Analyzing the effectiveness of EU Investments in "Management of External Borders" Policies: Identification and Conceptualization of a Qualitative Model

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Abstract

This study so far originates from the outcome of a preliminary study to a Cost-Benefits Analysis inside the PERSEUS project (supported by the Seventh Framework Programme for Community R&D, Security Research Theme). This introductory analysis is the starting point for the design of a tool for the Cost-Benefits analysis of European Union MEB (Management of External Borders) related projects. It proposes, by using a Systems Thinking approach, an understanding of the systemic behavior of the relations between the players involved in the European borders management. The model is constrained to those challenges arising at sea with focus on the Mediterranean domain. The increasing investments envisioned for the period 2014-2020, if compared to the previous period, witness the strengthening of external border policies. This paper addressed some of the counter intuitive behaviors and weaknesses inherent to such an investments policies and practical implementation. Demonstrating the value of the EU investments along with its side effects or weaknesses can play a crucial role in the future resolutions of the European institutions. Showing some unintended systemic behaviors inside the EU action on borders management could have implications for the future of EU policy-making and lead to proposals to amend policy regulations.

Keywords: *Irregular Migration, Cross-Border Crime, Management of External Borders, Border Surveillance, Policy-Making, Systems Thinking.*

1. Introduction

This paper presents the results of an activity in which a qualitative model has been developed. It represents the cause-effect relationships among the various aspects constituting part of the actual Management of External Borders (MEB) system. In particular, this paper will show the impacts of the European Union (EU) investments in this sector. Based on the qualitative model, this paper has been submitted for the evaluation of experts and end-users of the current EU MEB system, so to gather eventually feedback on the development activities. In this context, "External Borders" meaning is constraint to Member States' *sea borders and seaports* in the Mediterranean domain. We refer to "Management of External Borders" as a term encompassing the management of EU to improve the integrated management of the Union's external borders plus Member States' responsibility for the control and surveillance on the same area. As reported in the following, EU is making a huge effort in investing towards obtaining effective MEB activities under a common approach, by financing both DG-Home (Directorate-General of Migration and Home Affairs) and Frontex (European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union). EU is also investing in enabling an exchange information system among Member States through a European Border Surveillance System (EUROSUR). Therefore, EU is also funding Security research projects in the area of Intelligent Surveillance and Border Security systems, such as the PERSEUS project, which has been conceived so to improve Europe's efforts to monitor illegal migration and goods smuggling.

Creating a common and uniformed mechanism for managing the external borders of the EU has been a central political driving force behind the establishment of Frontex as well as the initiative of establishing a EUROSUR. The new emergence of strengthening MEB and managing it within a common approach has become quite important after the establishment of the Schengen area. The abolishment of border checks between the Schengen countries has given a new and greater responsibility to guard these borders on behalf of the rest of the Union to those countries with an external border. This responsibility has occasionally been a heavy burden on the Southern European countries, and first and foremost Spain and Italy, and more recently Greece, which in turn has served as a reason to work for a common approach to managing the European external border. The events of the Arab spring, and the following increase in flows of migrants seeking to cross the Mediterranean, whether to escape from situations of insecurity, or for economic reasons, put increased pressure on the external border of the EU, and especially on Italy. This report aims to analyse, through a Qualitative Model design, how the benefits resulting from the EU investing efforts are strictly connected to the several actors' behaviors in the system (which is among the main reasons why we chose to use System Thinking) and how they can be measured by evaluating the policies results over the objectives. The main idea is to identify the expected benefits and the effective costs of such policies of investments and to identify on a systemic level how such benefits/costs behave over time and what other aspects they both influence

and are influenced by. Finally, the model investigates whether those EU investments prove to be ineffective both in terms of the process of current policies conception and in terms of its operational applications. Generally, this work aims to measure benefits in terms of EU results in facing and defeating the main *Security Challenges* threatening its External Borders security and safety. In our particular case, in our model, we choose to measure the EU performances in MEB by observing objectives[1], which are set by EUROSUR initiative, that are concerning three main areas: (1) ***Irregular Migrations*** (European Parliament, 2013); (2) ***Migrants' losses of lives*** (European Parliament, 2013); (3) ***Cross Border Crime*** (European Parliament, 2013). Demonstrating the value of the EU investments along with its side effects or ineffectiveness can play a crucial role in the future resolutions of the European institutions. Showing an effective Management of External Borders or even some ineffective strategies could lead to a new picture of the overall framework of policies on MEB.

2. Context identification

The paragraph illustrates the role played by MEB in the overall picture of European policies and the nature of the security threats it addresses. The first section aims to define the EU framework of institutions responsible for MEB. The second section illustrates the EU investments in improving the effectiveness of MEB in regards to the main challenges in the Mediterranean domain. The third section evaluates in numbers the extent of the main threats and issues currently faced by EU MEB at sea. The fourth section analyses the nature and characteristics of the security threats that the European Border Surveillance System (EUROSUR) aims to tackle: every threat differs in the extents to which they constitute threats to EU security. Knowing those differences is crucial in order to address the threats in the right order of priority.

2.1. Management of the External Borders (MEB) of the EU

European Union (EU) States are committed to increase cooperation on cross-border issues, such as *migration*, *border control* and *organized crime* through the activity of the European Commission Directorate-General of Migration and Home Affairs (DG-Home). DG-Home's main responsibility is to prepare EU-level policies in these areas and to watch over their implementation (European Commission, 2015).

Since the establishment of Frontex (the European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union) on October 26, 2004, the EU is even more committed to deal with the specific challenge of improving the Management of External Borders (MEB) following a common approach (Council European Union, 2004).

[1] Those are EUROSUR objectives; see following paragraphs for further details on duties and responsibilities of EUROSUR.

DG-Home is also responsible for funding related research projects in EU States via grants awarded through calls for proposals. Among the others, European Commission funded Security Research projects by means of the Seventh Framework Programme (FP7) (European Union, 2014). PERSEUS (Protection of European seas and borders through the intelligent use of surveillance) is one of the funded security research projects under the *Intelligent Surveillance and Border Security* area of the FP7. The PERSEUS project wants to contribute to Europe's efforts to monitor illegal migration and combat related crime and goods smuggling by proposing a large scale demonstration of an EU Maritime surveillance System of Systems, on the basis of existing national systems and platforms, enhancing them with innovative capabilities and moving beyond EUROSUR's 2013 expectations (European Union, 2014).

A further significant initiative under the Frontex "*Border Surveillance Programme*" is the development of the backbone of the European Surveillance System (EUROSUR) promoted by Frontex in 2008 and operationally implemented at the end of 2014. Its task will be to provide the infrastructure and tools necessary to improve EU *situational awareness* and *reaction capability* at the external borders of the Member States. The EUROSUR initiative has three main objectives: (1) to reduce the number of irregular migrants entering the EU undetected (European Parliament, 2013); (2) to reduce the number of deaths at the maritime borders by saving more lives at sea (European Parliament, 2013); (3) to increase the internal security of the EU as a whole by contributing to the prevention of cross-border crime (European Parliament, 2013).

2.2.Costs of the EU MEB

In the last decade and in the future, Europe is conspicuously financing and funding specific EU institutions, research projects and several Member States' join operations, in order to improve the effectiveness of their Management of External Borders (MEB) and Sea Border Surveillance Security issues.

The overall DG-Home budget for the years 2014-20 amounts to 9.26 billion euros. A consistent part of these resources (2.36 billion euros) is reserved for Frontex and the other Home Affairs Agencies (DG-Home, 2015). Frontex also allocates massive budgets to Joint Operations between Member States: on November 1st 2014, Frontex has finalized the launch of the Joint Operation named "Triton". Until the beginning of this year, the monthly budget has been of 2.9 million euros (European Commission, 2014). In April 2015, after the refugee crisis in the Mediterranean, at their emergency summit, EU leaders decided to triple the budget for the EU's Triton program. The cost estimates for EUROSUR amount to 244 million euros for 2014-2020, including costs for set-up, maintenance and personnel (European Commission, 2013). On the other hand, during the past years 2007-2013, the European Commission funded FP7 security research with a budget of 1.4 billion euros. PERSEUS, one of the funded projects in the research area of the *Intelligent Surveillance &*

Border Security of FP7, had a total cost of 43 million euros and an EU contribution of 28 million euros.

By the way, most of the MEB effort is up to the Member States directly involved in facing the security issues at the external borders of Europe. In detail, when it comes to issue regarding the Mediterranean Sea, the Member States mainly involved are Spain, Italy, and Greece. They have to face those challenges with their own budget, which results up to the 80% of the overall amount of investments for EU MEB. In the last few months of 2013, Italy, one of the EU Member States, launched Operation Mare Nostrum, deploying a significant part of its Navy to rescue refugees and migrants at sea. The cost of Operation Mare Nostrum has been over 9 million euros per month. The initially expected cost value of 1.5 million euros per month has increased up to 9.5 million euros (Amnesty International, 2014).

