ARESIBO

HORIZON 2020

D1.2 Periodic report on citizens' and stakeholders' inputs V1

ARESIBO

Augmented Reality Enriched Situation awareness for Border security
ARESIBO – GA833805

Deliverable Information

Deliverable Number: D1.2
Date of Issue: 04/12/2020
Document Reference: N/A
Version Number: 1

Work Package: 1

Nature of Deliverable:
Report

Dissemination Level of Deliverable:
Public (PU)

Author(s): ISIG – Istituto di Sociologia Internazionale di Gorizia

Keywords: Participatory models, Surveillance-Oriented Security Technologies (SOSTs) for borders control, citizens' involvement.

Abstract: The document sets the overall methodological framework within which the involvement processes and activities envisaged by the ARESIBO project will be implemented across the entire project.

Specifically, the document proposes the ARESIBO Participatory Model as a methodological framework within which the citizens involvement process (i.e., foreseen within the framework

of T1.4 (b) Involvement of citizens) will be developed across project countries/pilots all through the project lifespan.

To do so, the document illustrates:

1. The main findings of the desk research activities that led to the elaboration of the ARESIBO Participatory Model (i.e., semantic analysis and literature review around the identified model elements: target of involvements and methods of involvement).
2. The three-components ARESIBO Participation Model: ARESIBO Participation Framework, ARESIBO Participation Strategy, ARESIBO Participation Action Plan.

The document illustrates, as well, the next steps in terms of the application of the ARESIBO Participation Model within the framework of T1.4.

DOCUMENT HISTORY

Date	Version	Remarks
01.04.2020	0.1	Setting the structure of the deliverable
30.05.2020	0.2	Finalisation of data collection process
31.08.2020	0.3	Elaboration of consolidated draft for internal review @ISIG
12.11.2020	0.4	Sent for review to project coordinator
04.12.2020	1	For submission

DOCUMENT AUTHORS

Entity	Contributors
ISIG	Daniele Del Bianco, Marco De Lucia, Lorenzo De Sabbata, Olivia Ferrari, Riccardo Laterza, Ramona Velea
ADS	Philippe Chrobocinski (internal review)
HMOD	Andreas Tsigopoulos (internal review)
IES	Massimo Cristaldi (internal review)

LEGAL DISCLAIMER

This document reflects only the views of the author(s). The European Commission is not in any way responsible for any use that may be made of the information it contains. The information in this document is provided "as is", and no guarantee or warranty is given that the information is fit for any particular purpose. The above referenced consortium members shall have no liability for damages of any kind including without limitation direct, special, indirect, or consequential damages that may result from the use of these materials subject to any liability which is mandatory due to applicable law.
© 2020 by ARESIBO Consortium.

DISCLOSURE STATEMENT

The information contained in this document is the property of ARESIBO Consortium and it shall not be reproduced, disclosed, modified, or communicated to any third parties without the prior written consent of the abovementioned entities.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

Acronym	Meaning
APA	ARESIBO Participation Action Plan
APF	ARESIBO Participation Framework
APS	ARESIBO Participation Strategy
EC	European Commission
EU	European Union
SOST	Surveillance-Oriented Security Technology
SWOT	Strengths, Weaknesses, Opportunities, and Threats
UX	User Requirement

EXECUTIVE SUMMARY

The ARESIBO Task 1.4, Sub task b – Involvement of citizens, aims to define participatory models and related methods and tools for the involvement of citizens in the process of development of Surveillance-Oriented Security Technologies (SOSTs) for borders control.

Deliverable 1.2 is the first of three deliverables dedicated to a progressive reporting on the advancement of Task 1.4 as follows:

- D1.2 - Periodic report on citizens' and stakeholders' inputs V1 – focused on the elaboration of the methodological framework within which ARESIBO involvement activities are developed (i.e. the ARESIBO Participatory Model).

- D1.3 - Periodic report on citizens' and stakeholders' inputs V2 – focused on the implementation of the ARESIBO Participatory Model (i.e. organisation of Workshops) as proposed in D1.2. The deliverable will report on preliminary results of the involvement process.

- D1.4 - Periodic report on citizens' and stakeholders' inputs V3 – focused on the final results of the involvement process. The deliverable will propose potential goals for future research regarding participatory models applied to SOSTs development processes.

Deliverable 1.2 has a twofold objective:

1. To elaborate the ARESIBO Participatory Model as a methodological framework within which the citizens' involvement process will be developed across project countries and pilots throughout the project lifespan.
2. To provide an overall methodological framework for all involvement activities foreseen by the ARESIBO project, so to allow for a structured and standard approach to involvement activities, transversally to all the WPs.

To do so, the document illustrates:

- First, the main findings of the desk research activities that led to the elaboration of the ARESIBO Participatory Model (i.e., semantic analysis and literature review around the identified model elements: targets of involvement and methods of involvement).
- Second, the three components of the ARESIBO Participation Model: ARESIBO Participation Framework, ARESIBO Participation Strategy, ARESIBO Participation Action Plan.

Specifically, the document is structured in the following sections:

- **Section 1 – Introduction** – provides an overall introduction of the main aims of Task 1.4 and specifically of D1.2.
- **Section 2 – Analysis of Targets of Involvement** – illustrates the results of the research activities around the identification of the targets of involvement for the purpose of the ARESIBO Participatory Model.
- **Section 3 – Analysis of the Methods of Involvement** – illustrates the results of the research activities around the identification of the Methods and Tools to be deployed for the purpose of the ARESIBO Participatory Model.
- **Section 4 – Defining the Context of Action for the ARESIBO Participatory Model** – sets the ARESIBO Participatory Model within the framework of SOST applied in the border context.

- **Section 5** – **ARESIBO Participatory Model – A Three-Components Methodological Framework** – presents all the components of the ARESIBO Participatory Model, providing the operational steps and tools to be implemented by project partners in tasks that entail involvement activities, as well as the tools for the monitoring and evaluation of such process.

- **Section 6** – **Conclusions** – illustrates the next steps in terms of the application of the ARESIBO Participation Model within the framework of T1.4. In this sense, the next versions of the deliverable (i.e. D1.3 and D1.4) will present the results of the implementation of the ARESIBO Participatory Model, the key findings and possible goals for future research regarding participatory models applied to SOSTs development processes.

1 INTRODUCTION

The ARESIBO Task 1.4, Sub task b – Involvement of citizens, aims to define participatory models and related methods and tools for the involvement of citizens in the process of development of Surveillance-Oriented Security Technologies (SOSTs) for borders control.

Specifically, the task aims to elaborate and test a participatory model (i.e., ARESIBO Participatory Model) for SOST design, that can facilitate:

- First, the gathering of information on citizens' needs and insights with reference to the perceived impact that the technologies developed within ARESIBO could have at the societal level.
- Second, the integration of such information in the design and development process of ARESIBO technology.

Such aim will be achieved by means of three deliverables, as follows:

- **D1.2** – setting the overall methodological framework within which the involvement process will be implemented.
- **D1.3** – presenting the preliminary results of the involvement process (i.e., detailing the Participation Strategy and Action Plan for each of the ARESIBO pilots, application of the first results of the involvement process).
- **D1.4** – presenting the results of the involvement process, as well as setting the goals for future research regarding participatory models applied to SOSTs development processes.

