frontex and 'national' border control authorities with the infrastructure and tools for detecting, preventing and combating cross-border crime, detecting and preventing irregular migration and protecting and saving the lives of migrants at sea. Frontex coordinates the use of these tools and contributes to coordinated reaction capacity as a main possible operational priority. It is supported by a communication network.

2.2 Maritime surveillance and its user groups in the RANGER context

“The sea is valuable source of growth and prosperity for the European Union and its citizen. The EU depends on open, protected and secure seas and oceans for economic development, free trade, transport, energy security, tourism and good status for marine environment”. (EC 2014)

“European citizens expect effective and cost-efficient responses to the protection of the maritime domain, including borders, ports and offshore installation, in order to secure sea borne trade, address potential threats from unlawful and illicit activities at sea, as well as to make optimal use of the sea’s potential for growth and jobs, whilst safeguarding the marine environment.” (EC 2014)

The sea is both a valuable source of growth and prosperity, a domain to be protected from unlawful and illicit activities, and an environment to be protected. Both the growth and prosperity, security and safety and ethically important issues which have societal impact on society. (COM 2014). Maritime surveillance in turn is essential for creating maritime awareness, 'knowing what is happening at sea'. This awareness assists the authorities responsible for monitoring and surveillance activities in preventing and managing in a comprehensive way all situations, events and actions related to the EU maritime domain. (COM 2009)

Maritime surveillance includes various aspects and different kind of user communities. The categorization of maritime surveillance presented in the table below is used to further study the ethical and societal issues of the proposed RANGER solution. The user-groups defined in the left column of the table are the same as the CISE user communities¹ (see COM 2010). The activities where RANGER is intended to be used are described in the right-side column of the table.

¹ The defense and military activities are however excluded in the table since RANGER is not aimed to serve militaristic purposes.

Aspects of maritime surveillance	Why RANGER’s vessel tracking?
Maritime safety, maritime security and prevention of pollution caused by ships	<ul style="list-style-type: none"> *Vessel traffic management *Search and rescue (SAR) early warning/identification *Piracy early warning/identification *Terrorism early warning/identification *Port security
Border control & surveillance	<ul style="list-style-type: none"> *Early warning/identification of Irregular immigration (both asylum seekers and illegal immigration) *Early warning/identification of Human trafficking
Fisheries control	<ul style="list-style-type: none"> *Early warning/identification of Illegal, un-reported/-regulated fishing (>wrong area, wrong time, wrong equipment, exceeding fishing quotas) *Monitoring fish nets/fish traps
Other economic activities	<ul style="list-style-type: none"> * Exploration and exploitation of sea bed (oil and gas platforms) * Off-shore wind power
Customs	<ul style="list-style-type: none"> *Early warning/identification of vessels smuggling illegal goods *Early warning/identification of vessels smuggling legal goods
Environment	<ul style="list-style-type: none"> *Early warning/identification of vessels causing oil spills and/or unleashing wastewater *Monitoring of protected areas
General law enforcement	<ul style="list-style-type: none"> *Monitoring of compliance with applicable legislation in sea areas, where there is a policing competence and support to enforcement and/or response operations.

Table 1 Aspects of maritime surveillance and RANGER

2.3 Maritime surveillance and Ethics

From ethical, social and political point of view surveillance can be understood as ”the process of watching, monitoring, recording, and processing the behavior of people, objects and events in order to govern activity”. This mean that surveillance is not strictly confined to the act of watching and observing, but also the process of recording and processing what is being seen, where the finality is to know better in order to govern the observed activity.

“ICT-mediated surveillance increases the speed of control practices and the differential between the legal borders of rights and of policing, which casts a doubt over the pertinence of the latter claim. Critically engaging with the notion that Europe is “under treat” ... should thus go together with asking whether the Europe that is shaped by current border control and surveillance practices, has not itself become a threat.” (Jeandesboz 2011)

“Data Mining enables large amounts of personal data from disparate sources to be organised and analysed, facilitating the discovery of previously unknown relationships amongst the data. Knowledge Discovery in Databases (KDD) is a heuristic process of data mining which has evolved from the convergence of machine learning, database systems, statistics and artificial Intelligence. KDD is a multi-

step process that facilitates the conversion of large data to valid, novel, potentially useful, and ultimately understandable information.” (European Group of Ethics 2014).

The ethics of Maritime Surveillance in general has been discussed a lot in academia and in various reports and statements, both from the philosophical viewpoint as well as from more practical point of view, especially concerning the privacy and its trade off with security, freedom and other human rights. Privacy and data protection is a special concern e.g. when using drones and surveillance cameras, with automated border control, and when collecting and analyzing big data. In addition, the impact of the new surveillance technologies on the fundamental rights of asylum seekers and refugees, as well the increased responsibility this more effective situational awareness brings (under international refugee law and the Search and Rescue regime), have been deliberated by several scholars. (see Marin 2012, Jaendesboz 2011, European Group of Ethics 2014, Crepeau 2013, Meijers Committee 2012). The Meijers Committee, the Standing Committee of Experts on International, Immigration and Refugee Law, has for example noted the following:

“Assessing the content of the current proposal for a Regulation establishing the European Border Surveillance System, the Meijers Committee not only has doubts with regard to the necessity and efficiency of the proposed measures (also considering the high permanent costs involved), but is also very concerned with regard to the effects of Eurosur for the fundamental rights of asylum seekers and refugees, including the right to privacy and data protection. In particular, the Meijers Committee warns against the risks of increased surveillance as this might also increase the human costs of undocumented migration: border surveillance indeed will have an impact on migration routes but not on the root causes of migration.” (Meijers Committee 2012)

Further, Francois Crepeau (2013), the UN Special Rapporteur on the Human Rights of Migrants, has raised a number of questions regarding the actual user processes of the new system:

“The Special Rapporteur regrets that the proposal does not, however, lay down any procedures, guidelines, or systems for ensuring that rescue at sea is implemented effectively as a paramount objective. Moreover, the proposed Regulation fails to define how exactly this will be done, nor are there any procedures laid down for what should be done with those “rescued”. In this context, the Special Rapporteur fears that EURO SUR is destined to become just another tool that will be at the disposal of member States in order to secure borders and prevent arrivals, rather than a genuine life-saving tool.

Many of the ethical/societal challenges and opportunities of RANGER are those of maritime surveillance in general and discussed above, including the rights of asylum seekers and increasing responsibilities, the impact of surveillance on the migration routes, and privacy and data protection. However RANGER’s more efficient and effective capacity in vessel tracking emphasizes the importance of taking these challenges and opportunities more seriously into consideration not only when designing the RANGER technology, but also in its user processes and business modelling - either we have RANGER as a stand-alone version, or as part of the EURO SUR/CISE environment. In the table below there are illustrated ethical aspects of RANGER in its various compositions: the stronger the colour is, the more challenging are the

ethical and societal issues to be solved. These ethical and societal issues are further discussed in detail in the chapters 3-5.

RANGER as stand-alone system (in Europe and/or outside)	Insufficient data security and information leakages, the misuse of the data and the violation of privacy.	Unethical ways of using RANGER data in decision making, Information leakages	Misuse, dual use other unethical aims of the use of RANGER (especially outside Europe)
RANGER as part of EUROSUR/CISE	Insufficient data security and information leakages, the misuse of the data and the violation of privacy	Unethical ways of using RANGER data in decision making, Information leakages	Unethical aims of using RANGER in maritime surveillance
	RANGER technology	RANGER user processes and training	RANGER business/governance model

Table 2 Ethics and RANGER’s various compositions

3 Values and norms behind maritime surveillance and SAR

In this chapter we shed light on the international and European values and norms behind the maritime surveillance and search and rescue (SAR) at sea. We will take International law and especially Human rights, Convention on the Law of the Sea and Conventions of search and rescue at sea as the starting point for this work.

3.1 International law

3.1.1 Overview

International law is a set of rules generally regarded and accepted as binding in relations between states and between nations and their relations with international organizations. The sources of international law are international agreements and conventions, as well as commonly recognized values, norms and principles, which do not necessarily directly refer to the agreements. Public international law concerns the treaty relationships between nations and international organizations and human rights concerns, for example, international contract law, maritime law, international criminal law and international humanitarian law. International agreements are developed and negotiated within the framework of an international organization such as the [United Nations](#) (UN) or the [Council of Europe](#).

3.1.2 Council of Europe

The European Council **defines the EU's overall political direction and priorities**. It is not one of the EU's legislating institutions, so it does not negotiate or adopt EU laws. Instead it sets the EU's policy agenda, traditionally by adopting 'conclusions' during European Council meetings which identify issues of concern and actions to take. At its meeting in June 2014, the European Council agreed on **five priority areas** to guide the EU's work over the **next five years**. This strategic agenda will be used to plan the work of the European Council and also acts as a basis for the work programs of other EU institutions. From the viewpoint of RANGER and maritime surveillance, two priority areas are very relevant, namely “Freedom, Security and Justice” and “EU as a strong global actor” (see table below).

“Freedom, security and Justice” is relevant if we are talking about the ethics and societal sustainability of RANGER in European context (e.g. border control and migration).

Nevertheless since RANGER also aims for businesses outside EU, “EU as strong global actor” asks for solid societal consideration of RANGER and its impacts on societies.

Priority area	Contents	Maritime Surveillance Aspects
Freedom, security and justice “The European Council emphasises the importance of good EU cooperation on security issues like terrorism and managing migration flows.”	<p><i>better management of all aspects of migration, including irregular migration, asylum and border management</i></p> <p><i>preventing and combating organised crime, corruption and terrorism</i></p> <p><i>improving judicial cooperation between EU countries”</i></p>	<p>Privacy is strongly associated with freedom, and a society where every movement and action is recorded is considered as contrary to this idea of freedom. In the context of maritime surveillance, the principle of “freedom of navigation” is important to protect.</p> <p>Increased control and security measures are justified with the need to protect Europe against cross-border crime, such as illegal trafficking and smuggling. The European maritime border is however not only a security issue for the EU, but also for those seeking to enter Europe by sea.</p> <p>Protecting the European seas and borders should be aimed at both creating a secure maritime environment, but also protecting the lives and physical and moral integrity of those who circulate at sea.</p>
EU as a strong global actor “The European Council calls on the EU to ensure its strong engagement in world affairs. ” ²	<p><i>ensuring consistency between member states’ and EU foreign policy goals</i></p> <p><i>promoting stability, prosperity and democracy in the countries closest to the EU</i></p> <p><i>engaging global partners on a wide range of issues such as trade, cyber security, human rights and crisis management”</i></p>	<p>In the context of maritime surveillance, the lack of accountability and clear lines of responsibility between EU member states and their different actors is a persistent problem.</p> <p>Furthermore, the diverging interpretations of rules of international law hinder the cooperation between Member States in maritime surveillance.</p> <p>Maritime surveillance is based on coordination and information sharing between member states. Therefore it has the potential to create a mutual control mechanism between the participating agents, as regards to both fundamental human rights and refugee law and rescue obligations.</p>

Table 3: EC priority areas and RANGER surveillance

3.2 EU Fundamental Rights and Human Rights vs. RANGER

The EU’s Charter of Fundamental Rights (see table below) brings together, in a single document, the protection of fundamental rights protected in the EU. Established in 2000, the Charter became legally binding on the EU Member States when it was ratified at the Treaty of Lisbon in December 2009. (http://ec.europa.eu/justice/fundamental-rights/charter/index_en.htm)

According to the Societal Impact Expert Working Group Report (SIEWG2012) these fundamental rights should be a necessary requirement which could and should lead to

drawing boundaries on what is and what is not acceptable in EC funded security research initiatives.