2.3. MEB challenges in the Mediterranean Domain

The main EU goals regarding the Management of External Borders (MEB) as it was set by EUROSUR (European Parliament, 2013): (1) "reducing the number of irregular migrants entering the EU undetected" means focusing on the *Irregular Migrations* and correlated *Facilitation of Irregular Migrations* (or Smuggling of Migrants) issues; (2) "reducing the number of deaths at the maritime borders by saving more lives at sea" means focusing on the *Migrants' losses of lives* issue; (3) "increasing the internal security of the EU as a whole by contributing to the prevention of cross-border crime" means mainly focusing on *Human Trafficking* and *Smuggling of Goods* issues. This paragraph aims at putting down in numbers the level of challenge that EU has to face nowadays when talking of the issues reported above.

***Irregular Migration**:* in 2014, an increase of 138% in the number of migrants that entered the EU irregularly (if compared to the same period in 2013) was registered. That means 276.113 migrants in the 2014 (Frontex, 2014). UNHCR estimates that over 118,000 arrived in Italy. The third quarter of 2014 records 110.581 irregular migrants that is the highest number ever reported and a 61% increase compared to the previous quarter of the same year. Moreover, the data means a substantial increase if compared to the third quarter of the previous year when the number of detections was 150% less (Frontex, 2015b).

***Facilitation of illegal immigration**:* many asylum-seekers recur to facilitators working individually or in criminal organizations, in order to buy a clandestine entrance pass to the EU, via sea routes. EU is to them an attractive destination for economic and safety reasons; therefore facilitated illegal immigration is not expected to decrease in the near future (Europol, 2013). Irregular migrants will keep on increasing the demand of irregular travels because of the unrest in their countries of origin (Europol, 2013). Therefore, facilitators will remain interested to this crime area that will thus be still considered as a profitable business. In 2013, the overall numbers of detected facilitators fell from 7720 to 6902 that is a 10% decrease compared to the previous year. This decrease is part of a more general

long-term decreasing trend in facilitators detections (Frontex, 2014). Such a decline in part is due to facilitators being able to continuously attempting to identify new modus operandi or new routes so to stay in the market of such a fruitful business (Europol, 2013) and in part of being able to operate remotely rather than accompanying migrants during the entire border-crossing (Frontex, 2014).

Migrants' loss of Lives: the irregular migration phenomenon pays an unacceptable number of losses of migrants' lives. In the first and second quarter of 2014, in the Mediterranean sea, 2500 people died for being smuggled by facilitators. A peak of 2200 people's casualties has been recorded between the beginning of June 2014 and half September of the same year. Since many bodies cannot be recovered from the sea, nobody knows the real numbers of lives lost at sea (Amnesty International, 2014). The numbers of those trying to reach Europe are unlikely to go down (Europol, 2013) because refugees and migrants will continue to risk their lives despite the costs of lives of many of them. In fact, between mid-July and the end of August 2014, despite the over-crowded boats used which would easily lead to predictable accidents, 150.000 people left Libya because of political fights in the Libyan capital during those weeks (Amnesty International, 2014) aiming the result of one of the most high number of lives lost at sea in the last few years. Since the beginning of 2015, Mediterranean has contributed to a more than 50-fold increase in migrant and refugee deaths (Amnesty International, 2015).

Human trafficking (Border Cross Crime / Cross Mediterranean Crime): in some cases, once having crossed the border, migrants continue to depend on criminals for the purpose of sexual and labour exploitation. Several thousand people are trafficked into the EU or within the EU every year (Frontex, 2014). A trafficked migrant is exploited in coercive or inhuman conditions. The Schengen area provides a comfortable operating area for traffickers in human beings and will continue to be exploited (Europol, 2013).

Smuggling of Goods (Border Cross Crime / Cross Mediterranean Crime): another very important area concerning with illegal activities at the external EU borders is the one related to drug trafficking, smuggling of excise goods, weapons, etc. and, among the others, smuggling of articles infringing intellectual property rights. Data related to this area of criminality is abundant and thus hard to synthetize. It can be said, as an example, that Europe remains one of the largest cocaine markets in the world. Crime organizations' shipments remain undetected due to the variety of routes and transport methods and concealment methods used. As a further example in 2011 at the EU borders, goods infringing intellectual property rights confiscated (not only port custom controls) reached the amount of over 1,2 billion euros (Europol, 2013).

2.4. Nature and Characteristics of the Security Threats (MEB challenges)

For the sake of clarity in the qualitative modelling exercise that we have performed, the following section aims to report some highlights of analysis developed for the PERSEUS

project[2] of the characteristics of the security issues and threats that the European Border Surveillance System (EUROSUR) tries to tackle. The following counterintuitive statements are going to be used in our analysis:

1. **Efforts targeting human smugglers may have direct negative consequences on the security of irregular migrants** (Carling, 2007; Carling and Hernandez, 2011): such measures make routes utilized by smugglers/facilitators more dangerous and expensive. As Derek Lutterbeck (2006) writes, "a typical effect of the enhanced maritime patrol activities has been to divert the migratory flows towards further and more dangerous routes across the Mediterranean, thus directly contributing to the rising death toll among the would-be immigrants ".
2. **Overestimation of the point of entry by sea**: Alessia di Pascale (2010), studying the Italian case of migration control at sea, shows that arrivals by sea make up approximately 10-13% of the stock of irregular migrants, while visa overstayers (approximately 64%) and people having passed through border checks fraudulently (approximately 23%) are more important sources of irregular immigration;
3. **Irregular migration is hence not itself a security threat**, and is not identified as such in the EU Internal Security Strategy. Most irregular migrants take up low income jobs in EU countries without being involved in any criminal activities. Yet others get involved in illicit activities, and given their unregistered status, they may represent a security problem that is difficult to handle for the legal system (De Hass, 2008).
4. In terms of civil and individual security, **it is primarily the subjects, namely the irregular migrants themselves that are exposed to severe insecurity**. This both goes for the dangers of being subjected to professional smuggling networks facilitating their travels, the dangers associated with travelling in small boats, manifest in the number of drowning accidents, or in containers, as well as the vulnerabilities associated with being an irregular migrant in European countries, often without access to basic health or social services (Jeandesboz, 2011);
5. While this activity, i.e.: crossing a border without prior authorization (or assisting someone in this endeavour), may be characterized as a crime, **it does not necessarily constitute a security threat "per se" to the countries of destination of their clients**;
6. **Irregular migration is sometimes presented as a source of hostilities at a societal level between the citizens of European countries and migrants.** Such hostilities may include violent manifestations, such as racist/xenophobic violence and murders. Furthermore, anti-migrant sentiments may have negative effects on the relations between EU countries and the countries of origin of the immigrants. However, this dimension of irregular migration is rather a symptom of more fundamental problems (societal, political, economic, etc.), for which the irregular migrants per se are not to blame for. The resolution of such issues hence hinges on political orientation and the

[2] PERSEUS, D13.1: International survey of relevant national, EU and intergovernmental security policies, PRIO, June 2012.

management of the social and political challenges associated with immigration rather than on the designating of irregular migration itself as a security problem.

3. An introductory analysis of the model

The following paragraph provides a detailed description of designing a qualitative scenario model by means of a Causal Loop Diagram (CLD). The scenario to be modelled is the one previously explained in details in §2, named "Context Identification" paragraph. It can be useful to remind that this work aims to model the MEB investments over their results together with their unintended/unexpected consequences. The following introductory analysis starts by focusing on modelling the investments and their relations with the objectives. The result of this first modelling will be considered as the basic structure of the scenario in §2 and the starting point for more detailed analysis in §5 and followings.

In order to outline a first understanding of the scenario we have to start by setting some seminal variables of the model: we will call the EU investments actions as *Financing and Funding MEB* and the objectives as EUROSUR Objectives, or simply *EOs*. The first simple structures of the model can be resumed as follows: in order to solve the problem we thus need to optimize the *EOs* (in our case, minimize them, see next). *EOs* in our structures are, generally speaking, "Security Threats" in the Mediterranean Sea (or also called from now on "MEB challenges"). As Security Threats, conceptually speaking, the *EOs* thus need to be minimized in order to reach an optimal result.

In detail, we chose to map the problems as EO-1, EO-2, and EO-3 defined reflecting the EUROSUR Objectives as follows:

- EO-1: **Number of Illegal Migrants reaching the shores undetected**
- EO-2: **Number of Casualties of Illegal Migrants At Sea**
- EO-3: **Number of Smuggled Goods reaching the shores undetected**

The following figure aims to illustrate by means of a CLD the first basic structures of *Financing* and *Funding* an effective Management of External Borders (MEB). The *Financing and Funding MEB* actions can be considered in our case as a "fixing action to solve the problem", which in our structure is represented by the *EOs* "non-optimal" values. For sake of simplicity, the EO-1, EO-2 and EO-3 are gathered in a unique variable called *EOs – EUROSUR Objectives*.

In order to read the CLD in Figure 1, we need just to follow the process by walking ourselves around the loop: if the EU decides *Financing* the MEB, it will lead (through several steps, which will result in the final complete CLD) to lower problems (*EOs*) in the EU maritime domain (minus sign). On the other hand, the lower the *EOs* levels are and the lower the need for *Financing* will be. This results into a balancing loop. Figure 1 contains

the following assumption: until the EOs do not reach their minimal level, the EU continues investing; when the optimal is touched then the EU financing will cease.