1.1 Objectives

Deliverable 1.2 has a twofold objective:

1. To elaborate the ARESIBO Participatory Model (hereinafter APM) as a methodological framework within which the citizens' involvement process will be developed across project countries and pilots throughout the project lifespan.
2. To provide an overall methodological framework for all involvement activities foreseen by the ARESIBO project, so as to allow for a structured and standard approach to involvement activities, transversally to all the WPs.

In fact, by doing so, the APM aims to ensure a coherent and standard framework within which different relevant targets (i.e., citizens and communities, stakeholders, actors, and end-users) are efficiently and effectively involved in the development process of ARESIBO technologies across the project cycle.

In fact, D1.2 will directly contribute to the following project WPs and Tasks envisaging involvement activities, as follows:

- **WP1 Project Management** – in order to provide an overall framework "for the connection of the project with the external world" (GA, p. 14) and namely:
  - Border security actors, part of the External Advisory Board (EAB), for a validation of project results (Task 1.3 – Coordination with stakeholders).
  - Citizens and relevant stakeholders, with the aim of gathering insights with reference to the impact the project could have at the societal level (Task 1.4 – Legal, Ethical and Social Issues Management).
- **WP2 Requirement analysis and pilot use cases** – envisaging the involvement of:
  - End-users for:
    - i. The identification of users' requirements for border security operations (Task 2.1 – User requirements for border security operations).

ii. The analysis of users' cognitive aspects and requirements linked to Augmented Reality (AR) tools and equipment (Task 2.2 Cognitive and UX requirements for enhanced situation awareness).

iii. The specification of security, data privacy and confidentiality requirements (Task 2.3. – Security, data privacy and confidentiality requirements).

iv. The identification of relevant dimensions in border security/management (Task 2.4 – Ethical, legal, and social requirements for border security).

- o Citizens for the analysis of citizens acceptance and perception of security and monitoring technologies (Task 2.4 – Ethical, legal, and social requirements for border security).
- **WP7 Live trials and assessment** – to provide support to the development and the implementation of the end-user evaluation methodology and to the overall involvement of end-users into the envisioned pilots, in this sense the APM will act as a reference model for the design and implementation of involvement activities targeted at the project (and external) end-users (Task 7.1 – End-user evaluation methodology based on human factors and UX).
- **WP8 Dissemination and exploitation** – providing strategic and practical tools for building the community of ARESIBO members (i.e., border authorities, law enforcement agencies, stakeholders, practitioners, experts, scientists, etc.), by identifying relevant target groups and information to be shared (Task 8.1 – Community Building), and planning and implementing project's dissemination and communication activities (Task 8.3 – Dissemination and Communication activities).

The two objectives are thus closely linked: the APM represents the backbone upon which the process of involvement of citizens will be performed not only for the purpose of T1.4 but also for the purpose the aforementioned WPs and Tasks and the overall involvement activities foreseen within the project.

1.2 Structure

To respond to the above-mentioned objectives, Deliverable 1.2 envisaged the following operational phases:

- **Phase 1 – Preliminary identification of the main elements** of the future participatory model, as follows:
  a. **WHO – Targets of involvement** – understood as potential subjects of the involvement process (i.e., citizens, stakeholders, actors and end-users).
  b. **HOW – Methods of involvement** – understood as the elements that characterise the involvement activities, in terms of infrastructure (i.e., tools), processes (i.e., procedures).
- **Phase 2** – **Analysis of the main elements** – desk research focused on the identified components, namely by means of:
  a. Semantic analysis
  b. Semi-structured Literature review
- **Phase 3 – Contextualisation** – deep dive literature review exercise on the concept of SOST applied in the border context, specifically analysing the issues of:
  a. Surveillance
  b. Privacy
  c. Security
  d. Borders

- **Phase 4 – Elaboration of the APM** – setting the conceptual framework and the operational steps of the future involvement activities, structured in the following components:
    a. **ARESIBO Participation Framework** (hereinafter APF) – the conceptual framework within which the targets and methods of involvement are defined.
    b. **ARESIBO Participation Strategy** (hereinafter APS) – detailing the goals and specific objectives of involvement for a specific context (i.e., ARESIBO pilot communities).
    c. **ARESIBO Participation Action Plan** (hereinafter APA) – detailing the operational steps and tools to be implemented by partners in the involvement process, as well as the tools for the monitoring and evaluation of such process.

The Deliverable reports on the above-mentioned operational phases, as follows:

- **Section 1 – Introduction** – provides an overall introduction of the main aims of Task 1.4 and specifically of D1.2.
- **Section 2 – Analysis of Targets of Involvement** – illustrates the results of the research activities around the identification of the Targets of involvement for the purpose of the ARESIBO Participatory Model.
- **Section 3 – Analysis of the Methods of Involvement** – illustrates the results of the research activities around the identification of the Methods and Tools to be deployed for the purpose of the ARESIBO Participatory Model.
- **Section 4 – Defining the Context of Action for the ARESIBO Participatory Model** – sets the ARESIBO Participatory Model writing the framework of SOST applied in the border context.
- **Section 5 – ARESIBO Participatory Model – A three-components Methodological Framework** – presents all the components of the ARESIBO Participatory Model.
- **Section 6 – Conclusions** – illustrates the next steps in terms of the application of the ARESIBO Participation Model within the framework of T1.4.