Dignity
<ul style="list-style-type: none"> 1 Human dignity 2 Right to life 3 Right to the integrity of the person 4 Prohibition of torture and inhuman or degrading treatment or punishment 5 Prohibition of slavery and forced labour
Freedoms
<ul style="list-style-type: none"> 6 Right to liberty and security 7 Respect for private and family life 8 Protection of personal data 9 Right to marry and right to found a family 10 Freedom of thought, conscience and religion 11 Freedom of expression and information 12 Freedom of assembly and association 13 Freedom of the arts and sciences 14 Right to education 15 Freedom to choose an occupation and right to engage in work 16 Freedom to conduct business 17 Right to property 18 Right to asylum 19 Protection in the event of removal, expulsion or extradition
Equality
<ul style="list-style-type: none"> 20 Equality before the law 21 Non-Discrimination 22 Cultural, religious and linguistic diversity 23 Equality between women and men 24 The rights of the child 25 The rights of the elderly 26 Integration of persons with disabilities
Solidarity
<ul style="list-style-type: none"> 27 Workers’ right to information and consultation within the undertaking 28 Right of collective bargaining and action 29 Right of access to placement services 30 Protection in the event of unjustified dismissal 31 Fair and just working conditions 32 Prohibition of child labour and protection of young people at work 33 Family and professional life 34 Social security and social assistance 35 Health care 36 Access to services of general economic interest

37 Environmental protection
38 Consumer protection
Citizens' rights
39 Right to vote and to stand as a candidate at elections to the European parliament
40 Right to vote and to stand as a candidate at municipal elections
41 Right to good administration
42 Right to access to documents
43 Right to access the European Ombudsman
44 Right to petition
45 Freedom of movement and residence
46 Diplomatic and consular protection
Justice
47 Right to an effective remedy and to a fair trial
48 Presumption of innocence and right to defense
49 Principles of legality and proportionality of criminal offences and penalties
50 Right not to be tried or punished twice in criminal proceedings for the same criminal offence

Table 4: EU Fundamental Rights

However, there are also other commonly agreed and ratified international conventions that could be considered as well. The Human Rights (see table below) are universal, not European property and they should be mainstreamed in all actions and decisions. For instance, the core Human Rights are considered to be enshrined in the so called Bill of HRs which consists of the Universal Declaration of the HRs (which in spite of the fact that it is a declaration, not a legally binding convention per se, is now considered to form international customary law), International Covenant on Civil and Political Rights (ICCPR) and International Covenant on Economic, Social and Cultural Rights (ICESCR). Further, the Convention for the Protection of Human Rights and Fundamental Freedoms, better known as the European Convention on Human Rights, came into force in 1953. It was the first instrument to give effect to certain of the rights stated in the Universal Declaration of Human Rights and make them binding. Since its adoption in 1950 the Convention has been amended a number of times and supplemented with many rights in addition to those set forth in the original text.

The EU Charter of Fundamental Rights is consistent with the European Convention on Human Rights adopted in the framework of the Council of Europe: when the Charter contains rights that stem from this Convention, their meaning and scope are the same.

(http://ec.europa.eu/justice/fundamental-rights/charter/index_en.htm).

- 1 All human beings are born free and equal.
- 2 Everyone is entitled to the same human rights without discrimination of any kind.
- 3 Everyone has the human right to life, liberty, and security.
- 4 No one shall be held in slavery or servitude.
- 5 No one shall be subjected to torture or cruel, inhuman or degrading treatment or punishment.
- 6 Everyone has the human right to be recognized everywhere as a person before the law
- 7 Everyone is equal before the law and has the human right to equal protection of the law.
- 8 Everyone has the human right to a remedy if their human rights are violated.
- 9 No one shall be arrested, detained, or exiled arbitrarily.
- 10 Everyone has the human right to a fair trial.
- 11 Everyone has the human right to be presumed innocent until proven guilty.
- 12 Everyone has the human right to privacy and family life.
- 13 Everyone has the human right to freedom of movement and residence within the state, to leave any country and to return to one's country.
- 14 Everyone has the human right to seek asylum from persecution.
- 15 Everyone has the human right to a nationality.
- 16 All adults have the human right to marry and found a family. Women and men have equal human rights to marry, within marriage, and at its dissolution.
- 17 Everyone has the human right to own property.
- 18 Everyone has the human right to freedom of thought, conscience and religion.
- 19 Everyone has the human right to freedom of opinion and expression.
- 20 Everyone has the human right to peaceful assembly and association.
- 21 Everyone has the human right to take part in government of one's country directly or through free and fair elections and access to the public service
- 22 Everyone has the human right to social security and to the realization of the economic, social and cultural rights indispensable for dignity.
- 23 Everyone has the human right to work, to just conditions of work, to protection against unemployment, to equal pay for equal work, to sufficient pay to ensure a dignified existence for one's self and one's family, and the human right to join a trade union.
- 24 Everyone has the human right to rest and leisure.
- 25 Everyone has the human right to a standard of living adequate for health and well-being, including food, clothing, housing, medical care and necessary social services.
- 26 Everyone has the human right to education including free and compulsory elementary education and human rights education.
- 27 Everyone has the human right to participate freely in the cultural life and to share in scientific progress, as well as to protection of their artistic, literary or scientific creations,
- 28 Everyone is entitled to a social and international order in which these rights can be realized fully.
- 29 Everyone has duties to the community.
- 30 None of the human rights in this Declaration can be used to justify violating another human right.

Table 5: Human Rights

In the context of various maritime surveillance operations and the RANGER it is important to perceive that EU fundamental rights and/or Human Rights concern not only Europeans, but all the people, including those attempting to reach Europe by sea.

On the table below there are identified the relevant EU fundamental rights from the viewpoint of EU citizens. But if we take the viewpoint of migrants trying to reach Europe by sea, the emphasis should be on the search and rescue operations, and on border control.

Aspect of maritime surveillance	Rights related
Search and Rescue	<p>Article 3: Right to liberty and security (more efficient SAR operations)</p> <p>Responsibility for search and rescue remains valid no matter how one receives information about a vessel in distress. (e.g. RANGER-technology, surveillance for illegal immigration)</p>
Border control	<p>Article 3: Right to life, liberty, and security.</p> <p>Border control operations should not prevent individuals from the right to leave their country.</p> <p>Article 14: Right to seek asylum from persecution.</p> <p>Border control operations should not prevent asylum seekers from having their demands examined.</p>
Fisheries control	<p>Article 7: Right to property (better surveillance of fish tracks)</p> <p>The increased radar control can also reveal details related to fishery. The improved radar control might help to reveal irregular fishing. Moreover, it could indicate precise timing and areas of fishing which might be information that currently is not being spread around.</p> <p>Article 16: Freedom to conduct business (diminished need to aid in SAR)</p> <p>Article 31: Fair and just working conditions. (>not so much need for patrolling boats)</p>
Customs	<p>Article 16: Freedom to conduct business (the avoidance of pirate goods in the market)</p> <p>Article 38: Consumer protection</p> <p>Improved maritime surveillance technology can help customs to protect EU citizens from illegal and pirate goods</p>
Environment	<p>Article 17: Environment protection</p> <p>Improved radar system can help to fight environmental pollution by offering a better control over the vessels and their whereabouts</p>

Table 6: Maritime surveillance and Fundamental Rights

3.3 United Nations Convention on the Law of the SEA (UNCLOS)

United Nations Convention on the Law of the SEA (UNCLOS) defines the rights and responsibilities of states in their use of the world’s oceans, and establishes a framework for the conduct of maritime commerce, the environment, and the management of marine natural resources. The Convention sets the geographical limits of maritime zones, and establishes rights and discretionary and non-discretionary responsibilities of coastal States as follows (IMO 2005)

Duty to render assistance
<p>1. Every State shall require the master of a ship flying its flag, in so far as he can do so without serious danger to the ship, the crew or the passengers:</p> <p>(a) to render assistance to any person found at sea in danger of being lost;</p> <p>(b) to proceed with all possible speed to the rescue of persons in distress, if informed of their need of assistance, in so far as such action may reasonably be expected of him;</p> <p>(c) after a collision, to render assistance to the other ship, its crew and its passengers and, where possible, to inform the other ship of the name of his own ship, its port of registry and the nearest port at which it will call.</p>
<p>2. Every coastal State shall promote the establishment, operation and maintenance of an adequate and effective search and rescue service regarding safety on and over the sea and, where circumstances so require, by way of mutual regional arrangements cooperate with neighbouring States for this purpose.</p>

Table 7: Duty to render assistance

3.4 Conventions on Search and rescue

SOLAS

The 1974 International Convention for the Safety of Life at Sea (SOLAS Convention) obliges the “master of a ship at sea which is in a position to be able to provide assistance, on receiving information from any source that persons are in distress at sea, is bound to proceed with all speed to their assistance, if possible informing them or the search and rescue service that the ship is doing so...”

SAR

The 1979 International Convention on Maritime Search and Rescue (SAR Convention) obliges State Parties to:

“...ensure that assistance be provided to any person in distress at sea... regardless of the nationality or status of such a person or the circumstances in which that person is found”... and to “provide for their initial medical or other needs , and deliver them to a place of safety.”

AMENDMENTS TO SOLAS AND SAR

On 1 July 2006, amendments to the SOLAS and SAR Conventions concerning the treatment of persons rescued at sea entered into force. These amendments were developed in response to IMO Assembly resolution A.920 (22) on Review of safety measures and procedures for the treatment of persons rescued at sea, which was adopted by IMO's 22nd Assembly in 2001, following a number of incidents that highlighted concerns surrounding the treatment of persons rescued at sea.

Among the resultant amendments are those to SOLAS chapter V - Safety of Navigation, which add a definition of search and rescue services. They also add to and clarify the existing obligation to provide assistance, adding the words: "This obligation to provide assistance applies regardless of the nationality or status of such persons or the circumstances in which they are found."

Furthermore, the amendments mandate co-ordination and co-operation between States to assist the ship's master in delivering persons rescued at sea to a place of safety.