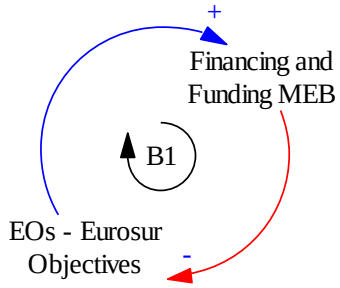

Figure 1 - Balancing Loop B1

That means no investments improving respect the previous years except for the necessary *Investment in Updating* (see Figure 2). On the other hand, we can remark that the results of the *Financing* actions occur gradually. This behaviour will lead to the fact that the loop in Figure 2 will contain a "delay" between the *Financing* variable and the resulting *EOs*[3].

Within the term *Financing and Funding* the External Border Management (MEB), we decided to take into account mainly the two following actions:

1. *Financing Inter State Collaboration* (Frontex) which results in *Financing Common Surveillance Tools* (EUROSUR)
2. *Funding Intelligent Surveillance & Border Security Projects* (Sea Borders Projects: e.g. Perseus, which persecute the same objectives as EUROSUR does)

To go further in details, in order to reduce and control the identified EOs, EUROSUR and the related[4] research projects use the financing/funding investments mainly in order to improve the "surveillance tools" together with the "situational awareness" and the "reaction capability" etc. (European Parliament, 2013). Hence, *Surveillance Capability* variable has been introduced into the model. It represents a high-level variable that will include all those aspects. Considering the *Surveillance Capability* variable as an objective of the Financing and as a cause of the minimizing in EOs (European Parliament, 2013), we added it as a variable linking the Financing and the EOs. We need to account for a delay also on the newly added link because of the time elapsed between the actuation of policies and their results due to the time of implementing the measures. This new variable along with the different kind of *Financing* cited before, are recorded in the following CLD in Figure 3. The figure should also take into account the variable *Common Surveillance Inefficiency* since the investment can be wasted in overlapping technologies or inefficient tools. For the sake of clarity, the next CLD should also encompass the intermediate outcome of the

[3] A delay is labeled as // or = on the link arrows.
[4] We refer to "related research" as those research projects, which address the same objectives as EUROSUR.

PERSEUS project (EU Maritime Surveillance System of Systems - *Enhancing SoS with Innovative Capabilities and Large Scale Demonstration*) as variables causing the increasing (even if only during the project demonstrations) of the overall *Surveillance Capability*.

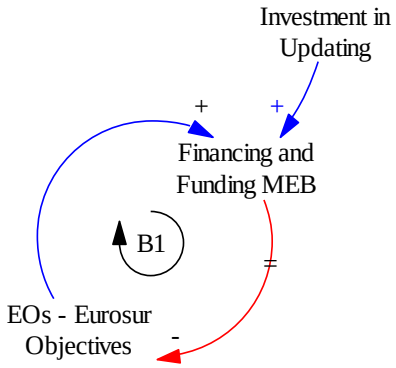

Figure 2 - Balancing Loop B1

What should also be considered in our CLD is the variable *Political Pressure*, which is a necessary variable to represent the *Need of Compliance to EUROSUR Objectives* and the reason for new and strengthened investments. The effectiveness of investments in MEB should be measured by an assessment of the results achieved against objectives.

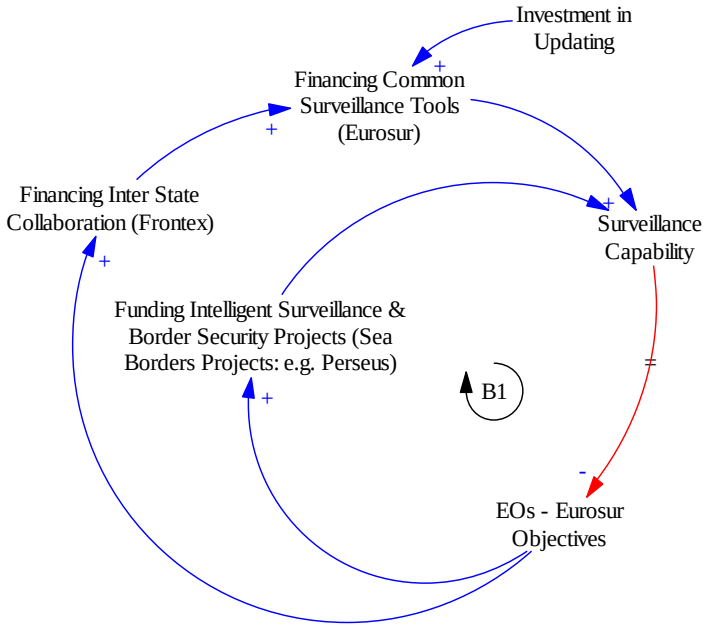

Figure 3 – Composition of the Financing and Funding related to MEB

This assessment will result in an increasing of the Financing those activities when the results are not the optimal ones. The full achievement of the goals changes whether the

Respect for fundamental rights, including the principle of non-refoulement has been taken into account during the policy implementation or not. Furthermore, the effect of this variable on other variables changes over time depending not only on the EOs but also on the current political background and contingencies such as economic crisis, law changes, etc. and it results in the variable *Cuts in Financing for Specific Measures* (e.g.: Economic Crisis, law changes, human rights new principles, data privacy, ...). Figure 4 provides an updating of the previous CLD by including all such new variables. On the other hand, the final evaluation of EUROSUR starting from 2016 and repeating every 4 years (European Parliament, 2013) works differently than every other intermediate evaluation: it can bring to an end of the financing.

Assumption: According to that, we assumed that if the final EUROSUR evaluation results were unsatisfactory then the EU would cut the financing to EUROSUR.

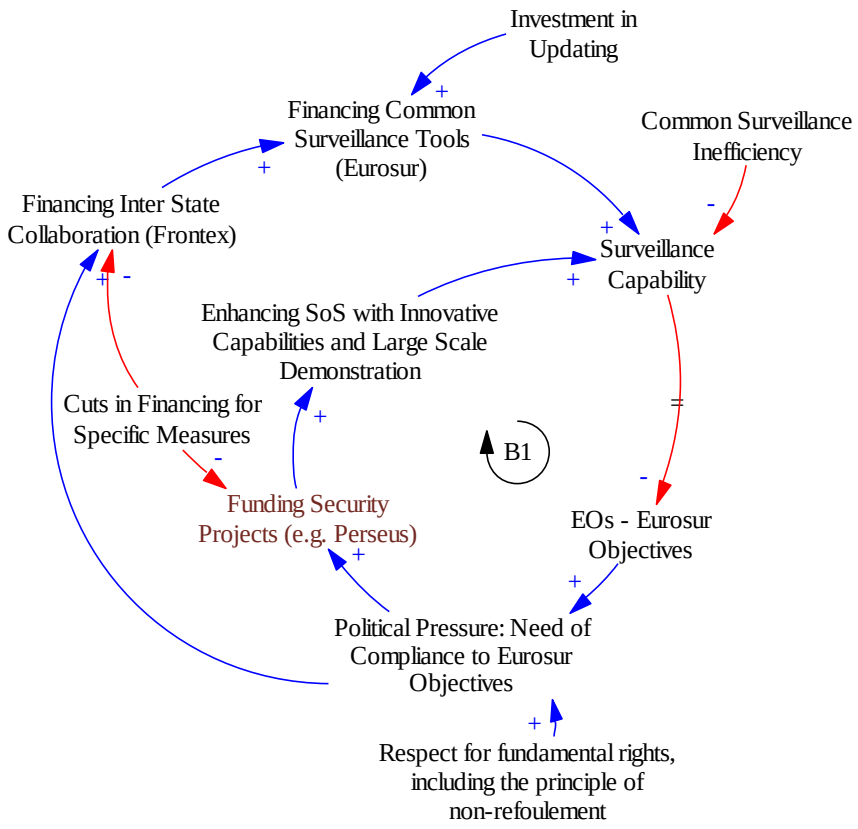

Figure 4 – Constraints to Financing

From the previous assumption derives the negative link (see Figure 5) between the *Final EUROSUR Evaluation* and the *Financing* EUROSUR and its related projects. The new CLD in Figure 5 includes also the fact that there is an increasing pressure on the Southern Member States because of the increasing of the Cross Mediterranean security challenges.