The following figure summarises the operational workflow that led to the elaboration of this deliverable, while showing the connection with the D1.2. structure:
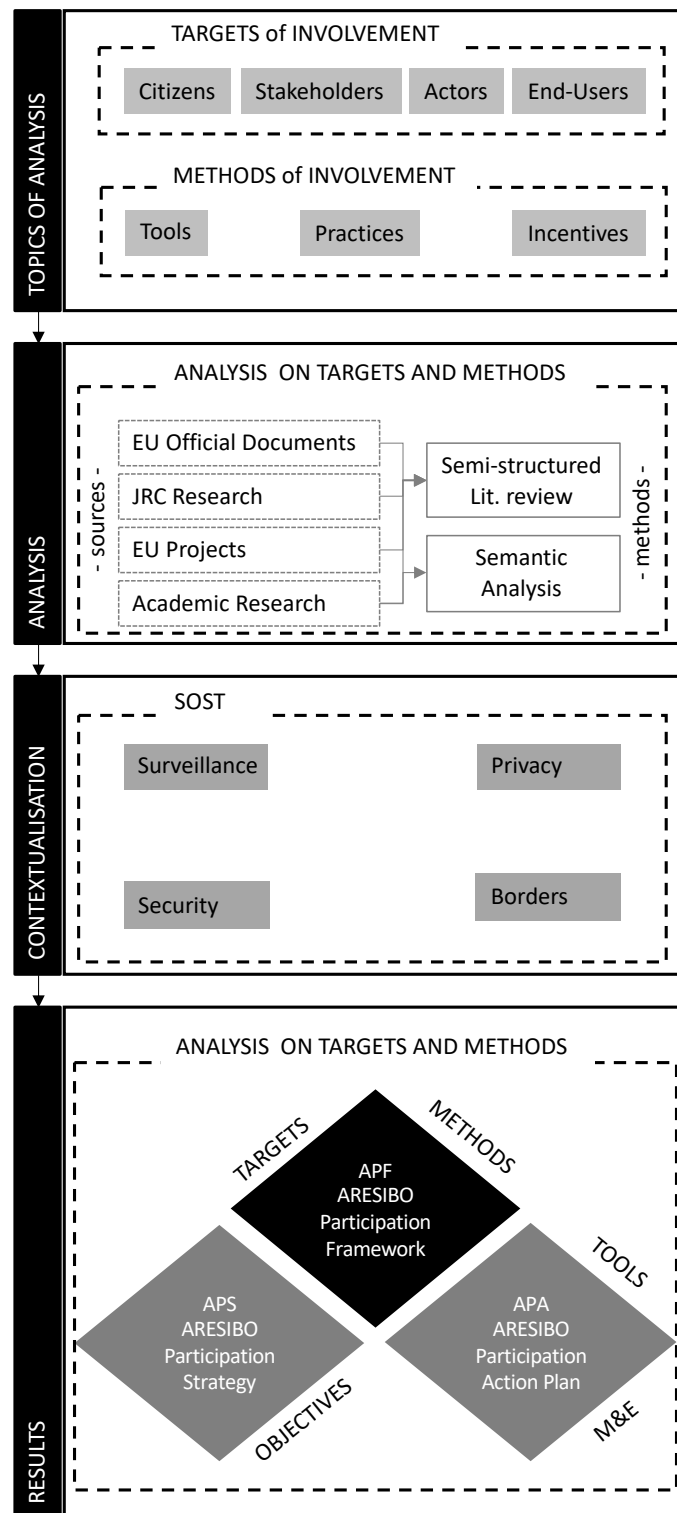
Figure 1 – Deliverable's workflow and structure

2 ANALYSIS OF TARGETS OF INVOLVEMENT

2.1 Methodological note

The analysis of the targets of involvement is part of the preliminary identification of the main elements of the ARESIBO Participatory Model.

Targets of involvement are understood as the potential subjects of the involvement process (i.e., citizens, stakeholders, actors, and end-users).

The following categories of targets have been identified for the purpose of the ARESIBO Participatory Model:

- Citizens
- Stakeholders
- Actors
- End-users

Out of the four main preliminary identified targets, only three have been further analysed, as illustrated in the following sub-sections (i.e., stakeholders, actors, and end-users).

'Citizens' will be broadly understood, for the purpose of the ARESIBO involvement activities, as residents of specific border and overall European communities.

2.2 Research Questions

The following section proposes the results of an investigation of selected sources (see paragraph **2.3.1 Academic Research: Semi-Systematic Review** and following) aiming to respond to three main research questions, modulated for every inquired term, namely: stakeholder(s), actor(s), and end-user(s):

- Which are the main analytical contexts in which inquired terms are usually framed?
- Which are the prevailing definitions attached to each term and which operational use of the term do those same definitions suggest?
- Which are the main categorisation systems underpinning the analysis proposed in the sources?

2.3 Rationale and Methodology

To address these research questions, a methodological framework, combining different, complementary approaches, has been deployed in order to provide an overall perspective on the issues at stake. The following paragraphs outline the selected approaches, following the actual research workflow.

2.3.1 Academic Research: Semi-Systematic Review

The research takes into consideration academic literature through a semi-systematic review – as defined in Snyder 2019 – of papers, books, chapters and official documents written in English and made digitally available through Google Scholar.

Google Scholar is attested as the largest academic database (Gusenbauer 2019), it is freely available and it allows for the replicability of the methodology deployed in this paper.

Inquired terms were adapted, if necessary, to meet an adequate degree of pertinence with the abovementioned research questions. To implement a relevance-informed criterion of

selection, the first 7 results according to Google Scholar relevance rank have been selected and, when available, inquired in the light of the abovementioned research questions.

Table 1 – Total of analysed sources in the semi-systematic review of academic research

Inquired term	n. of sources
stakeholder definitions	7
multi-actor definitions	7
end-user taxonomy	4
TOTAL	18

2.3.2 Academic Research: Semantic Analysis

Building on the sources collected for the semi-structured literature review, a semantic analysis was performed to provide an overview on the inquired terms.

2.3.2.1 Rationale

The semantic analysis deployed in the following paragraphs is aimed at further exploring the inquired terms – stakeholder, actor, end-user – by answering two specific research questions:

- Which are the similarities among the inquired terms in the selected literature?
- Which are the differences among the inquired terms in the selected literature?

The first question is addressed through the analysis of the co-occurrence network, that is a diagram showing the most frequent interconnections between the inquired terms and other lemmas used in the selected literature.

The second question is addressed through a significance analysis. For each of the inquired terms, a significance analysis explores the relevant literature and compares it with the rest of the corpus to show the lemmas that specifically characterise that specific term.

2.3.2.2 Methodology

The academic sources investigated through the semi-systematic review have been taken into consideration as the starting point for the data collection. In order to increase the pool of data available and make it significant for the semantic analysis, academic sources inquired for the analysis of both definitions and methods of involvement (see Errore. L'origine riferimento non è stata trovata. Errore. L'origine riferimento non è stata trovata.) have been also taken into consideration. More specifically, sources quoted as references in these resources have been collected according to the following criteria:

- Sources available online.
- Sources mentioning at least once the inquired term (being it stakeholder, actor, or end-user).

A total of 336 sources – including the starting literature – have been collected applying these criteria.

Table 2 – Total of analysed sources for the semantic analysis

Inquired term	n. of sources
stakeholder	230
actor	78
end-user	28
TOTAL	336

The selected sources have been elaborated through Orange software to analyse the co-occurrence of relevant terms.

Sources pertaining to every term have been pre-processed, for instance excluding numbers, stop words and auxiliary verbs (e.g., "End-users should be included in phase 1" → "End-user, included, phase"). Then, words have been selected according to their frequency and represented in a diagram showing their co-occurrence in windows of size of maximum 7 lemmas, meaning that co-occurrence between two words exists only if the distance between these is less than 5 lemmas.

Criteria of selection for the keywords have been applied as follows (i.e., weighting them according to the number of selected documents and the number of lemmas):

Table 3 – Criteria of selection for keywords

Inquired term	n. of sources	n. of lemmas	co-occurrence (weighted according to n. of sources)	frequency (weighted according to n. of sources)	co-occurrence (weighted according to n. of lemmas)	frequency (weighted according to n. of lemmas)	co-occurrence (average)	frequency threshold (average)
stakeholder	230	46,956	100	4,000	100	4,000	100	4,000
actor	78	25,144	34	1,356	54	2,142	44	1,749
end-user	28	13,948	12	487	30	1,188	21	838

In order to carry out the significance analysis, all the sources have been pre-processed in the same way as described for the co-occurrence analysis. The result has been grouped in a bag-of-words model, disregarding grammar and word order but keeping multiplicity.