Amendments to the SAR Convention add a new paragraph in chapter 2 - Organization and co-ordination, relating to the definition of persons in distress; new paragraphs in chapter 3 - Co-operation between States, relating to assistance to the master in delivering persons rescued at sea to a place of safety; and a new paragraph in chapter 4 - Operating procedures, relating to rescue co-ordination centres initiating the process of identifying the most appropriate places for disembarking persons found in distress at sea.²

3.5 Refugee Convention

The **Convention Relating to the Status of Refugees**, also known as the **1951 Refugee Convention**, is a United Nations multilateral treaty that defines who is a refugee, and sets out the rights of individuals who are granted asylum and the responsibilities of nations that grant asylum.

The Convention defines a refugee as a person who

“owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion, is outside the country of his [or her] nationality, and is unable to or, owing to such fear, is unwilling to avail himself [or herself] of the protection of that country”. (Article 1A (2))

and prohibits that refugees or asylum-seekers

² For further reading, please see the IMO-UNHCR guidelines that for example French maritime rescue coordination centers apply. Available at http://www.imo.org/en/MediaCentre/HotTopics/seamigration/Documents/UNHCR-Rescue_at_Sea-Guide-ENG-screen.pdf (Accessed 18th of November 2016)

be expelled or returned in any way “to the frontiers of territories where his [or her] life or freedom would be threatened on account of his race, religion, nationality, membership of a particular social group or political opinion.” (Article 33 (1))

This refers principally to the country from which the individual has fled but also includes any other territory where he [or she] faces such a threat.

The core principle of the Convention is non-refoulement, which asserts that refugees should not be returned to a country where they face serious threats to their life or freedom.

3.6 Summary: initial RANGER code of conduct

The international law and other principles discussed in the previous sub-section create the basic ethical framework for the design of the integrated RANGER system, its user guidelines, and business modelling.

The above principles are summarized in the initial “RANGER code of conduct” (see the table below). These principles are to be further specified and applied during the RANGER R&D work, and will be developed in close collaboration with the end-users and system developers, as well as other stakeholders.

<p>RANGER code of conduct</p> <p>This Code of Conduct is designed for the developers and for the various end-users of the RANGER project. It establishes seven points of principles which should be taken into consideration when developing and using the RANGER-technology.</p>
<p>1 Humanitarian imperative and rights of the people at sea</p> <p>The most important contribution of RANGER will be to significantly progress the accuracy and long distance detection, identification and recognition capacity for small boats, thus drastically improving the response and intervention capacity of European SaR services and personnel, severely reducing the expected number of casualties in the Mediterranean basin.</p> <p>Furthermore, early detection of vessels with unusual behaviour allows interventions to occur before any incident occurs that would require a SaR operation. This will save lives at sea.</p> <p>The information RANGER collects (combined with other data) people’s age, race, gender, religion, physical condition etc. should not be used for discrimination or other unethical purposes.</p> <p>The human rights of the people at sea need to be respected.</p>
<p>2 Privacy and data protection and avoidance of the misuse of RANGER data</p> <p>Privacy of those who navigate at the sea (especially those in vulnerable position, e.g. refugees, victims of human trafficking) is to be protected wherever the RANGER technology and information is used and available. Sensitive RANGER data should not be used for media purposes.</p> <p>It must be kept in mind, that non-sensitive data may become sensitive following their transmission to another user, as this user may hold other relevant information that is combined with the exchanged data (for example information combined with different data layers in CISE).</p>
<p>3 Involvement of end-users</p> <p>RANGER will provide an improved maritime awareness picture and give authorities more time to plan and act more proactively. This means changes to the daily work of different end-user groups, e.g. coast guards, search and rescue team. It is important that end users are involved in the RANGER development throughout the project. Furthermore, end users should also represent different levels of maritime surveillance and other actors (search and rescue, border control, fisheries control, customs, environment, general law enforcement).</p> <p>The training of the operational personnel is a necessary part of the implementation of RANGER-technology.</p>
<p>4 Moral division of labour</p> <p>RANGER will provide an improved detection range compared to the current radar systems. It will be possible that new technology will affect the division of labour between EU member states. Some states might become free riders regarding with surveillance activities and costly investments. Responsibilities between member states and the moral division of labour in maritime surveillance should be discussed.</p>

<p>5 Respecting sovereignty</p> <p>Third states are sovereign in their coastal waters and using RANGER-technology in such third states’ coastal waters should be carried out in the framework of cooperation agreements with these states and in conformity with international law and regulations.</p> <p>Third countries in the Mediterranean sea should be seen as RANGER end-users, as well as real partners solving the joint problem with new technology.</p>
<p>6 Human dignity</p> <p>All the maritime authorities must do their work in a way that fully respects human dignity. Maritime actors must not discriminate persons on grounds of sex, racial or ethnic origin, religion or belief, age or sexual orientation.</p>
<p>7 Non-refoulement</p> <p>Non-refoulement is a core principle of international refugee law, which means that refugees should not be returned to a country where they face serious threats to their life or freedom. RANGER enables tracking the vessels on high seas and even on the territorial waters of third countries. It is therefore technically possible that RANGER will be used to enable to organize border control outside countries’ own borders and to redirect intercepted migrants to the coasts of third states.</p> <p>The key challenge for the RANGER project on its own part is not to enhance the creation of such processes which further invalidates human values of migrants and refugees.</p>

Table 8: Initial RANGER Code of Conduct

4 Maritime surveillance, RANGER and its ethical and societal challenges

In this section we shed light on the ethical and societal dimensions of maritime surveillance operations aided by RANGER-type of technology.³ The idea is to give the reader an overall picture on the current value base of operations from the viewpoint of fundamental and human rights, and other principles and norms discussed in the previous section. We will put the main emphasis on the maritime surveillance operations which are currently most ethically laden, namely border control, search and rescue and the operations around irregular immigration.

4.1 Search and rescue (SAR) and the duty to render assistance

Search and Rescue operations (SAR) organized by municipalities and private/voluntary actors exist to assist people in distress or danger at sea. SAR services undertake a number of activities such as assisting ships and vessels in difficulty, accident prevention, search and rescue, medical consultations and patient transport. The statutory basis for SAR services is set out in international treaties as well as national laws and regulations.⁴

The right to life is one of the most fundamental of human rights enshrined in Article 2 of the EU Charter of Fundamental Rights and in Article 3 of the European Convention on Human Rights (ECHR). In the maritime context, it has been codified by the duty to render assistance to persons in distress at sea and by search and rescue obligations. (European Union Agency for Fundamental Rights 2013). RANGER helps in finding out ships in distress at sea and thus save lives of the people onboard. In addition RANGER-project can also help to reduce the volume of sea vessels which are not seaworthy and thus save lives of migrants at sea.

The duty to render assistance is defined in the United Nations Convention on the Law of the Sea 1982 (UNCLOS), The 1974 International Convention for the Safety of Life at Sea (SOLAS Convention) and The 1979 International Convention on Maritime Search and Rescue (SAR Convention). This duty applies to all vessels: government as well as private ships⁵. In addition “duty to render assistance” poses **responsibility** for coastal states **to promote the establishment, operation and maintenance of SAR services and collaboration with neighboring states**⁶. As the European Agency for fundamental rights has in its paper (2013) stated concerning the latter⁷: “When the EU and its Member States provide assets, equipment

³ See also separate RANGER-deliverable D3.3 on the Legal Framework.

⁴ See separate deliverable on RANGER legal framework D3.3. and D3.4.

⁵ E.g. In some parts of the Mediterranean, fishermen are often present along the routes used by migrants to cross to Europe.

⁷ See also European Commission 2015 about the partnership with third countries.

and other maritime border management facilities to neighbouring third countries, priority should be given to assets and equipment that can be used to enhance their search and rescue capacities.”

The improved technology resulting increased radar coverage can raise questions about international responsibilities. If states with increased radar data identify and observe an event requiring rescue activities in waters which are not in their responsibility, what legal and moral responsibilities can be vested on the authorities? Currently, according to the international law, states are responsible for maritime rescue operations in their maritime SAR regions. Due to turbulent events in number of south Mediterranean countries, it is possible that some of the countries are not able to maintain assets to react in a timely manner even in their national waters. Should the political turbulence continue, it possible that some of the states (fragile states) will have no means to maintain assets needed for sea rescue. In this situation, what is the responsibility of other states who are able to monitor the situation much further away than previously? Will the states have responsibility to only inform the local authorities (or the de-facto authorities exercising control over specific region) or additionally take some action outside their territories?⁸ If yes, how can this be organized and who can grant permission to operate on foreign waters? The alternative would be to take no action which can lead to loss of human lives.

Another moral dilemma created by the improved border control is the flow of irregular immigrants. The recent flows of irregular immigration towards Europe across the Mediterranean have been caused by the deteriorating situation in several fragile states in African continent and from greater Middle East. The refugees have lost their fate in foreseen improvements as complex root causes of the conflicts have not been dealt with. Improved border control and coast surveillance can create a situation where the immigrants, as a result of closure of the less dangerous smuggling routes, will resort to higher to those entailing higher risk. As a result, more people will drown or risk their life otherwise. This creates a moral problem. (In fact, the preliminary results of another ongoing H2020 project indicate that the EU authorities, while working on a mission aimed at improving the border control in a south Mediterranean country, did discuss and consider this matter based on the analysis of the situation on the ground.) EU’s

⁸ Following the adoption of the 1979 SAR Convention, IMO’s Maritime Safety Committee divided the world’s oceans into 13 search and rescue areas, in each of which the countries concerned have delimited search and rescue regions for which they are responsible. Provisional search and rescue plans for all of these areas were completed when plans for the Indian Ocean were finalized at a conference held in Fremantle, Western Australia in September 1998., International Convention on Maritime Search and Rescue (SAR), available at [http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-on-Maritime-Search-and-Rescue-\(SAR\).aspx](http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-on-Maritime-Search-and-Rescue-(SAR).aspx); full list of international maritime related conventions is available at: <http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/Default.aspx>; International Convention for the Safety of Life at Sea (SOLAS), 1974; <http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-%28SOLAS%29%2c-1974.aspx>

commitment to the human rights and to do no harm principle will call for well-balanced actions in the matter. (see also the sub-chapter on displacement effect.)

In the context of RANGER both the duty of all the vessels to render assistance, as well as the responsibility of coastal states to organize SAR operations and collaboration with neighbouring countries are relevant to be considered during the project. Therefore the following issues are to be deliberated further during the project's life span:

- 1) How could we deliver the long-distance information RANGER provides (up to high seas) also to neighbouring third countries so that they can also enhance their SAR activities, without any un-wanted negative consequences?
- 2) How should the moral division of labour in providing assistance be in a situation in which we constantly get distress information outside country's own SAR-regions? How should the responsibilities be renewed in a fair way? Could this kind of cases be organized by Frontex?