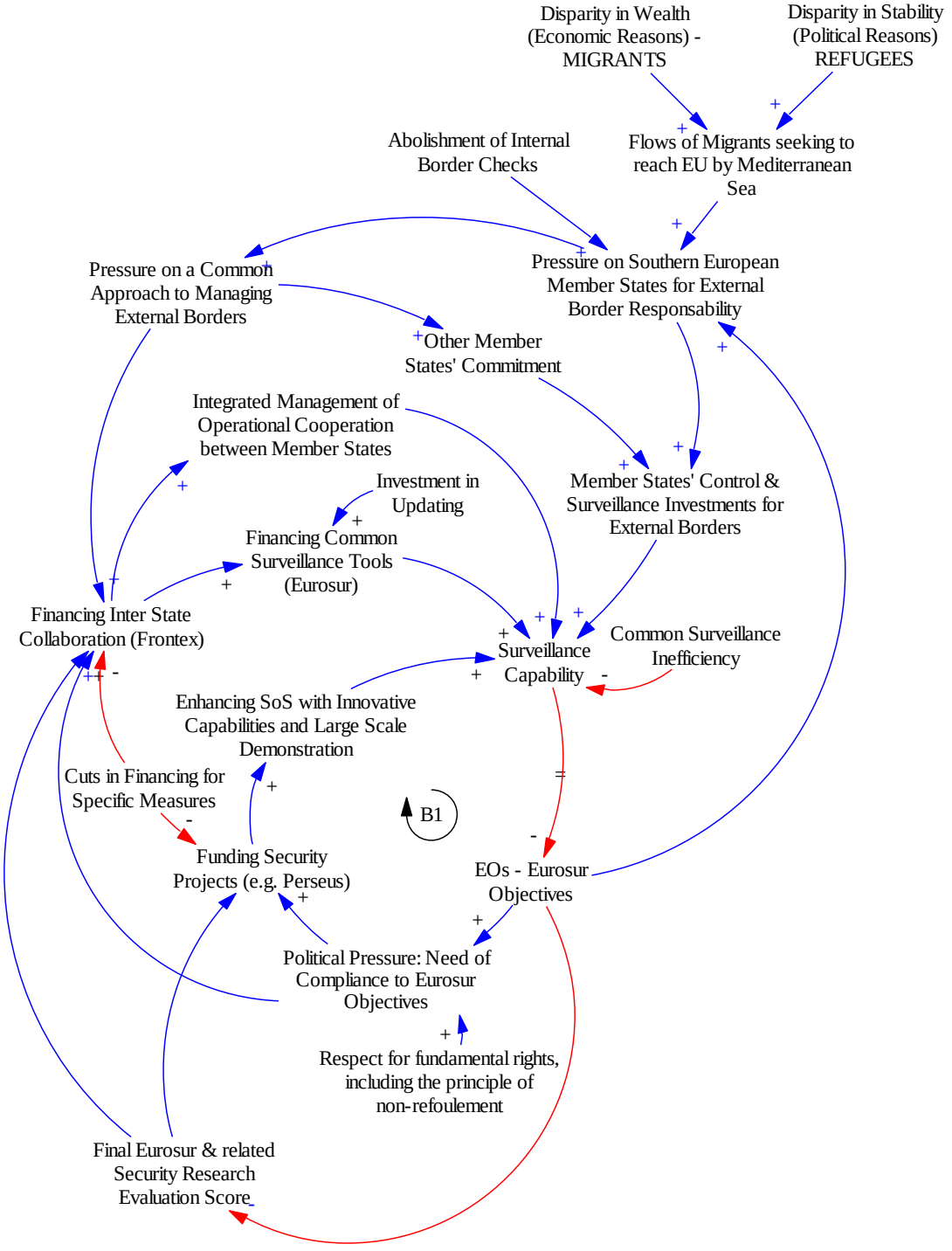

Figure 5 – Basic Structure of the Model

Furthermore, *Disparity in Wealth* and *Disparity in Stability* variables cause the migratory pressure towards Europe because of the *Abolishment of Internal Border Checks*. That leads

to a heavier burden on Southern Member States, which increases in turn the *Pressure on a Common Approach to MEB* and it results proportionally in an *Other Members' Commitment*. The need of a major *Pressure on a Common Approach to MEB* results also in new strengthening investments in the common MEB institution that is represented by Frontex, the agency deputed to improve the *Integrated Management of Operational Cooperation between Member States*.

The CLD in Figure 5 has been adapted because, despite what we reported above, the National Member States systems will remain the main investors in Maritime Surveillance. In our model, the term National Member States refers to Southern Member States (SMS) plus Other Member States (OMS), which are not directly involved into the managing of MEB. Therefore, the extent of the Surveillance Capability is the sum of all *Member States' Control & Surveillance Investments for External Borders (SMS +OMS)* plus a value that is linked to the *Integrated Management of Operational Cooperation between Member States* plus possible future common surveillance tools brought by Frontex (that is EUROSUR and his related Research Project as PERSEUS). All in all, the National systems capabilities will still represent something in the order of magnitude of more than 80%. The resulting CLD in Figure 5 is just a reference frame of how the mechanism of financing *Surveillance Capabilities* works. The model itself has to go deeper into the details. Indeed in order to describe a more realistic mechanism of the *Financing* itself, the model will have to explain, for each *EOs (EO-1, EO-2 and EO-3),* how such objectives can be minimized through causal actions in other parts of the system. Every structure of "Fixing (minimizing) the EOs" will be showed in a CLD in the following paragraphs. Finally, in the last section related to the "Model Conceptualization", the sub-system referring to the variable *Surveillance Capability* will be analyzed.The final section will show at last the *Overall Structure of the System* by aggregating all the CLDs proposed in this document.

4. Model Analysis

We will now be faced with the design of the following sub-systems: (a) Sub-system 1: Minimizing EO-1; (b) Sub-system 2: Minimizing EO-2; (c) Sub-system 3: Minimizing EO-3; (d) Sub-system 4: Surveillance Capability composition

The aim of the following paragraphs is to illustrate how all of the above-listed sub-systems , complete or enhance the CLD shown in Figure 5. At the end of the document, all sub-systems will be arranged into a single CLD showing the overall structure of the system.

4.1.Sub-system-1: Minimizing EO-1 (Irregulars Reaching the shores Undetected)

Let us anticipate what will be shown in detail in this paragraph: the EU investments in *Minimizing EO-1*, which is again the number of *Illegal Migrants Reaching the Shores Undetected*, can result in substantial unintended 'side' effects, and as such, instead of solving the issue, it can create new issues. In order to show the unintended side effects of

the actual *Minimizing EO-1* sub-system, in the following diagrams, we want to build the CLD of the Sub-System-1 while showing how similar it is its behaviour to the one of the "fixes that fail" (Pruyt, 2013) archetype showed in the Figure 6.

A "fixes that fail" structure is made up of a balancing loop (**B1**), which is intended to be a goal-seeking loop, although the goal is, after some delay, negated by a reinforcing loop (+) (Pruyt, 2013). In the following of this paragraph we will show how the Sub-System-1 we are analysing in this section behaves as a "fixed that fail" archetype structure that essentially is made of a main **B1** loop (the *Fixing EO-1* loop), by mean of which we want to minimize the problem, and one or more R-loops, which represent the unintended consequences.

Main B1 loop

Figure 7 shows an extended and detailed version of loop **B1.**

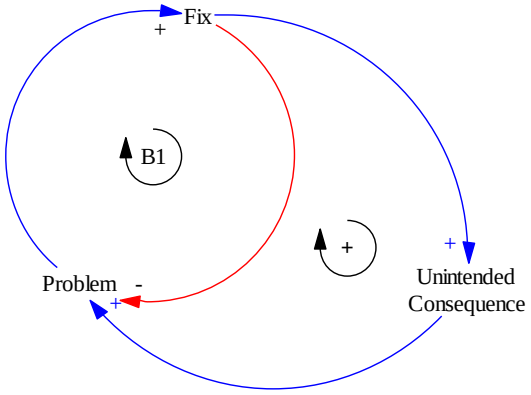

Figure 6 – "Fixes that fail" archetype

We introduced the following behaviour between the *EO-1* variable and the *Pressure on Southern European Member States*: the less the *Irregular Migrants Reaching the Shores Undetected* are and reasonably the higher the effort to increase the number of *Arrests of Facilitators* will be. As this number increases, then this will result in a decrease in the *Profitable Business* of trafficking in migrants, ultimately resulting in an even lower value of *Departures* of illegal Migrants. It leads in turn to a lower *Pressure on Southern European Member States*. Below in Figure 7, the **B1** extended version.

Worth mentioning that the variable *Flows of Migrants seeking to reach EU by Mediterranean Sea* (see Figure 7) influences the *Profitable Business*. That is the reason why migrant trafficking business (Europol, 2013) grows and grows constantly: it's depending on an increasing demand (the demand of travel to reach Europe) despite of the number of facilitators arrests. In conclusion: the loop resulting in Figure 7 is the extended and detailed version of the one outcoming the previous paragraph. It aims to provide a clearer picture of the structures to reduce the EO-1 since EU wants to pursue the reduction

of irregulars undetected by intensifying the efforts to arrest facilitators (European Parliament, 2013). Such objective can be pursued by improving the EU and Member States' *Surveillance Capabilities*. In the following sections, we will analyse the unintended consequences of this policy.