Then the sources referring to one inquired term have been compared with the whole corpus of sources, selecting the words presenting a low p-value, thus with a high likelihood of being significant for that term. Words referring to specific contents – for instance authors' names, or names of cities – have been erased from the lists.

2.3.3 Official Definitions Review

The research takes into consideration the meaning attached to the investigated terms in EU official documents. Such definitions are collected and discussed as a starting point for the development of the following research. For the purpose of this study, the EU's terminology database IATE has been searched. According to its official presentation, "IATE (Interactive Terminology for Europe) is the EU's terminology database. It has been used in the EU institutions and agencies since summer 2004 for the collection, dissemination and management of EU-specific terminology"[1].

---

[1] https://iate.europa.eu/home

Table 4 – Total of analysed sources for the official definitions review

Inquired term	n. of sources
stakeholder	3
actor	0
end-user	4
TOTAL	7

2.3.4 EU Funded Research Review

The research takes into consideration scientific and technical literature linked with the development of EU strategies and policies, with the aim of discussing how inquired terms are further detailed and operationally deployed in a scientific and technical framework.

For the purpose of this study, scientific and technical papers, reports and contributions – with the exception of licences and patents – written in English and collected by the Joint Research Centre (JRC) Publications Repository have been taken into consideration through a semi-systematic review (Snyder 2019).

In order to implement a relevance-informed criterion of selection, the first 7 results according to the JRC relevance rank have been selected and inquired in the light of the abovementioned research questions.

The JRC is the European Commission's science and knowledge service advising and supporting the development of EU policies. Results have been selected according to JRC Publications Repository relevance ranking system and only online available documents have been examined.

Table 5 – Total of analysed sources for EU funded research review

Inquired term	n. of sources
stakeholders	7
actors	6
end-users	6
TOTAL	19

2.3.5 EU Funded Projects Review

The research takes also into consideration a more operational field, by analysing the publicly available information and deliverables of EU funded projects – both concluded and still ongoing – in the field of security, looking for explicit or implicit definitions of the inquired terms.

For this purpose, Seventh (FP7) and Eighth (Horizon 2020) Framework Programmes have been taken into consideration, by searching for financed projects through the CORDIS portal. According to its official presentation "The Community Research and Development Information Service (CORDIS) is the European Commission's primary source of results from the projects funded by the EU's framework programmes for research and innovation (FP1 to Horizon 2020)"[2].

---

[2]   https://cordis.europa.eu/about/en

Table 6 – Total of analysed sources for EU funded projects review

	n. of inquired projects
TOTAL	82
— of which FP7	25
— of which H2020	57
Mentioning stakeholder	11
Mentioning actor	3
Mentioning end-user/user	2

2.3.6 Presenting the results: from general to specific

In every paragraph dedicated to each inquired term, results from the aforementioned approaches will be presented following a general-to-specific order. This provides more clarity to their exposition, shading light first on the general contexts in which the inquired terms are used, then focusing on specific attributes and characteristics relevant for the topic of this deliverable (i.e., civil participation).

The different approaches may be grouped on three levels according to their focus on the inquired terms. While the academic research semantic analysis provides a general overview (*level 1*), the analysis on the official definitions used in the context of EU policy-making processes adds information on the use of the inquired terms in their legal framework of reference (*level 2*). Lastly, the combination of EU funded research review, academic research semi-systematic review and EU funded projects review adopts a more specific and detailed perspective on the definitions of inquired terms, as well as on their operationalisation in several fields of analysis and action (*level 3*).

The general-to-specific structure underpinning each chapter is presented in the following diagram:
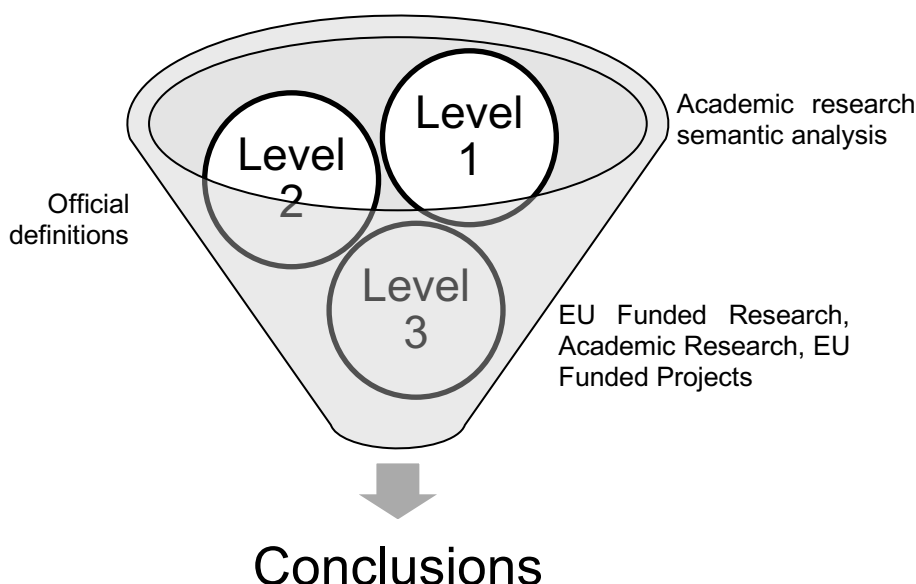
Figure 2 – General-to-specific presentation of results