4.2 Irregular immigration and surveillance of national borders

Irregular immigration and surveillance of national borders concern the rights of both the European citizens and of migrants to be protected and promoted, namely the safety and security, right for live, freedom and justice. Further, the Schengen Borders Code Article 6 provides that border guards shall respect human dignity, the principle of proportionality and shall not discriminate on grounds such as sex, race or religion. (Article 1, 2, 6 and 21 in the EU Charter of Fundamental Rights and in Article 2 and 3 of the European Convention on Human Rights)⁹. The challenge is to balance them in a way respecting the rights of the people in both of the groups.

The protection of above migrants' rights and EU principles of solidarity, burden-sharing are constantly tested through the arrivals of migrants boats. EU integrated maritime surveillance and border control as well as EUROSUR and CISE initiatives have been largely criticized by scholars e.g. because of its "Push Back" operations with migrants (see e.g. Hayes and Vermeulen 2012 and Rijpma and Vermeulen (2015). By using the phrase "EU fortress" these scholars emphasize that in order to "defend" its borders, the EU has funded sophisticated surveillance systems, given financial support to member states at its external borders, such as Bulgaria and Greece, to fortify

⁹ The heading to this article refers to border checks only. However, Member States are always bound to human rights when implementing EU law, as stipulated in the Treaty on European Union, article 211, so one must assume that this article applies also to border surveillance.

their borders and created an agency to coordinate a Europe-wide team of border guards to patrol EU frontiers. From the viewpoint of the migrants, this kind of defend violates several human rights. In addition critics has also been provided because of the strong role of industries in developing new surveillance technologies. E.g. in her article Marijn Hoitink (2012) indicates how large amounts of resources has been invested in civil security, but without broad questions about the purpose and desirability of the civil market being asked. The focus has been on the success of the industry instead.

The challenge with the border control at sea is further that the separation between refugees and (economic) migrants cannot be done yet. A **refugee** is a person who "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion, is outside the country of his nationality, and is unable to or, owing to such fear, is unwilling to avail himself of the protection of that country ... "(*The 1951 Convention relating to the Status of Refugees*). **A refugee has the right to safe asylum** (see the article 18 of Fundamental Rights and article 14 in Human Rights). The principle of **non-refoulement** is therefore to be applied (see the following paragraph). Further, refugees should receive at least the same rights and basic help as any other foreigner who is a legal resident, including freedom of thought, of movement, and freedom from torture and degrading treatment. Economic and social rights are equally applicable.

Migrants on the other hand choose to move “not because of a direct threat of persecution or death, but mainly to improve their lives by finding work, or in some cases for education, family reunion, or other reasons”. Unlike refugees who cannot safely return home, if migrants decide to return home, they will continue to receive the protection of their government.¹⁰

Non-refoulement is a core principle of international refugee law. Article 33(1) of the 1951 Geneva Convention provides that *‘No Contracting State shall expel or return (“refouler”) a refugee in any manner whatsoever to the frontiers of territories where his life or freedom would be threatened on account of his race, religion, nationality, membership of a particular social group or political opinion ‘*. The principle is enshrined in EU law in [Article 78\(1\) TFEU](#) and Article 18 and 19 of the EU’s [Charter of Fundamental Rights](#). Judgments of the European Court of Justice (CJEU) and the European Court of Human Rights (ECtHR) have also consolidated the application of this principle in the EU¹¹. However, as countries face increasingly unmanageable migratory pressures, they often try to interpret their

¹⁰ <http://www.unhcr.org/uk/news/latest/2016/7/55df0e556/unhcr-viewpoint-refugee-migrant-right.html>

¹¹ EU and non-EU countries have been criticized on this score. For instance, UNHCR has urged the EU to adopt more protection-sensitive border management that ensures compliance with the principle of *non-refoulement*. It has also expressed deep concern regarding Australia’s interception, detention and removal policies and the lack of protection provided by South-East Asian States

international obligations more restrictively.¹² In cases of indirect or chain *refoulement*, when one country returns an asylum-seeker to an allegedly ‘safe’ third country, which then returns the asylum-seeker to an unsafe country, both countries may bear responsibility. In addition, as countries struggle to reconcile national security with their human rights obligations, they are taking a closer look at Article 33(2), which provides that

‘The benefit of the present provision may not, however, be claimed by a refugee whom there are reasonable grounds for regarding as a danger to the security of the country in which he is, or who, having been convicted by a final judgment of a particularly serious crime, constitutes a danger to the community of that country’.

In April 2014, following a long debate, the EU adopted a regulation which provides for Frontex-coordinated sea border surveillance operations to be carried out in accordance with the principle of *non-refoulement* and international search and rescue legislation.

RANGER’s Stradivarius Radar enables tracking the vessels not only on their own sea territories, but on high sea and even on the territorial waters of third countries. It is therefore technically possible that RANGER will be used to enable to organize border control outside countries own borders and to redirect intercepted migrants to the coasts of third states. As Trevisanut (2014) argues, border control has been detached from the territorial borders. Her main argument is that the principle of non-refoulement is a fundamental yardstick for this “de-territorialization of border control and applies where-ever competent state authorities perform border control measures. The principle of non-refoulement protects individuals against being sent to a country where they fear torture and other inhuman or degrading treatments, persecution on the basis of the grounds listed in 1951 Refugee Convention, or serious human rights violations. (Trevisanut 2014). Further, as Fischer-Lescano et al. (2009) argues, the international obligations stemming from European primary and secondary law prohibit European border authorities from “turning back, escorting back, preventing the continuation of a journey, towing back or transferring vessels to non-EU coastal regions in the case of any person in potential need of protection, as long as the administrative and juridical examination of the asylum application has not been completed on European territory.¹³ This obligation is extraterritorial from its nature and it applies in all different sea areas. The European authorities are responsible in ensuring that

¹² For instance, the decision taken by the Finnish migration authorities to consider Iraq, Afghanistan and Somalia as safe areas - which coincided with the unrepresented number of filed asylum applications - was criticized and considered political by some elements of the Finnish society., Yle-uutiset, *Irak, Afganistan ja Somalia – kuinka turvallisia ne todellisuudessa ovat?*, 18 May 2016, article is available at: <http://yle.fi/uutiset/3-8889793>

¹³ Andreas Fischer-Lescano, Tillmann Löhr and Timo Tohidipur, *Border Controls at Sea: Requirements under International Human Rights and Refugee Law*, Oxford University Press, 2009, available at: <http://ijrl.oxfordjournals.org/content/21/2/256.abstract>

non-refoulement principle is respected also by potential third parties who are involved in European surveillance and rescue operations. Since returning refugees to African transit countries is not considered to be in line with non-refoulement principle, the concerned need is to be taken to a territory of EU member state.¹⁴

However some SAR operations (where vessels in distress being rescued by border patrols and brought back to their port of origin) have been criticized for being concealed push-back operations, not preserving rights and needs of the migrants. Human Rights Watch (2009) states that legal principle of non-refoulement is violated, when boats on the high seas are pushed back to countries of origin.¹⁵ This will be an actual concern also in RANGER. Furthermore it has to be noted that sometimes push-backs may be justified. (Please see IMO guidelines related to stowaways.)¹⁶

In addition to the above challenges of non-refoulement and especially in the high-seas, the use of RANGER can be considered as intrusive if it is used to monitor third state's territorial waters without prior agreement. Any state is sovereign within its territorial waters, and surveillance that reaches these waters should be carried out in the framework of agreements with the concerned third states.

The key challenge for the RANGER project on its own part not to create such processes of using radars which further invalidates human values of migrants in favour of the values of (more well-off) European citizens. Therefor the following issues are to be discussed more in detail during the project:

- 1) Since EUROSUR and CISE probably has already taken into account the above critics, it is crucial that RANGER's interoperability and compliance with EUROSUR and CISE covers also these ethical issues (not only technology). This includes especially the issue of non-refoulement and the use of RANGER radar to detect vessels on high sea and on the water territories of third counties, including also the intrusive nature of these operations from the viewpoint of sovereign states.
- 2) RANGER as stand-alone solution, and especially its user processes and business/business model need to be designed carefully, including the user training and

¹⁴ Ibid.

¹⁵ <https://www.hrw.org/report/2009/09/21/pushed-back-pushed-around/italys-forced-return-boat-migrants-and-asylum-seekers>

¹⁶ IMO, available at <http://www.imo.org/en/OurWork/Facilitation/Stowaways/Pages/Default.aspx> (Accessed 18th of November 2016)

selling/procurement strategy. The collaboration with non-governmental organizations is essential to create an action model which is sustainable.

4.3 Displacement effect and balloon effect

It can be expected that the use of RANGER in the border control and in customs (either as a stand-alone solution or as part of the integrated CICE/EUROSUR solution) may cause a situation in which one route of unregulated immigration and/or smuggling of goods closes, but another opens up. These new routes can be even more dangerous and therefore a threat for the human rights, such as **right to live and security** (Articles 2 and 6 in the Charter of EU Fundamental Rights and Article 3 in Human Rights).

In the “war on drugs”, it is often called the “[balloon effect](#)”: squeeze the balloon in one place, and it expands somewhere else. Something similar is happening with efforts to crack down on irregular migration, with an important difference: when the balloon consists of people, they get more desperate the harder you squeeze. The balloon effect puts the supposed success of some migration control operations in a rather different light.¹⁷

We can take the year 2010-2011 in Greece and Bulgaria as an example of this kind of effect. The summer of 2010 saw a sudden increase in the arrivals of irregular migrants, mostly from Iraq and Afghanistan, along a 12km stretch of the River Evros, which marks the land border between Greece and Turkey. Despite a raft of other measures implemented by Greece, including erecting a 12km fence at Orestiada, numbers climbed again in 2011, with a total of 57 000 irregular border crossings along the Turkish frontier. The Greek response produced a ‘displacement effect’ to the Bulgarian land border. The choice of sea routes also became innovative. Some smugglers even took the passage from Turkey to Italy.¹⁸

People-smuggling has also developed into an important industry e.g. in Turkey, with networks active not just in Istanbul but also in Izmir, Edirne and Ankara. The nationalities of people smugglers vary, frequently mirroring the nationality of their customers. The relaxation of Turkey’s visa rules towards many African countries has created another pull factor for migrants from this continent, who arrive in Turkey by plane before attempting entry into the EU.¹⁹

¹⁷ Andersson 2015, available at <http://blogs.lse.ac.uk/internationaldevelopment/2015/06/29/why-border-controls-are-now-a-global-game> (Accessed 17th of November 2016)

¹⁸ Frontex, available at <http://frontex.europa.eu/trends-and-routes/eastern-mediterranean-route> (Accessed 17th of November 2016)

¹⁹ Frontex, available at <http://frontex.europa.eu/trends-and-routes/eastern-mediterranean-route> (Accessed 17th of November 2016)

It can be expected that businesses of smuggling human beings and goods will find new routes after their current Mediterranean routes will be closed. Therefore the following issues are important to be taken into account when implementing RANGER:

- 1) It is crucial to always make a feasibility study and societal impact assessment about RANGER in the proposed area before the implementation, and take needed activities to eliminate undesirable consequences beforehand. The role of both governmental and non-governmental organizations is essential to find sustainable solutions.
- 2) Follow up of the consequences of the use of RANGER technology is needed for the purposes of e.g. risk analyses. In case RANGER is sold stand-alone system and not as part of EUROSUR/CISE ecosystem, this information sharing has to be designed separately.