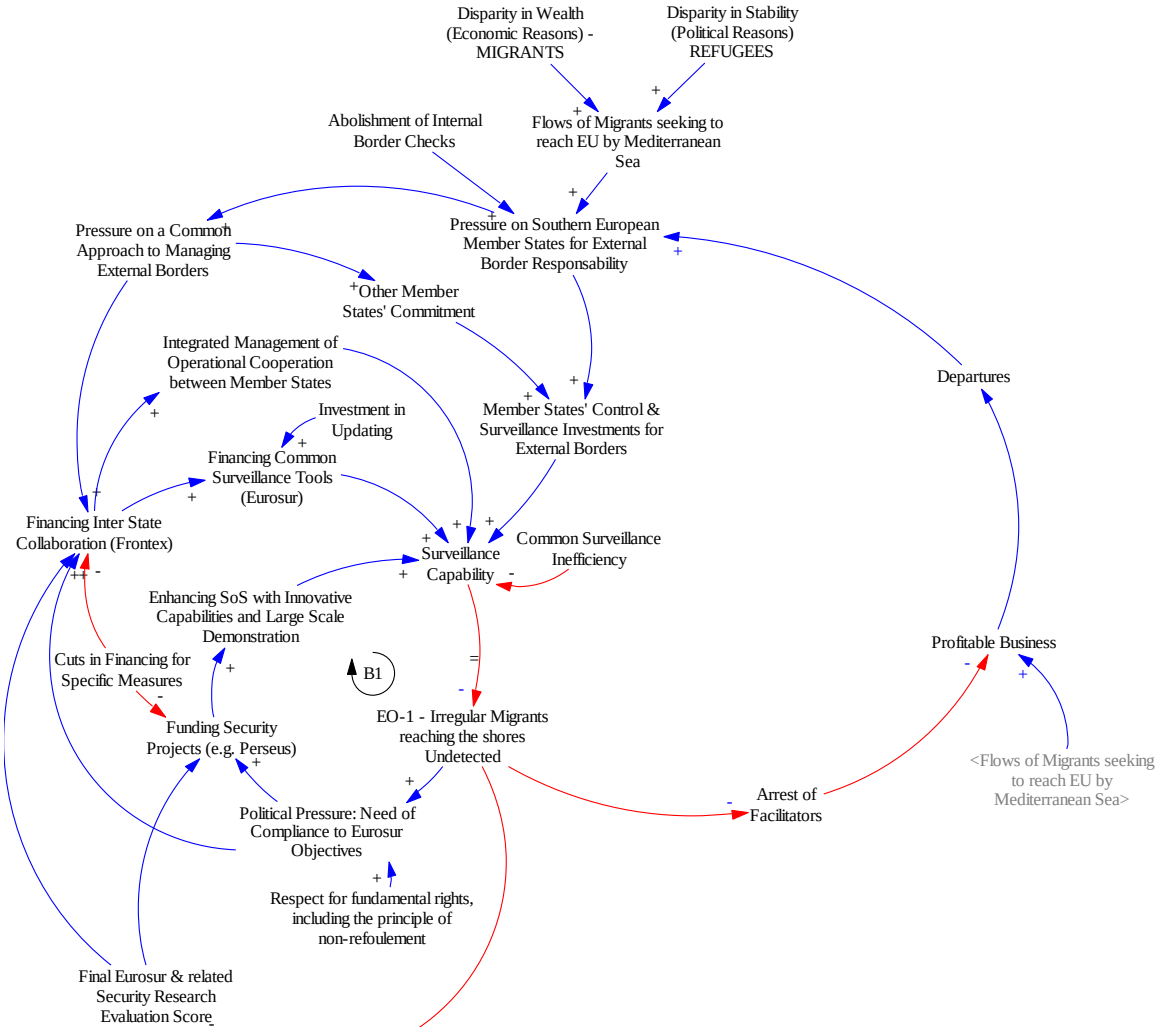

Figure 7 – Profitable Business for Facilitators

First Unintended Consequence

Figure 8 shows the reinforcing loop **R1** which represent the First Unintended Consequence of the EU policy seeking to reduce the EO-1. The *Arresting of Facilitators* leads to an unexpected behaviour: it *Makes Routes utilized by Facilitators More Dangerous and Expensive*, which in turn leads to an increasing of *EO-2 Number of Casualties in the Mediterranean Sea.* It happens together with an increasing of the *Pressure on Southern Member States* and consequently of the *Need of a Common EU Approach* to the issue. Since the demand of migratory travels is not going to decrease then new facilitators work to

find alternative routes. In this particular scenario this particular EU policy fails because of the inaccurate assumption that arresting facilitators could stop the flow of migratory travels. Even when all the facilitators were taken then the causes for the migratory pressure will be still there. Therefore, until the demand of travels is so high and risk insensitive, there will be always people willing to be a facilitator or facilitators willing to change routes and increasing the prices, to find new way to make money out of such a huge demand of a the cross border transport service. Rather than curbing immigration, the analysis presented so far suggests that increasing surveillance has led to professionalization of smuggling methods and a general diversification in attempted crossing points since 1999.

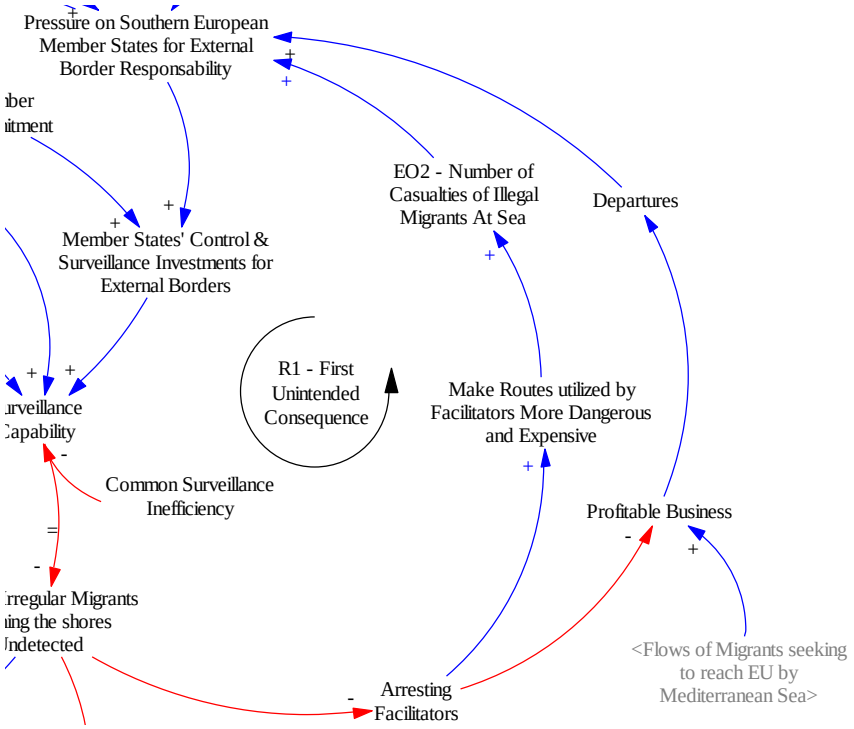

Figure 8 – First unintended consequence

Second Unintended Consequence

Migrants saved are brought ashore to Europe due to international law agreements (Gabrielsen Jumbert, 2012a). Operating according to the *non-refoulement principle* and the *disembarkation* rules can lead to the fact that more illegal migrants are brought to shore to EU (De Bruycker et al, 2013). Given that for granted, we can proceed by observing the second unintended consequence. Figure 9 shows the second unintended consequence of the policy to reduce EO-1. Note that reducing irregular migrants undetected leads to an increase *Illegal Migrants reaching the shores by sea* and consequently of the *Pressure on Southern European Member States*. That is showed clearly in the R2 loop in Figure 9: the higher the value of the *Illegal Migrants Detected*, the higher is the number of *Migrants Saved and Brought Ashore* and then finally of the *Illegal Migrants Reaching the shores*.

That consequence comes true because there is no sign of a decrease of the demand of irregular migrations towards Europe and because the profitability of facilitators business is only partially discouraged by the number of arrests. That is the cause of the second unintended consequence: the number of facilitators arrests doesn't discourage the facilitators because of the demand of seeking to go to EU, that is not to decrease.

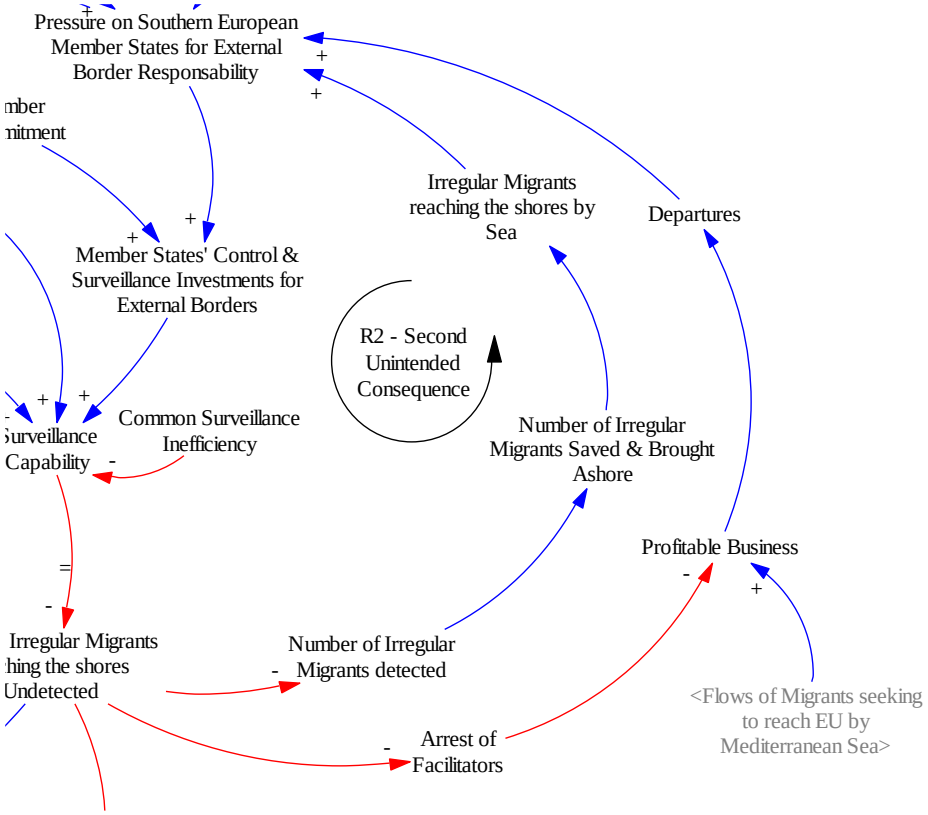

Figure 9 – Second Unintended Consequence

The unintended side effect spreads since the increase in *Political Pressure on Southern Member States* leads finally to an increase of *Pressure on a Common Approach to Managing External Borders*.