2.4 Stakeholder(s)

2.4.1 Semantic Analysis (Stakeholder)

2.4.1.1 Co-occurrence Analysis
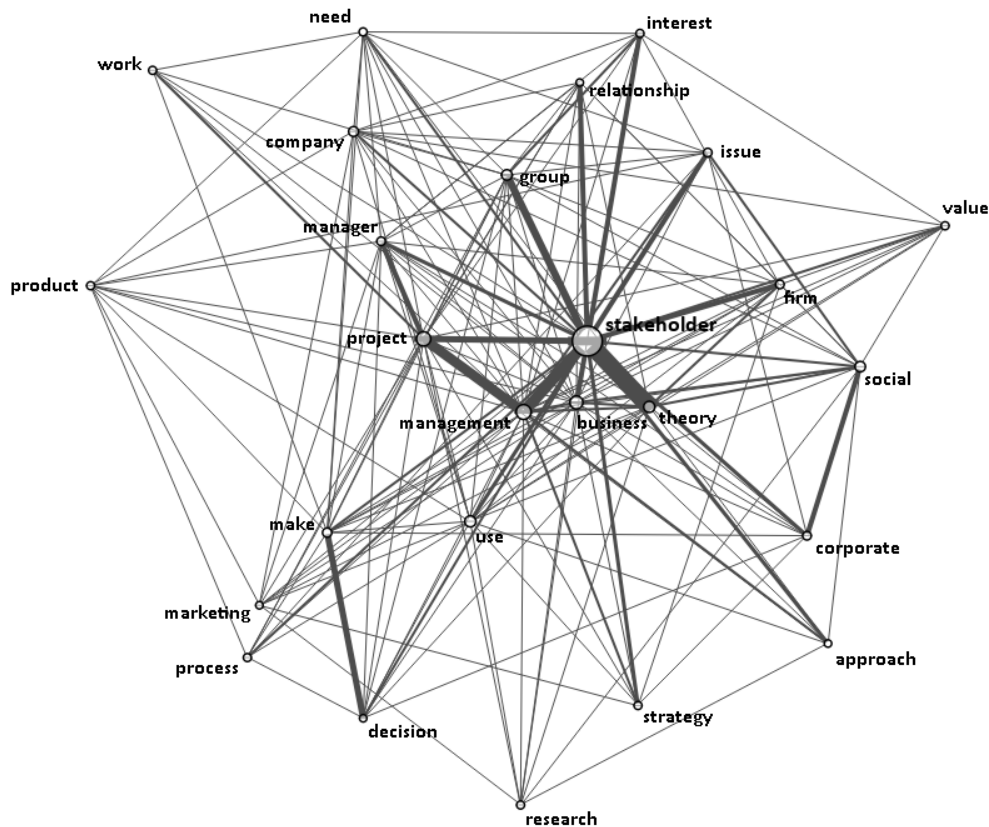
Figure 3 – Co-occurrence analysis – Stakeholder

The figure shows 26 nodes, each one representing a word with more than 4,000 occurrences in the selected literature. Edges represent co-occurrences between two words; their thickness represents the number of co-occurrences.

The highest co-occurrences are registered between *stakeholder* and *theory* (4,632), *stakeholder* and *management* (2,910), *management* and *project* (2,638), *stakeholder* and *group* (2,057), *make* and *decision* (1,642) and *stakeholder* and *project* (1,505).

Relevant clusters are highlighted, for instance:

- Terms related with the nature of stakeholders (firm, business, company, marketing, corporate, social…).
- Terms related to their role in the issue (project, less frequently process: interest, relationship, strategy, make-decision, need, issue, use).
- Other lemmas underlining the purpose of the inquired literature (theory, approach, research).

2.4.1.2 Significance Analysis

Table 7 – Significance Analysis – Stakeholder

Term	p-value	FDR
shareholder	6.9e-19	4.2e-14
stockholder	8.7e-16	8.8e-12
ethic	2.2e-14	1.5e-10
stakeholder	2.9e-14	1.8e-10
holder	3.6e-13	2.0e-09
count	1.5e-12	6.8e-09
corporation	5.3e-12	2.3e-08
stake	5.8e-12	2.3e-08
capitalism	4.4e-11	1.5e-07
ethical	6.5e-11	2.1e-07

The analysis[3] of the first 10 terms shows the centrality of the business management field in shaping the use of the term stakeholder in the selected literature. Such centrality can be clearly ascertained by:

- The frequent use of sub-definitions of the term stakeholder pertaining to the business management field (i.e., *shareholder* and *stockholder*).
- Frequent references to business approaches and frameworks (i.e., *ethic, ethical, capitalism, corporation*).

In particular, the second point suggests that the literature selected for the term stakeholder has a strong focus on the conceptualisation of the term itself.

2.4.2 Official Definitions (Stakeholder)

According to the British Standard BS ISO/IEC 38500L:2008[4], a stakeholder is «any individual, group or organisation who may affect, be affected by, or perceive themselves to be affected in a formal perspective by a decision or activity».

IATE underlines that «stakeholder usually implies some formal relationship to the proposed decision or activity, such as business or property interests that may be affected. 'Interested parties', on the other hand, refers to anyone who might have an interest in the proposed decision or activity, either formally or informally»[5].

The Commission Regulation (EU) No 454/2011[6] defines stakeholders as «any person or organisation with a reasoned interest in train service delivery», while for the EC Decision

---

[3] The p-value is the probability of obtaining test results at least as extreme as the results actually observed, assuming that the null hypothesis is correct.
The FDR (False Discovery Rate) test is linked to p-value and reports on the expected percent of false predictions in the set of predictions, meaning it account for false positives in list of low p-values.

[4] https://www.iso.org/obp/ui/#iso:std:iso-iec:38500:ed-1:v1:en

[5] https://iate.europa.eu/entry/result/900023

[6] Commission Regulation (EU) No 454/2011 of 5 May 2011 on the technical specification for interoperability relating to the subsystem 'telematics applications for passenger services' of the trans-European rail system, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2011.123.01.0011.01.ENG

623/2007[7] a stakeholder is a «group that advises the Commission with regard to the Action Programme for Reducing Administrative Burdens in the European Union whose aim is to reduce administrative burdens on businesses arising from EU legislation by 25 % by 2012».

In conclusion, the three definitions identify respectively three different stakeholder characteristics, namely:

- Capacity to affect/being affected in the first case.
- Reasoned interest in the second.
- Possession of relevant knowledge in the third one.

2.4.3 EU Funded Research (Stakeholder)

The selected documents cover a variety of document typologies, ranging from project reports and strategy documents to academic publications and other scientific contributions, and of fields, such as environmental issues, safety management, energy management and 'smart specialisation strategy'.

The review provides limited findings in terms of theoretical as well as operational definitions. Generally, stakeholder might be identified according to interest and influence (Martinsohn et al. 2014), or to the degree/typology of involvement (Meritxell and Ferraro 2014) in the issue at stake.

The categorisations proposed by these sources are mostly operational: stakeholders can be classified according to their role in the specific field of analysis/action (Svedung and Cojazzi 2006; Borowiak et al. 2012; Kavadas et al. 2013; Martinsohn et al. 2014; Meritxell and Ferraro 2014). Some of them might be identified as key stakeholders if considered necessary for the success of a project (Martinsohn et al. 2014).

According to the reviewed sources, stakeholders should be taken into consideration in order to:

- Assess their requirements (Svedung and Cojazzi 2006; Boden et al. 2016).
- Foster consultation (Borowiak et al. 2012; Matinga et al. 2014) and dialogue (Meritxell and Ferraro 2014) on the issue at stake.
- Strengthen their commitment to the issue at stake (Svedung and Cojazzi 2006).
- Acquire (Kavadas et al. 2013; Martinsohn et al. 2014; Boden et al. 2016) and/or transmit (Svedung and Cojazzi 2006) relevant knowledge.

---

[7] 2007/623/EC: Commission Decision of 31 August 2007 setting up the High Level Group of Independent Stakeholders on Administrative Burdens, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32007D0623%2801%29

Table 8 – Stakeholders' definitions, EU funded research

Source	Field of research	Document typology	Main definition(s)	Main categorisation(s)	Scope for identification/categorisation
Svedung and Cojazzi 2006	Safety management	Seminar's proceedings	«In the context of the SS [safety studies], the stakeholders are those who are implied in risk analysis process» p. 101	«Decisions were taken without a real debate among the stakeholders: plant operators, populations, local communities, state authorities» p. 185	«Safety Impact Statements it is vital to incorporate all stakeholders in the decision-making processes as early as possible to guarantee the assessment of their substantive requirements as well as their commitment to the decision-making process and project outcomes» p. 121 «RIDM can be successful only if all stakeholders understand the process and the results obtained» p. 163 «The debate between the stakeholders only can work if its actors share common models and data. Those are often the result of a scientific process. Their formalisation and making accessible to the stakeholders is a typical knowledge management task» p. 187