4.4 Privacy, Data protection and Data security

EU Surveillance systems has raised a lot of concerns of privacy and data protection, as well as data privacy and misuse (see e.g. Hayes and Vermeulen 2012, Frontex 2010), especially regarding the use of drones and other means of aerial surveillance.

Personal data and its processing are defined in the EU data protection reform as follows:

“(1) Personal data’ means any information relating to an identified or identifiable natural person (‘data subject’); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person;

(2) ‘processing’ means any operation or set of operations which is performed on personal data or on sets of personal data, whether or not by automated means, such as collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction...” (EU2016, article 4)

Privacy and protection of personal data (see the first definition above) is not necessary a concern with the use of RANGER radars themselves since the current radar technology can't capture sensitive or personal information. However, the RANGER data combined with other data to be collected into RANGER platform (e.g. AIS data on vessels) can violate privacy and personal data protection (see the second definition above). E.g. when a vessel is being tracked, data about the ownership of the vessel, its operations, passengers, crew, agents etc. is more or less likely to be

processed. This could help to indirectly identify individuals in case and therefore violate their rights of privacy and data protection²⁰.

The use of RANGER as a part of CISE environment doesn't release from these requirements since CISE is meant to be only a transmission tool between different user communities' systems. CISE does not store the exchangeable data, but only exchanges it in the commonly agreed form for commonly agreed users. Therefore each User Community remains responsible for gathering and storing its data by means of its own sectoral systems and security standards. But when offering the relevant data to common use through the CISE environment and vice versa when receiving any data inside the CISE network, it must be gone through commonly agreed trustworthy security standards while receiving its present classification level. (COM (2010))

The EU data protection reform is coming into effect in May 2018. The Reform consists of two instruments:

- The **General Data Protection Regulation** will enable people to better control their personal data. At the same time modernised and unified rules will allow businesses to make the most of the opportunities of the Digital Single Market by cutting red tape and benefiting from reinforced consumer trust.
- The **Data Protection Directive** for the police and criminal justice sector will ensure that the data of victims, witnesses, and suspects of crimes, are duly protected in the context of a criminal investigation or a law enforcement action. At the same time more harmonised laws will also facilitate cross-border cooperation of police or prosecutors to combat crime and terrorism more effectively across Europe.

In the light of the current areas of maritime surveillance and user communities defined in CISE (see chapter 2) it seems to evident that part of the users of RANGER (e.g. law enforcement) belongs to the category where Data Protection Directive is to be applied, whereas part of the users (e.g. SAR) are those who the Data Protection Act will concern. Therefore the starting point for the design of the RANGER technology, its user processes and business/governance model will be both of them. However, due to the nature of RANGER surveillance²¹ there are many

²⁰ See also arguments presented in Sunny (2014), p. 16.

²¹ Union or Member State law to which the data controller or processor is subject may restrict by way of a legislative measure the scope of the obligations and rights provided for in Articles 12 to 22 and Article 34, as well as Article 5 in so far as its provisions correspond to the rights and obligations provided for in Articles 12 to 22, when such a restriction respects the essence of the fundamental rights and freedoms and is a necessary and proportionate measure in a democratic society to safeguard: (a) national security; (b) defence; (c) public security; (d) the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, including the safeguarding against and the prevention of threats to public security; (e) other important objectives of general public interest of the Union or of a Member State, in particular an important economic or financial interest of the Union or of a Member State, including monetary, budgetary and taxation matters, public health and social security; (f) the protection of judicial

exceptions in the Act concerning the responsibilities of the controller and processors of RANGER data²². Therefore e.g. requirements concerning consents are not applicable. However especially the adaptation the Privacy by Design/Default –approach and a proper data security (including e.g. anonymisation, pseudonymisation and encryption) defined in the articles 25 and 32 are essential, as well as various administrative requirements provided for the controller and processor of the RANGER data. As it is stated in the article 25

“the controller shall implement appropriate technical and organisational measures for ensuring that, by default, only personal data which are necessary for each specific purpose of the processing are processed. That obligation applies to the amount of personal data collected, the extent of their processing, the period of their storage and their accessibility. In particular, such measures shall ensure that by default personal data are not made accessible without the individual's intervention to an indefinite number of natural persons” (EU 2016).

The activities needed to safeguard the privacy and data protection of RANGER solution are as follows:

- RANGER technical solutions and user processes are to be designed based on the privacy by design approach, including needed security mechanisms, access rights etc. These features are to be defined more in detail based both on the user requirements and the specified descriptions provided in the Data Protection Act and Directive.
- RANGER governance and business models are to be deliberate already in the beginning of the RANGER project from the viewpoint of the coming Data protection legislation and the organizational requirements it provides for the controller and processor of the data. This work can be done parallel with the design of the technology and user processes (see the first bullet point)

independence and judicial proceedings; (g) the prevention, investigation, detection and prosecution of breaches of ethics for regulated professions; (h) a monitoring, inspection or regulatory function connected, even occasionally, to the exercise of official authority in the cases referred to in points (a) to (e) and (g); (i) the protection of the data subject or the rights and freedoms of others; (j) the enforcement of civil law claims.

²² The key changes in the Act compared with the old data protection directive are as follows:

Guaranteeing **easy access to one's own personal data** and the **freedom to transfer personal data** from one service provider to another.

- Establishing the **right to be forgotten** to help people better manage data protection risks online. When individuals no longer want their data to be processed and there are no legitimate grounds for retaining it, the data will be deleted.
- Ensuring that whenever the consent of the individual is required for the processing of their personal data, it is always **given by means of a clear affirmative action**.
- Ensuring a **single set of rules** applicable across the EU.

4.5 Mis-Use and dual use of the RANGER technology

4.5.1 RANGER research and the mis-use/dual-use

The term “**mis-use**” refers to research involving or generating materials, methods, technologies or knowledge that could be misused for unethical purposes. Despite the fact that such research is usually carried out with benign intentions, it has the potential to harm humans, animals or the environment. The main areas of concern regarding potential misuse could be:

1. research providing knowledge, materials and technologies that could be adapted for criminal/terrorist activities;
2. research that could result in the development of chemical, biological, radiological or nuclear (CBRN) weapons and the means for their delivery;
3. research involving the development of surveillance technologies that could result in negative impacts on human rights and civil liberties;
4. research on minority or vulnerable groups and research involving the development of social, behavioural or genetic profiling technologies that could be misapplied for stigmatisation, discrimination, harassment or intimidation.

If we investigate RANGER research from the misuse point of view, the only point in common with RANGER project is area 3. RANGER does not develop technologies that could be adapted for criminal or terrorist activities, neither CBRN weapons nor means for their delivery. It does not involve research on minority or vulnerable groups, or profiling technologies. It does develop a surveillance technology, but this work does not have the risk of negative impacts on human rights and civil liberties. RANGER innovates by combining novel radar technologies with supporting technological solutions for early warning, with the scope of delivering a surveillance platform that will offer detection, recognition, and identification as well as tracking of suspicious vessels capabilities beyond existing legacy radar systems. Therefore the main objective of RANGER is to enhance the already existing maritime surveillance framework to prevent threats coming from non-cooperating vessels. The proposed technologies will be developed and integrated into the already existing maritime surveillance frameworks such as EUROSUR and CISE, by following the already well established ethical guidelines. Following these considerations, RANGER does not include any risk of misuse, in European context or elsewhere.

The term **dual-use** could be used in association with products or services that can have both a military and civilian application, that is to say generally intended for civilian purposes, for example in industry, but also for developing weapons and military equipment. As such, their export is not prohibited in principle, but is subject to restrictive controls, generally in the form of

a required licence. Certain dual-use goods and technologies may have a conventional military use, while others may serve to manufacture weapons of mass destruction, such as: chemical and biological nuclear weapons, as well as missiles capable of carrying such weapons.

As already mentioned earlier, RANGER project is concerned with the development of efficient radars for long-distance surveillance in order to enhance the already available European maritime surveillance framework such as EUROSUR and CISE.

Although, the project aims to develop new technologies in strict relation with military purposes in particular to prevent potential threats coming from sea, the development of such a technology doesn't require the use of goods that could be used to manufacture weapons or other military equipment for which particular care should be taken of.

Following these considerations, RANGER does not include any aspect of the potential ethical considerations in relation to dual-use, in European context or elsewhere.

4.5.2 RANGER solution and its potential dual/misuse

If we move our focus from the RANGER project and its research to the proposed RANGER solution (either as part of the CISE environment or stand-alone) we can separate the following risks to the misuse:

- The misuse/dual use of the data RANGER provides (including also military tracks)
- The use of the RANGER solution for purposes which are classified as mis-use/dual use

The mis/dual use of the RANGER data is possible if somebody who has the mis/dual use in mind will get access to the RANGER environment) by capturing the RANGER data when it is transformed from the antennas to the RANGER platform b) by hacking the RANGER platform and its data bases c) due to the human information leakage when somebody having access right to the RANGER data will intentionally or unintentionally deliver data to third parties. To avoid this kind of data leakages strong focus should be set both on the design of the RANGER technology and data transfer, on user processes and access rights and finally on the governance model of the RANGER solution, including the processors and controllers of the RANGER data (see the EU Data Protection Act discussed earlier in this chapter).

The mis/dual use of the whole RANGER solution is strongly linked to the coming business/governance model of the RANGER, and especially as stand-alone solution. The key question is that how can we make it sure that the RANGER solution sold will be used only to the purposes it is mentioned. This has not so much to do with the technical features of the RANGER and their development during the RANGER project, but rather to the business and governance modelling to be applied after the project.