Conclusions

The underlying structure around the EU policy against EO-1 can be resumed as follow: EU and Member States improve their investments in terms of *Surveillance Capability* in order to reduce the number of *Irregular Migrants Reaching the Shores Undetected*. Those improvements are meant to lead to a higher number of *facilitators' arrests*. The market for irregular travels is so *profitable,* and not willing to decrease, that facilitators find new routes e new modus operandi in order to go on addressing the *demand of travels*. Those new routes result *more dangerous and expensive*. This fact causes high insecurity for the

migrants and an increasing of the EO-3 representing the number of *casualties of migrants at sea*. On the other hand, the more are the migrants detected and, since the demand is not decreasing even when facilitators are captured, then the more are the *irregular migrants brought ashore*.

For the sake of clarity, we anticipated here in this paragraph some dynamics including EO-3 but in the following paragraph, we will focus on the specific structures regarding exclusively EO-3 and the problem of reducing it.

When facing the problem of irregulars reaching Europe and the reason why it is perceived as a security challenge for Europe, it comes out the need to compare the security threat that they represent with the severe insecurity to which they are exposed. For the sake of this, facing the conclusions of this paragraph, it came out the need of two new indicators: "Irregular Migration in Europe" and "Irregular Migration Severe Insecurity"

Variable "Irregular Migration in Europe": the higher the number of *Irregulars Reaching the Shores by Sea* leads to a higher total of *Irregular Migration in Europe*. It is worth mentioning here that there is an overestimation of the actual weight of this point of entry into the EU. Previous studies on the case of migration control at sea (Di Pascale, 2010), shows that arrivals by sea make up approximately 10-13% of the stock of irregular migrants, while there are more important sources of irregular immigration. Trying to evaluate if Irregular Migration can be treated as a security threats we must say that most irregular migrants take up low income jobs in EU countries without being involved in any criminal activities. To the extent that they make a positive contribution to the economy of the state, they may strengthen rather than weaken state security. Yet others get involved in illicit activities, and given their unregistered status, they may represent a security problem that is difficult to handle for the legal system (see Figure 10).

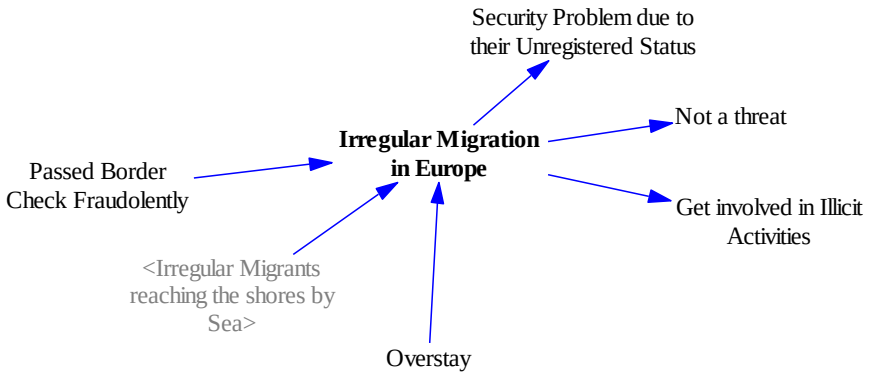

Figure 10 – Inflows and Effects of Irregular Migration in Europe

Variable "Irregular Migration Severe Insecurity": the variable *Irregular Migration Severe Insecurity* measures how much the irregular migrants are exposed to severe

insecurity. This goes for the number of drowning accidents due to dangerous routes and for the vulnerability associate with being an irregular migrant in Europe.

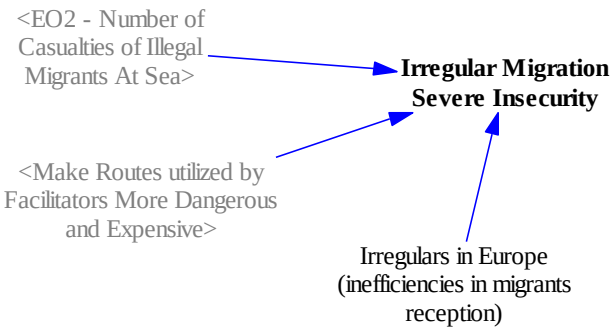

Figure 11 – Causes of Irregular Migration Severe Insecurity

By looking at the overall picture of the CLD depicted so far, we can comment the structure arising from it.

Results:

By analysing the structure of the first sub-system, we have increased our understanding of the behaviour of the system. We speed up our learning into the topic by reaching the following statements: (1) ***Removing the Disparities***, reduces the flow of migrants; (2) The increasing in surveillance has led to ***professionalization of smuggling methods*** and a ***general diversification in attempted crossing routes***; (3) Migratory flows are ***insensitive to the risk of the travel by sea***; (4) ***Migratory flows by sea is over estimated*** while there are more important sources of irregular immigration; (5) ***Irregular Migrants are themselves in a severe insecurity*** more than being a security threat in order to estimate the possibility of new policies.

4.2.Sub-System 2: Minimizing EO-2 (Number of Casualties of Irregular Migrants at Sea)

Figure 12 shows the structure of "Minimizing EO-2". By mean of adding the link between *Surveillance Capability* and *EO-2*, we encompass in the CLD the following structure: when the number of *Casualties of Illegal Migrants at Sea* arises, then the *Pressure on Southern Member States* grows and consequently the need of increasing the *Surveillance Capability* (European Parliament, 2013). We are going to use a balancing loop **B2** to model a further behaviour of fixing EO-2. Figure 12 shows the **B2** addition to the CLD. The new structure results in the following behaviour: when the *Number of Casualties of Migrants* arises, then in turn the *Pressure on Southern European Member States* arises and consequently it results in an increasing of the *Investments in SAR Operations*.

Worth mentioning that *Investments in SAR Operations* result in a higher value of *Migrants Saved And Brought Ashore* and consequently in a higher number of *Irregulars Migrants reaching EU by Sea*.

Results and Conclusions

EO-2 can be reduced by choosing one of the following or a combination of them: (1) Improving the ***Investments in SAR Operations***; (2) Strengthening the ***Surveillance Capability***; (3) Preventing facilitators to ***Make Routes utilized More Dangerous and Expensive***; (4) Reducing the ***Flows of Migrants Seeking to reach EU.***

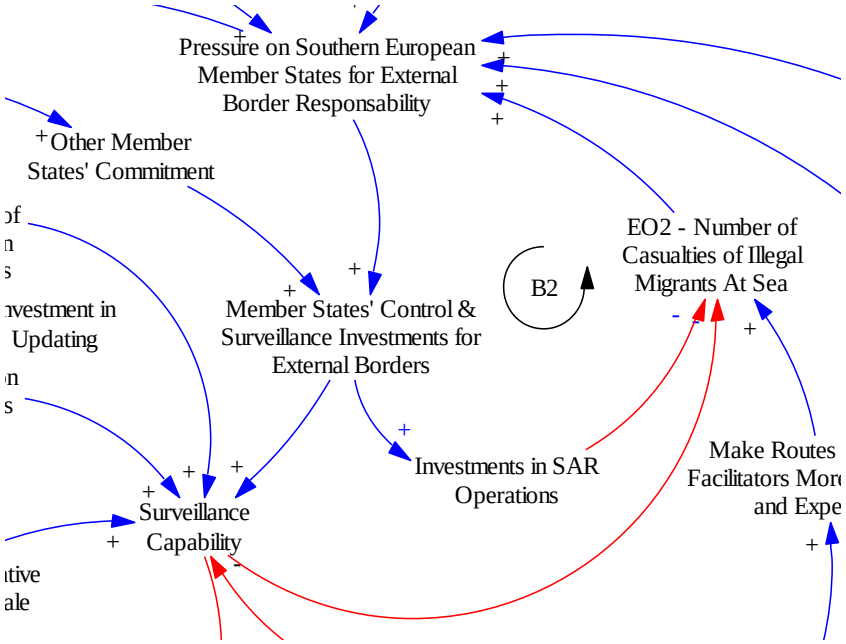

Figure 12 – Investments in SAR Operations

"Minimizing EO-2" unintended consequence is that action leads to a higher *Number of Irregulars Migrants Reaching the Shores by Sea*. That in turns leads to a higher number of the total amount of *Irregular Migration in Europe*, which can be conceived as a Security Threat when not properly managed.