Source	Field of research	Document typology	Main definition(s)	Main categorisation(s)	Scope for identification/categorisation
					«One of the aims of making the knowledge available is to allow for a better debate among the stakeholders» p. 192
Borowiak et al. 2012	Air pollution	Scientific contribution to stakeholders' meeting	-	«members from the national administrations of the Member States, Candidate Countries and third countries as well as associations (e.g. industry, agriculture, network of cities…), NGOs, EU bodies and international organisations» p. 7	Consultation process with a broad group of stakeholders, articulated in online questionnaires, meetings, and collaborative reviews
Kavadas et al. 2013	Fishery management	Academic paper	-	«(…) Valuable tool for all involved stakeholders: fisheries scientists, state officials responsible for management, fishermen's cooperatives, academics, students and NGOs» p. 117	Source of knowledge for the creation of the database / End-users of the tool
Martinsohn et al. 2014	Aquaculture	Strategy document	«Stakeholders (individuals or organisations) have either an interest or a gain upon a successful completion of a project or may have a positive or negative influence in the project completion» p. 5	«Key stakeholders are a subset of stakeholders, indispensable for the project to achieve its full set of objectives. Their absence/non-contribution may potentially cause the project to fail (…) In the frame of the project, key stakeholders are the persons from the scientific and commercial entities involved in the project planning,	Participatory risk assessment

«As elaborated in the project work plan during the initial stages of the project, stakeholders are involved in compiling existing knowledge, identifying the challenges, potential harms, risk pathways and assessment methods |

Source	Field of research	Document typology	Main definition(s)	Main categorisation(s)	Scope for identification/categorisation
				execution and analysis and the persons supporting the project in the collection of fish samples» p. 5	emerging from aquaculture activities» p. 5
Matinga et al. 2014	Energy management	Academic paper	-	«(I) preference of large-scale high-impact projects; (II) supporters of targeted sectoral solutions with preference for small-scale technology and microfinance; (III) supporters of centralised solutions with preference for grid extension, and (IV) supporters of local entrepreneurship with scepticism about centralised solutions» p. 154	Survey in the framework of Q methodology
Meritxell and Ferraro 2014	Radioactive waste management	Final report	«In each Member State (MS) of the EU, radioactive waste management (RWM) systems include several actors with specific roles and responsibilities (...) The different actors play a role in the policy debate around RWM decisions and their implementation» p. 6	«The range of actors includes ministries, national RWM organisations, regulatory bodies and technical support organisations, research institutions, industry, associations representing civil society and local communities hosting nuclear facilities, among others» p. 6	«identifying stakeholders and articulating a framework for establishing a dialogue is a key issue to ensure effective opportunities for promoting public participation» p. 7
Boden et al. 2016	Smart Specialisation Strategy	Policy brief	-	-	«(...) For the EDP to be sustained over time and allow a successful implementation of the S3, an appropriate

Source	Field of research	Document typology	Main definition(s)	Main categorisation(s)	Scope for identification/categorisation
					governance system and adequate human resources need to be secured (...) Hence they must be able to capture the needs and knowledge of stakeholders who, rather than being passive actors, must help shape and implement the S3 in a comprehensive way» p. 7

2.4.4 Academic Research (Semi-Systematic Review) (Stakeholder)

Most of the relevant literature discussing the meaning of the term *stakeholder* and/or proposing and criticising theoretical framework in which the conceptualisation of stakeholders covers a key role, deals with the fields of business, business ethics, business-related project management, general project management.

Within this framework, stakeholder theory is used in the attempt of strengthening ethical values (e.g., stronger environmental awareness) a s part of a strategic approach to business decision-making.

All selected papers (Kaler 2002; Achterkamp and Vos 2008; Littau, Jujagiri, and Adlbrecht 2010; Miles 2012; Fassin 2012; Miles 2017; McGrath and Whitty 2017) identify the definition formulated by Freeman (1984) as a milestone in the development of stakeholder theories. According to Freeman, a stakeholder should be recognised by the fact that she/he/it is capable to affect, or being affected, by the achievement of the organisation's objectives.

Building on Freeman, Kaler (2002) proposes to group the different theoretical assumptions on the term stakeholder into three families, namely:

1. Claimant definitions, according to which a stakeholder is such if it presents some sorts of claim in relation to an issue.
2. Influencer definitions, according to which a stakeholder is such if it is able to influence the process at stake.
3. Combined definitions, which combine with different degrees the previous definitions.

Building on the dichotomy claimant/influencer, Miles (2017) proposes a framework through which stakeholder theories are grouped according to two characteristics:

- Focus of analysis, being inputs or outcomes factors. Inputs factors are elements influencing the recognition of a stakeholder (e.g., the identification of a duty, a risk, a stake, power of legitimacy). Alternatively, outcomes factors are those which determine the nature of the relationship among stakeholders (i.e., the form of interaction, interdependency, interconnectedness and interrelatedness).
- Perception of the relationship either from the point of view of management or from that of stakeholder(s).

In turn, the combination of the two abovementioned features defines four categories:

- Managerial perceived determinants.
- Stakeholder perceived determinants.
- Managerial perceived relationship attributes.
- Stakeholder perceived relationship attributes.

Several sources highlighted as relevant another categorisation proposed by Mitchell, Agle, and Wood (1997) which measure the stakeholders' salience according to three criteria:

1. The power a stakeholder may exercise on a firm.
2. The legitimacy of a stakeholder in relationship to a firm.
3. The urgency of a stakeholder's claim vis-à-vis a firm.

Fassin (2012) further specifies the characteristics of legitimacy bounds by proposing a categorisation of stakeholders as follows:

- Internal constituents who have a real stake in the company, or *stakeowners*.
- Pressure groups that may influence the firm, or *stakewatchers*.
- Regulatory institutions who exercise control and regulation functions, or *stakekeepers*.
- Groups which aim to have a voice in decision-making processes, or *stakeseekers*.

McGrath and Whitty (2017) move from another perspective, by assuming that stakeholders are defined as such according to their interest in the issue at stake, instead of the capability to affect/being affected by the same issue. In doing so, they consider different stakeholders characteristics:

- Level of involvement
- Connection with the activity
- Roles
- Managing techniques

In conclusion, it must be considered that most of the analysed definitions share a characteristic: they take the perspective of a unique subject, usually a firm, and they identify and categorise stakeholders according to a specific objective and/or field of action in which the subject is involved.

This aspect is particularly highlighted in Miles' (2012) review as the author collected several answers from different theoretical perspectives on the issue "Who identifies stakeholders?": corporations, enterprises, organisations, management (p. 289). Such a modelling is particularly relevant when dealing with private sector and private sector-like scenarios, where several non-institutional subjects contribute to the definition of a stake.