4.6 Tensions in international relationships

The improved radar coverage can create challenges for international relations. In a case of conflict escalation between states, the radar data could be used for military purposes. Apart from interstate conflict, the data provided by the radars could be utilized by different actors in intrastate conflicts.²³ This could further complicate and destabilize a region. On the other angle, enhanced radar control accessible for a large number of states could also yield hard evidence that up until now has provided certain room for manoeuvring in power politics. In international politics, it has been sometimes better to offer the ‘villain’ state possibility to withdraw without losing its face. Occasionally, this has been seen as a better pragmatic option. A state, region, political leaders who are pushed into corner might feel that they have very few alternatives and might, therefore, resort to extreme even desperate measures (Let me give you an example, yet it is a clumsy, it will illustrate the essence of this point. Malaysian Airlines flight MH17 was shot down over separatist controlled airspace in eastern Ukraine on 17 July 2014.²⁴ Ever since, different parties have come up with different theories over the culprits of the incident. One of the versions state that the US has flight control data which can be used to identify the perpetrator. This information is, however, not released. The reason for this is, according to some, that releasing the data would place the perpetrator in such a bad light that it would back-fire; lead to unwanted escalation of the situation and diminish the possibilities to find a diplomatic solution. All these would increase human suffering and prolong the conflict.

The developed technology can be utilized in much larger maritime areas than only in Mediterranean. This can create other type of ethical questions linked to the complex political and societal realities. A few examples are provided in the following.

The activities of the Russian Federation in the Arctic sea and close to North Pole have increased recently. The explanation for this is twofold. Firstly, the exploitation of the natural resources in arctic areas has become more attractive. Secondly, the Arctic Sea has an importance both strategically and for the trade. The heightened tensions between the US (and indirectly with its NATO allied) and Russian Federation can in one scenario lead to military confrontation in Arctic sea area. In a situation like this, the new developed technology might be used for military purposes (already because out of 28 member states 22 belong to NATO).²⁵

²³ An example of the role radar data can have in a case of complex crisis entailing elements both from interstate and intra-state conflict,

http://uk.mfa.gov.ge/index.php?lang_id=GEO&sec_id=595&info_id=450

²⁴ <http://www.bbc.com/news/world-europe-28357880>

²⁵ Padrtova, Barbora, *Russian Approach Towards the Arctic Region*, Center for European and North Atlantic Affairs, the article is available at: <http://cenaa.org/analysis/russian-approach-towards-the-arctic-region/>

The complexity of crisis and related turmoil can also create changing unintended consequences. The EU Common Security Defence Policy operation Atalanta has been successful in diminishing the pirate activities along the Somalian coast. Allegedly, after the waters had been cleared from the pirates, unregulated fishing boats arrived from other countries to conduct uncontrolled fishing with the only aim to make as much economic profit as possible without taking ecological aspects into account. The EU operation was not able to effectively interfere on this development as it was not part of the operation mandate (only monitoring task). Against this backdrop, it can be concluded that the increased operational abilities (potentially generated by improved radar technologies) need to be combined with coordinated cooperation between different authorities and comprehensive mandates.²⁶

Nicholas de Larrinaga, London - IHS Jane's Defence Weekly, *Russian submarine activity topping Cold War levels*, 02 February 2016, the article is available at: <http://www.janes.com/article/57650/russian-submarine-activity-topping-cold-war-levels>

²⁶ The European Union Naval Force ATALANTA (EU NAVFOR), for more information, see: <http://eunavfor.eu/>

Alexandru Voicu, Ruxandra-Laura Bosilca, Centre for European Studies, *Maritime Security Governance in the Fight Against Piracy off the Coast of Somalia: a Focus on the EU response*, available at: http://cse.uaic.ro/eurint/proceedings/index_htm_files/EURINT2015_VOI.pdf

5 Initial societal impact (SIA)

In this section we will provide an initial Societal Impact Assessment (SIA) of the RANGER solution. First, we deliver background information on SIA. After that we provide summary of RANGER use cases/scenarios. Then, we identify ethical and legal challenges that might affect RANGER and give suggestions for their mitigation strategies. Finally, we investigate the benefits of RANGER from the viewpoint of the key stakeholders.

5.1 What is Social Impact Assessment

Social Impact Assessment (SIA) includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by these interventions. SIA is much more than an act of predicting impacts in a regulatory context; it is a process of managing the social aspects of development. By identifying impacts in advance, better decisions can be made regarding which interventions should proceed and how they should proceed. Following this, mitigation measures can be implemented to minimize the harm and maximize the benefits from a specific planned intervention or related activity. Respect for human rights should underpin all actions. (Vanclay & Esteves 2011: 3).

It is worth to notice that this kind of Societal Impact Assessment covers a wider perspective than traditional impact assessment focusing on economic, social and environmental impacts and impact assessment focusing on the measurement of the impacts afterwards.

This chapter is prepared by taking into consideration the guidelines provided by the ASSERT project. There are a minimum of 3 main impact assessment tasks during the actual project execution: 1) An initial Societal Impact review, typically during the first 6 months. This provides initial guidance and information for the developers. 2) Analysis of the requirements or scenarios defined by the project from the Societal Impact and acceptability perspective in order to provide guidance and recommendations for the developers. 3) Final Societal Impact Review. It summarizes the SI issues that have been raised and how they have been handled by the project. It should also mention the potential Societal Impact issues facing the deployment of the solution.

The contents of the social Impacts, in turn, concern the following aspects in society (ASSERT 2014, see also Vanclay 2013):

- **Way of life, fears and aspirations** (how people live and interact with each other on a daily basis, their perceptions about their safety and that of their communities, and their aspirations for the future, including that of their children);

- **Culture and community** (peoples’ shared beliefs, customs, values and languages, as well as the cohesion, stability and character of their communities);
- **Political systems** (participation in the decisions and processes that affect peoples’ lives, the nature and functioning of democratic processes, and the resources available to support peoples’ involvement in these);
- **Environment** (access to clean air, water, and other natural resources, as well as the level of exposure to pollutants and harmful substances and the adequacy of sanitation);
- **Health & well-being** (physical and mental well-being, not just an absence of infirmity);
- **Personal and property rights** (economic effects, civil rights and liberties, personal disadvantages)

This deliverable is produced in the very beginning of the project. It therefore covers only initial societal impact assessment with a limited number of stakeholders (phase 1). Contents are collected from the brainstorming sessions during the RANGER Kick-off Meeting in May 2016, from WP2 end-users workshop in July 2016²⁷, from Laurea master students’ workshop²⁸ in September 2016, from literature reviews (see previous chapters), and from discussions with experts in Laurea’s RANGER team²⁹. In addition economic, social and environmental impacts defined in the D2.2 (European Sea Border Surveillance and Ship Reporting Systems: case CISE) are embedded in the analysis. The starting point for the discussions has been the following aspects of the maritime surveillance and the use of RANGER in them (see table below).

Aspects of maritime surveillance	Use Cases/Scenarios
Border control & surveillance	<p>The maritime border surveillance is difficult with current coastal resources. The range of radar and the speed of vessels do not provide a reasonable time limit for detection and identification. Unidentified vessels reach the coast only 2 hours after detection.</p> <p>France experienced two cases of unidentified ship that could not be stopped due to short notice, particularly at night.</p> <p>The way to counter these real constraints is to ensure a presence at sea with patrol boat or aircraft.</p> <p>RANGER, by the warning provided by OTH data, should strengthen the capacity of detection. It would allow to save the means used for monitoring to identify a detected target.</p>
Maritime Safety and security	<p>The search and rescue at sea require real-time knowledge of the position of vessels likely to be able to assist. Furthermore it is necessary to detect or track the maritime event, even if the ship involved has no AIS.</p>

²⁷ Participants (12) in the workshop included Ranger consortium members (Exus, ICCS, Laurea, HMDO, DMA) and end-users from Hellenic Navy.

²⁸ Participants (23) were Master degree students on Security Management, Crisis Management, Crime correctional services, Social and healthcare services, as Well as Business management.

²⁹ Markko Kallonen, Jaakko Tyni, Sam Vuorinen, Markus Silvasti, Isto Mattila, Sari Sarlio-Siintola, Tuomas Tammilehto.

	<p>Being able to have a system capable of correlating all sensors and information sources would offer the operator a comprehensive tactical situation.</p> <p>RANGER by the multiplicity of different types of sensors and correlation of available information should strengthen action and reaction capabilities for maritime safety.</p>
Fisheries control	<p>Fishing vessels are submitted to European legislation in the European EEZ.</p> <p>Ships have to transmit position by AIS or VMS, they have to register all catches on a log book for each area.</p> <p>In case of a transshipment at long range from shore, it is not able to detect this kind of unreported action.</p> <p>RANGER intends to have the capability to track and detect all abnormal behaviours between ships, even if they shut down their tracking system as AIS or VMS by mixing raw video from radar and data.</p> <p>In case of incursion of unauthorized foreign fishing vessels in European EEZ RANGER could be a solution to detect and track this illegal fisheries.</p> <p>RANGER could be an alternative to aircraft and patrol boat.</p>
Customs	<p>Customs control operations at sea can only be achieved on the ships previously identified as suspect by intelligence elements but also by randomly checking and opportunities' cases.</p> <p>The fight against smuggling and counterfeiting requires the ability to monitor maritime traffic, identify routes and who leaving them, but also to cross dynamic information with historical data to generate relevant alarms.</p> <p>RANGER could provide an opportunity to detect abnormal situations or generate alarms based on behavioral analysis of vessels of interest or ships from ports known for their absence of systematic controls.</p>
Environment	<p>AIS data and satellite images are not considered as evidence by the judicial authorities in order to unmask a suspected polluters.</p> <p>In this way by continuous tracking from shore to high sea, RANGER could be a means to demonstrate that the ship suspected is the ship involved.</p> <p>RANGER is the first step to mix all kind of data to build a common operational picture in EEZ, combining coastal systems and satellite's means.</p>
General law enforcement	<p>Strengthening the law enforcement at sea is based on knowledge of what happens in real time in order to identify criminal behaviour and provides an appropriate response.</p>

	RANGER should strengthen the knowledge of what is happening at sea by the fusion and correlation of data. If the level of confidence in the system increases, RANGER could become a tool for targeting ships and intervention areas and therefore should reduce the time devoted to the achievement of air or maritime patrol.
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Table 9: RANGER use cases

5.2. Ethical and legal barriers of RANGER and their mitigation

The table below lists the identified legal, ethical and societal problems which RANGER and its use may cause, as well as the activities to mitigate/eliminate them. The focus of the problems is on the expected outcome (RANGER solution) rather than on the problems of the research ethics (such as plagiarism). In turn, mitigating and eliminating the problems concern not only the R&D work and features of the RANGER technology, but also how the user guidance should be, as well as requirements for the RANGER business modelling and dissemination.

The table is not exhaustive. The idea of it is to catalyse constant deliberations on ethical issues and challenges and provide an overview of the strategies on how to cope with them inside each work-package’s R&D work. For the same reason all of the originally presented problems by the people have attended the above workshops are taken into account in the table, although some of them may not even be problems in the end.