A further statement we can produce by our analysis so far is the following: *mitigating irregular entrances should be proportionated to the security threat they represent and the security threats they are exposed to.*

4.3.Sub-System 3: Minimizing EO-3 (Smuggled Goods reaching the shores undetected)

Figure 13 shows the structure that wants to model the fixing actions against EO-2 (Smuggled Goods reaching the shores undetected). The behaviour of this relationship

follows an archetype structure called "Limits to Growth" (Pruyt, 2013). A "Limits to Growth" structure consists of a Reinforcing Loop, the growth of which, after some success, is neutralized by an action of a Balancing Loop. That is what happens to the growing of illegal businesses (**R-Illegal Business Growth**): they would grow and grow in a reinforcing dynamic loop unless there will be something, such as anti-criminality actions (**B1-Minimizing EO-2**), which impose a limit to their growth. Back to our CLD in Figure 13, the variable *Fruitful Business* in loop **R** adds to the results in terms of *EO-2*. The results (*EO-2*) then add to the growing action that is the *Illegal Profits*. This is the reinforcing loop that we called **R - Illegal Business Growth**. Then, while the reinforcing loop **R** is operating to reach the result in terms of *EO-2*, this variable interacts with a limiting factor that is the balancing loop **B1**. The slowing action in Figure 13 is given by the B1 balancing loop, which investing in anti-criminality actions results in subtracting from the results in terms of *EO-2*.

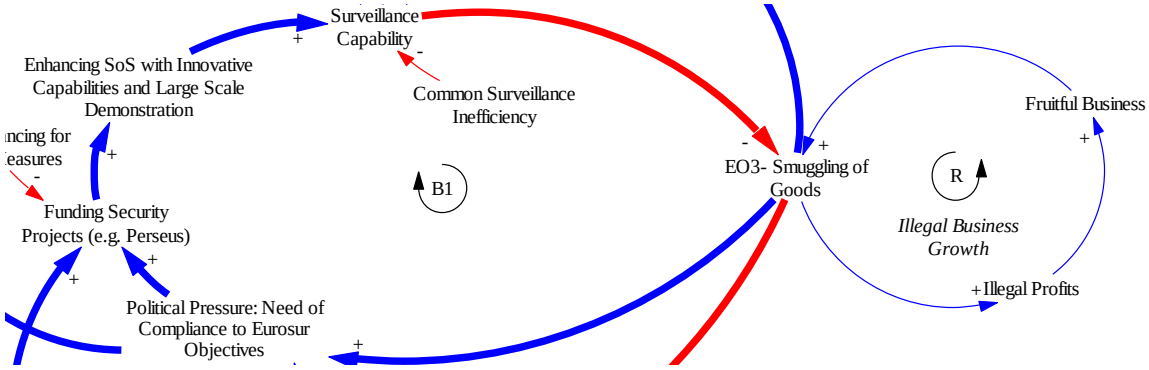

Figure 13 – Basic Structure of Sub-system 3

Following the walk through the model in Figure 13: *Surveillance Capability* improvement leads to a higher number of *Confiscated Boats And Small Airplanes* and consequently, to a lower number of *EO-2 - Smuggled Goods reaching the shores undetected*. If this value decreases, then in turn the need of further anti-criminality actions decreases (European Parliament, 2013). For sake of completeness, the "Fixing EO-2" structure follows entirely the "*Growth and Underinvestment*" structure that is simply an elaborated "Limits to Growth" structure where the growth inhibitor is part of a further Balancing Loop (B in Figure 14) with a threshold, which is the *Acceptable Losses* for the crime organizations to stay in the market. The thing about this structure is that the two balancing loops form a single reinforcing loop, which does not inhibit the illegal business growth any more.

The *Confiscated Boats and Small Airplanes* variable in B loop in Figure 14 represents the growth inhibitor impeding the growth**.** The system can be enabled to grow again if the growth inhibitor (*Confiscated Boats and Small Airplanes*) is reduced. The inhibitor avoidance (*Criminal Orgs Investments in new Routes and new "modus operandi"*) will, after some delay, reduce the growth inhibitor (*Confiscated Boats and Small Airplanes)*.

Conclusions

Contrary to the Irregular Migrants flow, which does not seem to know a real deterrent, the cross border crime has been modelled as having a threshold of acceptance of the costs of the criminal business.

The presence of such a threshold leads to the fact that in this case, investments in Surveillance Capability could be effective and the impacts of the EU policies would be beneficial when applied to this particular scenario.

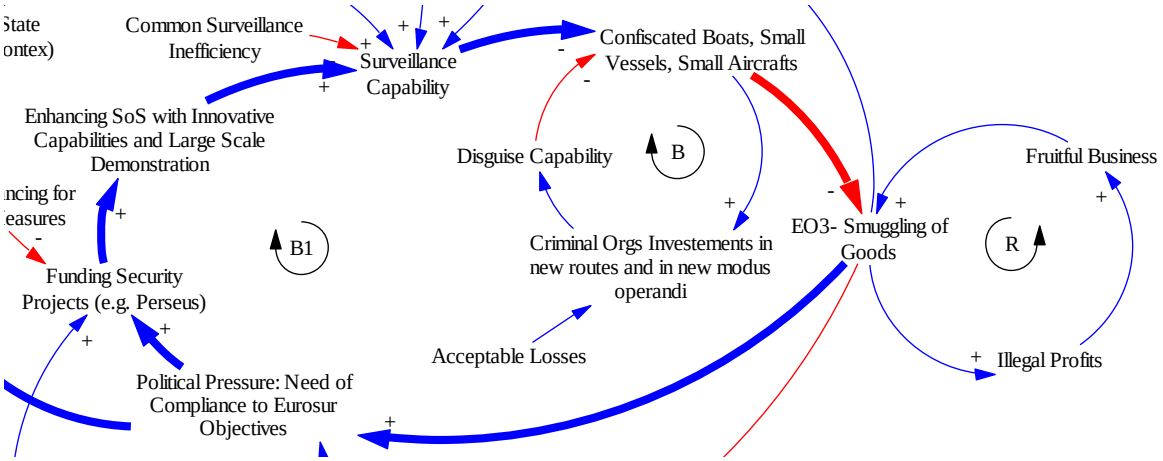

Figure 14 - the B loop completing the basic structure of sub-system 3

Comparing the conclusions of both the analysis for the Sub-system 1 and sub-system 3 scenarios, we can conclude that investments in improving surveillance capability are more effective when talking of efforts to face Cross Border Crime and less when talking about Irregular Migrations issues. That suggests to separate the two scenarios when making policies and measuring the results and impacts.

4.4.Sub-system 4: Surveillance Capability composition

Especially for the PERSEUS project, back to the basic structure of the model, we must consider that when talking about the overall *Surveillance Capability* (Figure 15), we refer to a sum among the techniques and practices of *Detection Capability* plus techniques and practices in terms of *Operational Efficiency*.

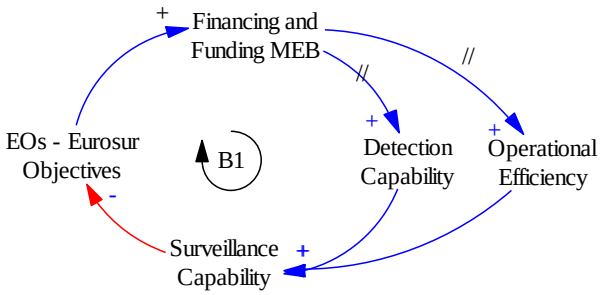

Figure 15 - Composition of the overall Surveillance Capability

When we will be working on the quantitative model, each of them both will be quantified to give an overall value of Surveillance Capability. Figure 16 shows how the improvement of the Financing leads to an improvement of both the Capabilities and consequently of their measurements. If we want to go deeper in detail in the way *Operational Efficiency* affects other variables of the system, we can consider to add (e.g.) *Operational Costs* in the CLD (Figure 17). As Figure 17 shows, an increase in *Operational Efficiency* leads to a decrease in *Effective Operational Costs*, which in turns leads to a decrease of *Effective Operational Costs over Desired Operational Costs* that causes a decrease of the need of *Financing*.