Table 9 – Stakeholders' definitions, academic research

Source	Field of research	Methodology	Context of analysis	Main definition(s)	Main categorisation(s)
Kaler 2002	Business ethics	Literature review	Stakeholders are analysed and categorised according to the goal of improving businesses' ethical grounds: «for the purposes of business ethics, stakeholders in a business have to be defined as those with a claim on its services: more particularly, a strong or weak, role-specific, morally legitimate claim to have their interests served by that business» (Kaler 2002, p. 97)	'Claimant' (people for whom businesses have to take responsibility) and 'influencer' (people who have to be taken account of but not necessarily because of any responsibility for them) definitions, often seen as dichotomous, may actually result in 'combined' definitions	Stakeholders may be classified according to their role-specific, moral, and legitimate claims (being weak or strong in terms of moral and/or legal bases).
Achterkamp and Vos 2008	Project management	Meta-analysis on 42 articles in the field of project management theories (published in IJPM and PMJ)	Project management and innovation environments, where stakeholders may be actively involved or passive in relation with the developed project/the innovation process and might be involved to support a project towards its success	«(…) a stakeholder in an organisation is any group or individual who can affect or is affected by the achievement of the organisation's objectives (…)» (Freeman 1984) considered as a 'landmark' position. This definition is compared and combined with definition based on the interest shown by stakeholders (Nevan Wright 1997; Olander and Landin 2005)	Salience model (Mitchell, Agle, and Wood 1997) based on legitimacy, urgency and power, is considered as the literature's prevailing stakeholders classification model

Source	Field of research	Methodology	Context of analysis	Main definition(s)	Main categorisation(s)
Littau, Jujagiri, and Adlbrecht 2010	Project management and business project management	Meta-analysis on 116 articles from 1984 to 2009 published in IJPM, PMJ, IJMPB and IJPOM	Chronological evolution of the definition attached to the term stakeholder, analysing divulgence, understanding and drivers. The analysis highlighted the relevance of the stakeholder term in the fields of project evaluation and project strategies.	Aggregate analysis of 28 found definitions shows three main groups: those deriving from (Freeman 1984) definition; those deriving from Cleland 1985 «(…) who have a vested interest in the outcome of the project», those combining the two abovementioned definitions. The combining definitions appeared later in literature, showing a move towards a «more comprehensive and multilateral view» (Littau, Jujagiri, and Adlbrecht 2010, p. 18) of stakeholders.	-
Fassin 2012	Business management	Literature review analysing 18 stakeholder definitions	Relationship between firms and their stakeholders. The paper assumes as a missing link in the stakeholder theory the analysis of mutuality and reciprocity between stakeholders and their firms	The paper reviews several definitions of stakeholder, clustering them in two main groups: 'claimant' (any individual or group that maintains a stake in an organisation, a claim, a right or an interest) and 'influencer' (Freeman 1984) definitions. This dichotomy is reported as from (Kaler 2002)	Four stakeholder categories, based on the nature of their legitimacy: - 'real' or 'genuine' stakeholders, or *stakeowners*, internal constituents who have a real stake in the company; - *stakewatchers*, mainly pressure groups that influence the firm; - *stakekeepers*, mainly regulators who impose external control and regulations on the firm; - *stakeseekers*, who seek to have a voice in a corporation's

Source	Field of research	Methodology	Context of analysis	Main definition(s)	Main categorisation(s)
					decision making (Holzer 2008)
Miles 2012	Business ethics	Literature review	Attempt to clarify whether stakeholder is an essentially contested or rather a radically confused concept	-	-
McGrath and Whitty 2017	Business project management	Literature review oriented by a definitional refining method	Stakeholder management as a link between business and ethics	«An entity with a stake (interest) in the subject activity» (McGrath and Whitty 2017, p. 20)	Categorisation is intended as the mapping of stakeholder spaces. The categorisation is defined by level of involvement (committed/uncommitted), connection with the activity (invested, contributor, observer, end-user), role, typology of involvement (inclusion, participation/consultation/risk management).
Miles 2017	Business ethics	«Bounded systematic review of 593 different stakeholder theory definitions (…) sorting, filtering and ordering stakeholder theory and stakeholder definitions to produce a comprehensive, multi-dimensional classification of stakeholder theory» (Miles 2017, p. 437)	Systematization of previous stakeholder theory according to an essentialist approach based on empirical observation	Stakeholder definitions are organised in a matrix according to two characteristics: focus of analysis (inputs/outcomes) and perception of relationship taken from management or stakeholder. The combination of the two abovementioned features defines four categories: managerial perceived determinants, stakeholder perceived determinants, managerial perceived relationship attributes, stakeholder perceived	-

Source	Field of research	Methodology	Context of analysis	Main definition(s)	Main categorisation(s)
				relationship attributes. Definitions are then clustered according to features as influencer, claimant, recipient, collaborator, generating 15 different classes of stakeholder definitions.	

2.4.5 EU Funded Projects (Stakeholder)

According to IECEU project, a stakeholder is defined by the concept of impact – it can be impacted, or it can impact by the project.

In RED-Alert stakeholders are considered as beneficiaries of the project, and they are categorised as end-users, potential clients, and decision makers.

EUNITY project mentions «relevant stakeholders», Wiser talks about «targeted stakeholders», MEDEA mentions «interested stakeholders» while CyberROAD aims at rationalising stakeholder needs and threats.

TAKEDOWN project wants to investigate stakeholders through empirical research and expert panels, similarly to BODEGA (desk research and comparison). DOGANA aims at promoting stakeholder groups.

Table 10 – Stakeholders' definitions, EU funded projects

Project	Programme and call	Duration	Field of research	Stakeholder(s) mention	Source
TAKEDOWN	H2020-FCT-2015	2016-2019	Security	«**Stakeholders** and key representatives of stakeholder groups will be identified as a basis for the empirical research as well as for the expert panel»	https://www.takedownproject.eu/overview/
WOSCAP	H2020-BES-2014	2015-2017	Conflict prevention	«Involving a cross-section of **stakeholders** [D5.1-5.4], including EU regional representation, local and (where relevant) international security sector representatives»	https://www.woscap.eu/deliverables/index.html
IECEU (Improving the Effectiveness of Capabilities in EU Conflict Prevention)	H2020-BES-2014	2015-2018	Conflict prevention and peace building	«The **stakeholders** and EUGs of the project are all internal or external groups, individuals or organizations, which can be impacted by the project, or can impact the outcomes of the project»	Dissemination Plan, p. 12 https://www.ieceu-project.com/wp-content/uploads/2016/12/D8.1-Dissemination-Plan-PU.pdf
BODEGA (Proactive Enhancement of Human Performance in Border Control)	H2020-BES-2014	2015-2018	Security, Border Control	«BODEGA-project will perform active **stakeholder** networking which includes identification of the most relevant individuals and organisations and ensuring their continuous involvement throughout the project. Identification of the actual groups of stakeholders was conducted by desk research and by drawing from the respective networks of the various partners in the project»	Stakeholder Map and network, p. 8 https://bodega-project.eu/IMG/pdf/bodega_d7.1_311216_final_pu.pdf
DOGANA (Advanced Social Engineering and Vulnerability Assessment Framework)	H2020-DS-2014-1	2015-2018	Risk management and assurance models	«Access to the **stakeholders** group might be mainly "direct". "Direct" access via the consortium means that a particular partner is in some capacity a member of the Agency, Forum, Association, or Working Group that will be targeted by the dissemination activity»	Dissemination Plan and Calendar of Activities, pp. 14-16 https://www.dogana-project.eu/images/PDF_Files/D8.1-Dissemination-plan-and-calendar-of-activities.pdf