<i>Identified ethical risks and problems</i>	<i>Activities to mitigate/eliminate problems</i>
Tension between human values, security and business	
<p>In times of austerity, why put money to this?</p> <p>RANGER fails to address the impact of the proposed radar solution on fundamental rights and freedoms and politics, solely focusing on technical issues and overall efficiency of maritime surveillance operations.</p> <p>Ranger will be used for the border control and building up boarders at the expense of saving lives of migrants.</p>	<p>Good PR and communication. Make communities understand both the benefits and disadvantages of RANGER. Lower the costs of platform and maintenance</p> <p>The proper involvement of end-users and non-governmental organizations in the RANGER project.</p> <p>SAR criterion, human rights and other ethical guidelines should be taken into account when developing the RADAR technology, its processes and business model. Laws of the sea (UNCLOS,</p>

	<p>SOLAS and SAR conventions) shall be respected.</p> <p>The language and terminology of the user interface should serve each aspect of maritime surveillance (e.g. by taking into account the status of the user logged in)</p>
The use of RANGER radar to enable border control at high seas may violate the principle of non-refoulement	Issue to be discussed with CISE/EUROSUR. While there are no specific regulations on surveillance on the high seas, this should be carried out with respect for relevant international laws and especially the laws of the sea (UNCLOS; SOLAS and SAR).
<p>Attention will not necessarily be paid on people in distress if they are located outside country's SAR responsibility areas.</p> <p>Due to the richer information RANGER provides e.g. from high seas, following "Duty to render assistance" principle may bring more work the SAR organizations using RANGER.</p>	<p>When implementing RANGER, points of contact/national coordination centres³⁰ in the area RANGER covers are to be defined, In addition a joint operation plan with all the third countries³¹ in the area is to be done before starting use RANGER</p> <p>Third countries in the Mediterranean sea should be seen as end-users of the RANGER information, as well as real partners solving the joint problem with new technology.</p> <p>The extension of cooperation towards third countries must be respectful of these countries' sovereignty and right to decide over their own territory.</p>
RANGER together with EUROSUR/CISE may enforce a conflation of asylum with illegal immigration and thus foster an extension of asylum seekers ³² .	It is necessary in the RANGER dissemination and communication use the terms "irregular" "asylum" and "illegal" in a logical and informative way ³³ .
Displacement effect and balloon effect	
Using RANGER e.g. in the Mediterranean sea will probably cause a displacement of the irregular immigration. The people may even use more dangerous routes or even smaller boats to avoid being detected by RANGER.	The information sharing to border management authorities (Frontex) is essential to figure out the big picture of the situation.

³⁰ see European Commission 2014 about the points of contacts.

³¹ According to the European Agency for fundamental rights (2013) "When the EU and its Member States provide assets, equipment and other maritime border management facilities to neighbouring third countries, priority should be given to assets and equipment that can be used to enhance their search and rescue capacities." See also European Commission 2015 about the partnership with third countries.

³² About this problem, see Sombetzki P and Quicker J (2016)

³³ See also Sunny (2014) p. 8.

<p>Both human trafficking and smuggling (illegal and legal) goods are big businesses. In case one route is closed, other (even more dangerous) will be used.</p>	<p>In case RANGER is sold as stand-alone solution outside EUROSUR/CISE, the information sharing is to be organized properly.</p>
<p>The quality of our maritime surveillance system in the long run</p>	
<p>How can we make it sure that RANGER will be developed continuously based on end-user requirements and ethical/legal requirements after the project ends? Is there a risk that current technology providers will attain a monopoly in the area of radar surveillance, and thus may not be interested to put money on R&D activities?</p> <p>Since the deployment of RANGER is voluntary for the countries - and if the quality of the solution is not satisfactory – this can lead in a situation where the penetration of RANGER remains in a low level.</p>	<p>Continuous development of the RANGER should be embedded in the RANGER business model from the early beginning.</p>
<p>Due to the capacity of RANGER to cover long distances there is a risk that some countries choose to be free riders. They might leave the costly surveillance work and investments for other countries. This may be the case both in Europe and outside in the third countries.</p>	<p>Responsibilities and the moral division of labour in maritime surveillance is to be discussed. This can include e.g. the bigger role of Frontex in a situations where the responsibilities and the amount of inputs are not in balance.</p>
<p>Misuse of RANGER and/or its data</p>	
<p>Technical Information leakage: The data RANGER collects will be captured and misused e.g. for spying, military or terrorist purposes</p>	<p>Specific security standards are to be followed</p>
<p>Human information leakage: Ranger data will be delivered to someone who should not have it</p>	<p>User logs as part of the system. Check and balance approach. Any information put into the system and shared through it should be traceable, in order to verify sources and their reliability when necessary.</p>
<p>Exchange of information with third countries: Possible misuse of personal data.</p>	<p>Any data that in some way relates to an identifiable individual leaving one’s country should not be shared with third countries, as these can be used against them if they are returned.</p> <p>Collaboration with third countries (in the framework of CISE or EUROSUR) should only be possible via separate flow of information, where no personal data is allowed to be entered.</p>
<p>The RANGER will be available for organizations and persons not allowed to use such systems</p>	<p>Limit the access to the ranger data only to relevant authorities (access rights, RANGER business modelling)</p>

Diplomacy issue: how to use the radar data that inevitably include also military tracks?	Rules & regulation on the use of data
Dual roles of the users	
Difficulties to share between civilian and military services (>different regulation) in case the user serves both.	<p>To define the need to share, the need to know and the final aspect concerning low level data.</p> <p>Rules & regulation on the use of data must be defined.</p> <p>Training as part of the RANGER implementation on necessary also from this point of view.</p>
Privacy and data protection	
Fundamental rights privacy and data protection should be maintained. Although the data processing of the current RANGER technology doesn't process any identifiable personal data, the situation may change in the future.	Apply "privacy by design" and other requirements (anonymizing etc.) defined in the coming new Data Protection legislation (Act + Directive) coming in the effect 2018.
The promotion of "control society", you cannot even sail at the sea without somebody monitoring you	Good PR and communication about the justification and advantages of the system
Harm to environment and wellbeing	
<p>The electromagnetic pollution and the use of RANGER will disturb wildlife, both animals and plants, including also movements of migratory birds.</p> <p>The use of OTH radar creates an ethical problem of human exposure in high power radiation which is needed for long wave detection</p> <p>Radiation at nearby villages and also to neighbouring countries.</p> <p>People may be afraid of the radar and its impact on the nature and human lives.</p>	<p>Follow both EU and local legislation and standards (radiation, environment, NATURA2000 etc.) from the design phase of the radars. Be especially aware of the changing legislation.</p> <p>Choose the right location for the radar that doesn't cause problems to the nature, archaeological sites or tourism. To mitigate human exposure in radiation, the OTH radars can be located in unpopulated areas. Further minimize the power levels by improving the directivity of the radar.</p> <p>Have agreements from local/national authorities to install and use HF waves</p> <p>Safety instructions are also needed for installing radars and doing maintenance work.</p> <p>Good PR and information with local communities.</p> <p>Make communities understand both the benefits are disadvantages</p>
Aesthetic footprint	

<p>Size of radar e.g. in Greek islands with traditional architecture will be an ugly landmark in an otherwise beautiful coastline. Local people may complain about it. (On the other hand people in Aegean islands are already used to military bases and radars.)</p> <p>Local residents hostility because of tourism values A lot of space is needed to install the radars. OTM antennas could be awful for neighbours.</p>	<p>Hire industrial designer etc. to create beautiful antennas and radars.</p> <p>Good PR and information with local communities. Make communities understand both the benefits are disadvantages</p>
<p>Cases of finding ancient monuments while installing radars.</p>	<p>Consider environmental studies when installing the antenna</p> <p>Be in contact with archeological experts before installing the system</p>
<p>Property rights</p>	
<p>The use of public soil to install radar and the impacts on the private property nearby the radar may be unfair.</p> <p>Tourists and local people will be kept away from areas where RANGER radars are installed. This may affect local businesses such as hotels, restaurants and other tourism based business.</p>	<p>The installation of the radars in a places which are already occupied for same kind of activities (e.g. military bases)</p>
<p>Ownership of ranger data, can it be a problem?</p>	
<p>Dual Use</p>	
<p>Fear about the military use (RANGER technology should not have dual use) E.g. if radars are installed nearby military areas.</p>	<p>Good communication. Avoidance of the installation on sensitive areas.</p>

Table 10: Ethical and legal barriers and their mitigation

5.4 Benefits of the RANGER for various stakeholders

The table below identifies the various positive impacts RANGER may have on peoples’ fundamental/human rights as well as on other ethical and social aspects (way of life and fears, culture and community, political systems, environment, health and safety, property and personal rights).

Target group	Benefits
Maritime surveillance in general	<p>Cost savings (investment + maintenance). Surveillance 24H/7days instead of patrols. Better coverage with less money (acquisition and maintenance). The responsibilities of e.g. fishing boats for SAR operations will diminish (> not so much economic losses because of the time spent in those operations). Improvements and effectiveness in operational level in tracking ships -early warning alarms with more accuracy -international collaboration -faster identification of threats. Better working environment (compared with patrol boats). Benefits in the logistics (e.g. estimating times of arrivals to ports).</p>
Irregular immigrants	<p>Security and saving lives by preventing illegal and/or inappropriate sea traffic. Diminishing human trafficking.</p>
European citizens	<p>Way of life and security: less pirates, less terrorism at sea, less smuggling of both drugs and arms, less illegal immigration, less losses of life at sea. Health and well-being: less smuggling of drugs and other illegal goods. Culture and community: Better controlled illegal immigration. Environment and healthier sea areas: less emissions in sea surveillance and more effective detection of oil spilling. This will benefit environment itself, but also tourism businesses and even people’s health (because of less polluted sea fauna). Personal and property rights and economic benefits: new technology businesses, less pirate products diminishing fair businesses and destroying brands, more tax revenues thanks to more effective customs, less ships accidents and even lower insurance costs, lower business costs in transporting due to diminished risk to susceptible to piracy, prevention of accidents at the sea, less illegal fishing and therefore better fair fishing business and jobs.</p>
Research and business in general	<p>Innovative techniques to process data (data fusion, machine learning). Industry: new markets and businesses, also side uses e.g. in meteorology. Provides general user requirements beyond what RANGER can actually cover. Creating jobs during the research.</p>
Other issues	<p>European integration and increased collaboration.</p>



D3.1 – SOCIETALLY ACCEPTABLE AND ETHICALLY SUSTAINABLE WAY OF PERFORMING MARITIME SURVEILLANCE

	Shows that the country is involved in project to increase its capabilities for SAR, against smuggling and illegal immigration. International security.
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Table 11: Benefits the RANGER provides

6 Ethical and societal guidelines and recommendations

In this chapter we introduce the ethical and societal guidelines for the development of RANGER solution (> technology, user processes and guidance, business model) based on the literature review and on the initial Societal Impact Assessment described in the previous section. These practical guidelines aiming to promote the ethical and societal sustainability of RANGER solution are to be followed/applied correspondingly in the subsequent work-packages.