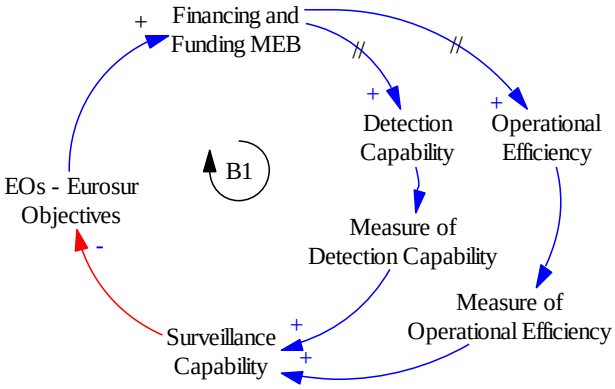

Figure 16 - Capabilities and their measures

Figure 17 shows a structure (loop B6) where the *Financing* and the number of *Assets* are not related to each other. That means we assume that when Financing actions are taken they do not affect the number of *Assets* available. This is however a too restrictive assumption that is changed in Figure 17

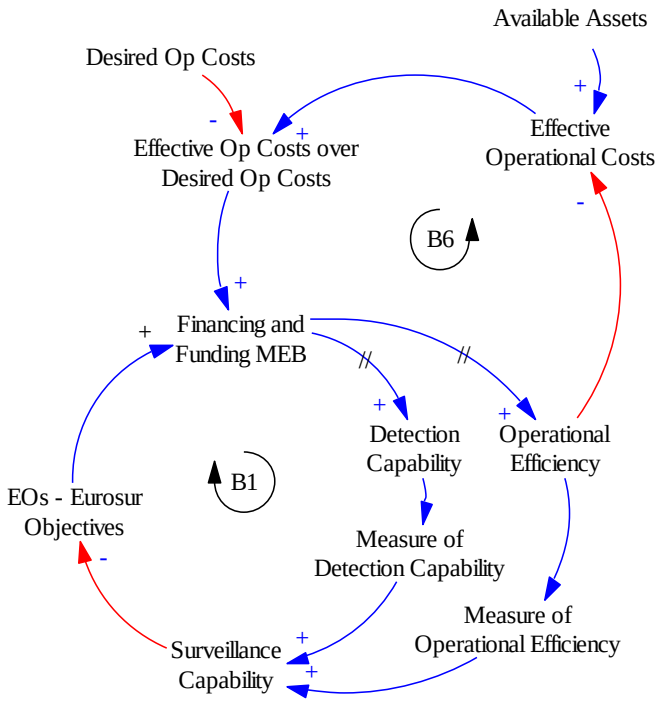

Figure 17 - Operational Costs Loop B6

Figure 18 shows the R6 loop adding the link between the *Financing* and the number of *available Assets*. The increase in *Assets* leads to an increase in *Operational Costs* and consequently to a need of new *Financing*. That is a reinforcing loop that would lead to an escalation if not prevented or (partly) offset by the B6 loops. Figure 18 shows the necessary addition of a link between the Available Assets and the Operational Efficiency: the higher the number of Available Assets is, the higher the Assets in Patrolling will be and it will result in an improvement of the Operational Efficiency. Figure 18 shows the loop named B7. It is a balancing loop involving the *Assets in Patrolling* illustrating that when the number of patrolling assets increases then the *Operational Efficiency* and consequently the overall *Surveillance Capability* increases. All this leads to a decrease of the "problems" which are the EOs and in turns a decrease of the *Political pressure* and the *Financing*. For the sake of completeness, it is necessary to trace some dependencies between the *Detection Capability* and the *Operational Efficiency* variables.

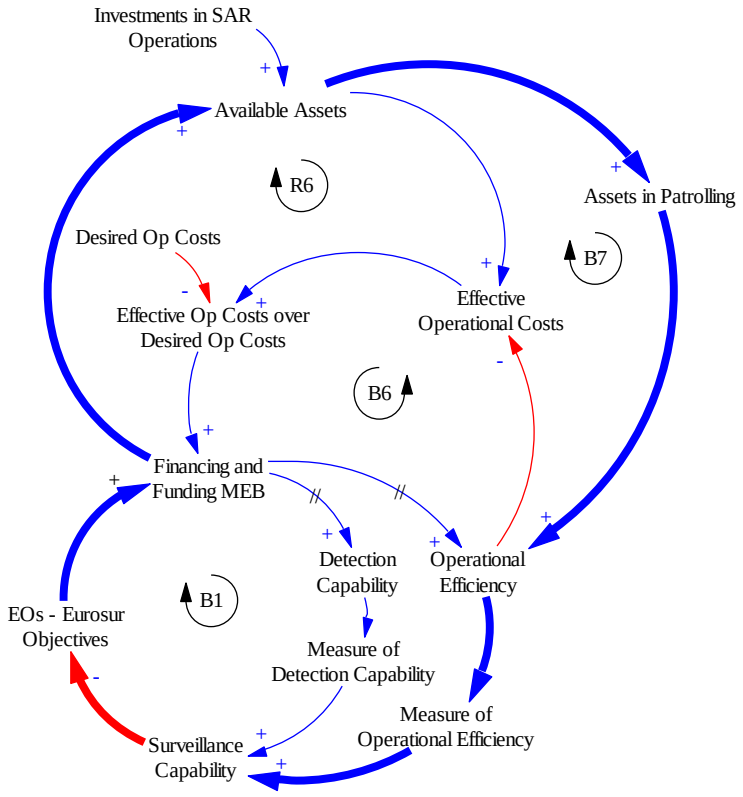

Figure 18 - Loop B7 "Patrolling and EOs"

5. Conclusions and Next Steps

The qualitative analysis developed has been useful for a systematic understanding of European MEB policies on investments, along with its challenges.

The increasing investments envisioned for the period 2014-2020, if compared to the previous period, witness the strengthening of MEB policies. This paper addressed some of the counter intuitive potential behaviours and weaknesses inherent to such investments policies and practical implementation.

The overall structure arising by the causal representation of the first Sub-System tell us a story that can be resumed as follows: EU and Member States improve their investments in terms of *Surveillance Capability* in order to reduce the number of *Irregular Migrants Reaching the Shores Undetected*. Those improvements are meant to lead to a higher number of *facilitators' arrests*. The market for irregular travels is so *profitable,* and not willing to decrease, that facilitators find new routes e new modus operandi in order to go on addressing the *demand of travels*. Those new routes result *more dangerous and expensive*. This fact causes high insecurity for the migrants and an increasing of the number of

casualties of migrants at sea. On the other hand, the more are the migrants detected and, since the demand is not decreasing even when facilitators are captured, then the more are the *irregular migrants brought ashore* and higher is the need of reception policies.

Finally, by analysing <u>*Irregular Migrations*</u> (Sub-System-1) policies through the Mediterranean Sea and their consequences, we have increased our understanding of the structure of the system and we can evidence the following relations:

1. ***Removing the Disparities*** between countries, has the potential to reduce the flow of migrants;
2. The increasing in surveillance can lead to ***professionalization of smuggling methods*** and a ***general diversification in attempted crossing routes***;
3. Migratory flows seem to be ***insensitive to the risk of travelling by sea***;
4. ***Migratory flows by sea is usually over estimated*** while there are other important sources of irregular immigration;
5. ***Irregular Migrants can be considered themselves in a severe insecurity*** more than being a Security Threat. The concept of Irregular Migration as a Security Threat has to be carefully defined not to incite xenophobic behaviours or prejudicial policies. **Mitigation of irregular entrances should be proportionated to the security threat they effectively represent and the severe insecurity they are exposed to.**

By analysing the <u>*Casualties at Sea*</u> issue (Sub-System-2), its structure showed that there are concrete relations between casualties and one of the following action or a combination of them:

1. Improving the ***Investments in SAR Operations***
2. Strengthening the ***Surveillance Capability***
3. Preventing facilitators to ***Make Routes utilized More Dangerous and Expensive***
4. Reducing the ***Flows of Migrants Seeking to reach EU*** by working on ***Disparities*** between countries.

Contrary to the Irregular Migrants flow, which does not seem to have a real deterrent, the cross border crime has been modelled (Sub-System-3) as having a maximum threshold of acceptance of the losses for criminal businesses. The presence of such a threshold leads to the fact that in this case, investments in Surveillance Capability could be effective and the impacts of the EU policies would be beneficial when applied to this particular scenario when they force the criminals to suffer of too many losses in terms of e.g. assets.

Comparing the conclusions of both the analysis for the Sub-system 1 and Sub-system 3 scenarios, we can conclude that investments in improving surveillance capability seem to be more effective when talking of efforts to face Cross Border Crime and less when talking about Irregular Migrations issues.

This suggests that the two scenarios should probably be dealt separately when designing policies.

The qualitative analysis seems to lead to the conclusion that efforts to persecute EUROSUR objectives have several unintended consequences leading to the several counterproductive side-effects. The main relations identified highlight mainly that efforts on preventing irregular migrations result in a more dangerous routes chose by facilitators and no efforts so far lead to a decrease of the phenomenon. As far as cross border crime issue concerns, it has been envisioned in the model that surveillance capabilities improvements can possibly lead to a decrease of the criminal business.

Systems Thinking proved to be an insight approach (through a sound modelling methodology) that in a Model-based Governance approach can help decision-makers to justify decisions and propose alternative policies based on its specific feature of being able to provide a systemic understanding of highly complex issues (Sonntagbauer, 2014). Particularly, the work studied the possible side effects of the European Union (EU) investments in this sector and aims at providing a better understanding of the structure of the overall current situational scenario, which in turn might enhance future policy-making effectiveness (Armenia, 2014).

The System Thinking approach gave us the chance to understand the complex structure of the EU maritime security challenges. As a further step, System Dynamics can be used to integrate and complete the Systems Thinking analysis by simulating and quantifying the impacts of a policy. The System Dynamics modelling and simulation methodology can be used as a mathematical modeling technique in order to move beyond the mere first qualitative analysis developed so far through the Systems Thinking approach. Through SD modeling and simulation the previous resulting considerations on side-effects and unintended consequences can be validated.

6. Acknowledgements

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