	Activity	Responsibility
1	<p>Development of RANGER Code of Conduct and follow-up of the current discussion on maritime surveillance</p> <p>The initial RANGER Code of Conduct provided in chapter 4 is to be developed and specified more in detail during the RANGER project. Separate versions of the Code of Conduct are needed for RANGER as stand-alone version and for RANGER as part of EUROSUR/CISE.</p>	Ethics committee working.
2	<p>Legal framework follow-up regarding maritime surveillance and its technology</p> <ul style="list-style-type: none"> Especially since RANGER may change the moral division of labor in maritime surveillance (e.g. in SAR where much more information will be available), it may even be a mean to change to the legislation (or how it will be interpreted) Follow both EU and local legislation and standards (radiation, environment, NATURA2000 etc.) from the design phase of the radars. Be especially aware of the changing legislation. 	Each work-package in case.
3	<p>Proper understanding of maritime surveillance operations & involvement of end-users</p> <ul style="list-style-type: none"> End-users are to be involved in the project during its <u>whole life span</u>. End-users should come from various levels of maritime surveillance and from various operations in EU and member states (search and rescue, border control, fisheries control, customs, environment). Representatives from the third countries from Mediterranean coast site also to be involved in project, as well as various non-government organizations. 	All the work-packages working with end-users.
4	<p>EUROSUR/CISE collaboration in ethics work</p> <p>Since EUROSUR and CISE probably has already taken into account the critics of forgetting humanities in favour of security and new businesses, it is crucial that RANGER’s interoperability and compliance with EUROSUR and CISE covers also these ethical issues (not only technology). This includes especially the following issues:</p> <ul style="list-style-type: none"> Non-refoulement and the use of RANGER radar to detect vessels on high sea and on the water territories of third counties. 	Project management team (with the help of ethics committee)

	<ul style="list-style-type: none"> • Seeking for the solution how we will deliver the long-distance information RANGER provides also to neighbouring third countries so that they can also enhance their SAR activities. • Seeking for the fair moral division of labour in providing assistance in a situation in which we constantly get distress information outside country's own SAR –regions. 	
5	<p>RANGER business/governance modelling</p> <ul style="list-style-type: none"> - RANGER as stand-alone solution, and especially its user processes and business/business model need to be designed carefully, including the user training and selling/procurement strategy which avoids the biased use of RANGER in border control and SAR. - Productizing a feasibility study and societal impact assessment about RANGER and its use in the proposed area before the implementation as part of the “RANGER package”, including needed activities to eliminate undesirable consequences beforehand. - When selling RANGER as stand-alone solution, follow up of the consequences of the use of RANGER technology is needed to provide as part of the “RANGER service package”. - Selling RANGER only for the use of municipalities or other authorized bodies (>the avoidance of the misuse and dual-use) - Licensing 	Work-package 8
6	<p>Design of the RANGER technology/Data management and security</p> <ul style="list-style-type: none"> - “Privacy by design” and other requirements (anonymizing etc.) defined in the coming new Data Protection legislation (Act + Directive). - Specific Data security standards are to be followed - User logs as part of the system. - Check and balance approach - Limit the access to the RANGER data only to relevant authorities (access rights, ranger business modelling) - Rules & regulation on the use of data 	Technical partners
7	<p>Design of the RANGER technology/ The modifications of the user interface according the users background/maritime surveillance aspect</p> <ul style="list-style-type: none"> - SAR criterion, human rights and other ethical guidelines should be taken into account when developing the RADAR technology, its processes and business model. - The language and terminology of the user interface should serve each aspect of maritime surveillance (by taking into account the status of the user logged in) 	Ethics committee and technical partners
8	<p>Design of the RANGER technology/Physical design of the radar antennas</p>	Work-package 4

	Hire industrial designer etc. to create beautiful antennas and radars.	
9	<p>Continuous societal impact assessment of RANGER during the project</p> <ul style="list-style-type: none"> • Joint societal impact assessment with all the work packages will be done in the mid and end of the project under the work of ethics committee and documented in D3.2. This concern especially the Mediterranean area where the system is to be piloted. Also expertise from other areas than maritime surveillance are needed in order to figure out the impacts on society (e.g. irregular immigration) • In addition each wp is expected to conduct SIA among their own stakeholders 	Ethics committee and each work-package
10	<p>Communication and dissemination</p> <ul style="list-style-type: none"> - Good PR and information with local communities. Make communities understand both the benefits and disadvantages - It is necessary in the RANGER dissemination and communication use the terms “irregular” “asylum” and “illegal” in a logical and informative way. 	Work-package 8
11	<p>Guidelines for the installation and use of the system</p> <ul style="list-style-type: none"> - Rules & regulation on the use of data. Training as part of the RADAR implementation on necessary also from this point of view. - Consider environmental studies when installing the antenna, and be in contact with archaeological experts before installing the system. Have agreements from local/national authorities to install and use HF waves - The installation of the radars in a places which are already occupied for same kind of activities (e.g. military bases) - Choose the right location for the radar that doesn’t cause problems to the nature, archaeological sites, tourism. To mitigate human exposure in radiation, the OTH radars can be located in unpopulated areas. Further minimize the power levels by improving the directivity of the radar. - Safety instructions are also needed for installing radars and doing maintenance work. 	Work-package 7
12	<p>Follow-up of the implementation of these guidelines</p> <p>Work Packages (WPs) and their deliverables (in which an ethical and societal compliance check is to be added as an annex of each deliverable).</p>	Each work-package

Table 12: Guidelines for the ethical and societally sustainable RANGER

7 Summary

The main points of the deliverable from the viewpoint of the RANGER project consortium can be summarized as follows:

1

Ethical and societal issues concern both the RANGER technology, its user processes, as well as business modelling. These all are to be taken into consideration when developing RANGER solution during the RANGER project, although the focus of the RANGER project seems to be on technical issues.

2

Ethical requirements are essential inputs for the development and evaluation, like the end-user requirements. Especially the new Data Protection Reform sets various responsibilities both for the technology, for the user guidance and for the business/procurement modelling.

3

Although RANGER only develops the capabilities of current maritime surveillance, new ethical challenges may arise because of these betterments. In addition the values, norms and regulations behind the maritime surveillance and SAR are developing rapidly due to the changing situations both in EUROPE and elsewhere. Follow up of this development is therefore crucial during the RANGER project, as well as close collaboration with EUROSUR/CISE around ethical and societal issues.

Annex A - References & Relevant Readings

Amnesty International (2014) THE HUMAN COST OF FORTRESS EUROPE
HUMAN RIGHTS VIOLATIONS AGAINST MIGRANTS AND REFUGEES AT EUROPE'S BORDERS
http://www.amnesty.eu/content/assets/Reports/EUR_050012014__Fortress_Europe_complete_web_EN.pdf

ASSERT (2014): *ASSERT Toolkit for Societal Impact Assessment in Security Research*. ASSERT project.
Retrieved from: <http://assert.maisondx.com/>

Bellanova et al. (2012). Supporting fundamental rights, privacy and ethics in surveillance technologies (SAPIENT). Deliverable 1.1. Smart surveillance – Stated of the Art, 23 January 2011.

Frontex (201) Ethics of Border Surveillance –report.

Hayes B and Vermeulen M (2012). Borderline The EUs new Border Surveillance Initiatives. Assessing the costs and fundamental rights implications of EUROSUR and the smart borders proposals. Heinrich Boll Stiftung

Hojtink M (2014). Capitalizing on emergence: The “new” civil security market in Europe. Security Dialogue. Vol 45(5), p. 458-475.

European Agency for Fundamental Rights (2013). Fundamental Rights at Europe's Southern Sea Borders, Luxemburg.

Council of Europe (2010). *European convention on Human Rights*. Retrieved from: http://www.echr.coe.int/Documents/Convention_ENG.pdf

European Commission (1995). *Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data*. Retrieved from: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31995L0046:en:HTML>

European Commission (2011). Commission Staff working document. Accompanying Document to the communication from the Commission to the European Parliament, the Council, The European Economic and Social Committee and the Committee of Regions. Examining the Creation of a European Border Surveillance System (EUROSUR). Impact Assessment. Brussels: European Commission. (COM 2011)

European Commission (2014). COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL Better situational awareness by enhanced cooperation across maritime surveillance authorities: next steps within the Common Information Sharing Environment for the EU maritime domain

European Commission (2015). A Europa Agenda on Migration. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Brussels: European Commission.

European Commission (2016). EU Data Protection Reform (Act and Directive)

European Parliament and European Council (2014) REGULATION (EU) No 656/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing rules for the surveillance of the external sea borders in the context of operational cooperation coordinated by the European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union. (EU 2014)

European Group on Ethics in science and new technologies (2014). Ethics of Security and surveillance Technologies. Opinion 28. European Commission, Brussels.

Jeandesboz J (2011). Beyond the Tartar steppe: EUROSUR and the ethics of European border control practices. In Burgess J and Gutwirths S. (eds.) Migration and Integration. Institute for European Studies Series.

M Jimenez (2013) European border surveillance system: humanitarianism and (in)security for sale?. Master thesis. University of Amsterdam.

Marin L (2013) Protecting the EU's borders from ... fundamental rights? In R Holzhaecker & P Luif (eds.) Freedom, Security and justice after Lisbon. New York: Springer.

François Crépeau (2013). Regional study: management of the external borders of the European Union and its impact on the human rights of migrants, 24 April 2013

Meijers Committee (2012). Note of the Meijers Committee on the proposal for a Regulation establishing the European Border Surveillance System 12.9.2012

Report of the United Nations Special Rapporteur on the human rights of migrants, François Crépeau - Regional study: management of the external borders of the European Union and its impact on the human rights of migrants, 24 April 2013, A/HRC/23/46.

RANGER project (2016) Grant Agreement. European Commission, Directorate General for Migration and Home Affairs, "Grant Agreement number 700748 'RANGER'", Annex 1 (part B).

Rijpma J and Vermeulen M (2015). EUROSUR: saving lives of building borders? European security vol. 24 nr. 3, 454-472.

Societal Impact Expert Working Group (2012). *Societal Impact Expert Working Group EC DG ENTR Report*. CIES. Retrieved from: <http://cies.ie/wp-content/uploads/2014/05/Report-of-the-Societal-Impact-Expert-Working-Group.pdf>

Sombetzki P and Quicker J (2016). European border surveillance system running a self-fulfilling circle. MarRBLE research papers. Vol. III.

Sunny project (2014) Deliverable 1.4: Surveillance societal and Ethical Aspects. Project co-funded by the European Commission within the Seventh Framework Programme.

United Nations (1982). The United Nations Convention on the Law of the Sea.

Vanclay, F., and Esteves, A.M (Eds.) (2011). *New directions in Social Impact Assessment. Conceptual and Methodological Advances*. Cheltenham (UK).