Project	Programme and call	Duration	Field of research	Stakeholder(s) mention	Source
EUNITY	H2020-DS-SC7-2016	2017-2019	Cyber Security, External Security Policies	«Encourage, facilitate and support the ICT dialogue between relevant EU and Japanese **stakeholders** on matters relating to cybersecurity and privacy R&I trends and challenges by organizing at least two workshops, ensuring a broad participation of the relevant stakeholders»	https://www.eunity-project.eu/en/
CYBERWISER. EU	H2020-DS-2014-1	2015-2017	Risk management and assurance models	«The overarching goal of the Communication and **Stakeholder** Plan is to implement integrated 30-month iterative roadmaps setting out activities, such as the evolving communication kit with its diverse formats and tailored stakeholder messages, as well as actions for building the network on top of the achievements of WISER to ensure full coverage of the targeted stakeholders»	Communication & Stakeholder Plan, p. 9 https://www.cyberwiser.eu/system/files/CYBERWISER.eu_D6.4_Communication_Stakeholder_v0.12%281%29.pdf
RED-Alert	H2020-SEC-2016-2017-1	2017-2020	Fight crime, illegal trafficking and terrorism	«External **stakeholders** can be defined as specific organizations that will benefit from the project, such as end-users, potential clients and decision makers. These are organizations are identified from the broad target audience defined in this deliverable defined as the community»	Dissemination Plan, pp. 19-20 http://redalertproject.eu/wp-content/uploads/2018/03/D8-3-Dissemination-Plan-1.pdf
GAMMA	FP7-SEC-2012-1	2013-2017	Air traffic Management/Control threat assessment model	«GAMMA consortium is setting up a User Group to favour a stronger co-operation among ATM security **stakeholders**, to ensure that the outcomes of the project will improve the ATM security with respect to emerging threats and ATM crisis management»	http://www.gamma-project.eu/news-and-events/news/user-group-gamma-project/
CyberROAD	FP7-SEC-2013-1	2014-2016	Cyber Crime ad Cyber Terrorism	«The CyberROAD Roadmapping Methodology is applied as an investigative process and as a means of rationalizing **stakeholder** needs and threats identification»	Stakeholders Needs and Threats Evaluation, p. 8 http://www.cyberroad-project.eu/m/filer_public/2016/05/02/d51_stakeholder_needs_and_threats_evaluation.pdf

Project	Programme and call	Duration	Field of research	Stakeholder(s) mention	Source
MEDEA	H2020-SEC-2016-2017-2	2018-2023	Security	«The aim of MEDEA is to engage a critical mass of security practitioners and actors including first aid responders, border guards, national police, civil protection teams, humanitarian workers, defence entities and other interested **stakeholders** in efficient cooperation with cross-discipline entities from other countries»	https://www.medea-project.eu/

2.4.6 Conclusions

These conclusions focus on the most salient aspect of the use of the term *stakeholder* as it has been highlighted through different approaches and in different sources.

In most of the analysed sources, stakeholders are defined through the lenses of a specific stake, which is in turn established by a pivotal entity, being it a corporation, an institution, a project.

More in particular, stakeholders are then identified as such either in terms of capacity of affecting/being affected/impact or in terms of interest/responsibility/claim in relation to the stake. Similar considerations may be drawn by official definitions review, EU funded research, academic research as well as in the definition provided in the EU funded projects.

Official definitions
- Ss as **affecting/affected by**
- Ss as bearers of reasoned **interest**
- Ss as possessors of relevant **knowledge**

EU funded research
- Ss identified according to **interest and influence**
- Ss identified according to the degree of **responsibility**
- Concept of **key Ss** (necessary for the success of a project)

Academic research
- **Claimant/influencer**/combined definitions (Kaler 2002)
- **Power, legitimacy and urgency** of Ss
- Classification based on level of involvement, connection with the activity, roles and handling techniques

Semantic review

EU funded projects
- Ss can be **impacted/can impact**
- ...

Figure 4 – Stakeholders' definitions summary

2.5 Actor(s)

2.5.1 Semantic Analysis (Actor)

2.5.1.1 Co-occurrence Analysis
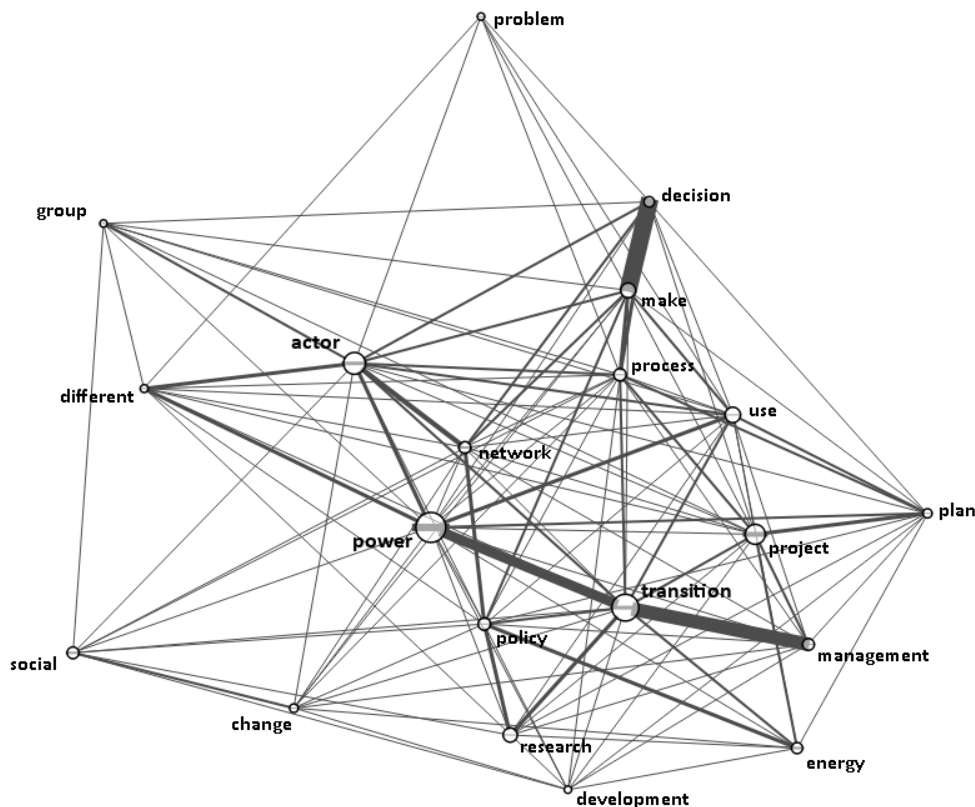
Figure 5 – Co-occurence analysis – Actors

The figure shows 20 nodes, representing words with more than 1,749 occurrences in the selected literature. Edges represent co-occurrences between two words; their thickness denotes the number of co-occurrences.

It is interesting to notice that the lemma *actor* is neither the most quoted – it appears 3,804 times, while *transition* and *power* show respectively 4,481 and 4,876 occurrences – nor the central element of the figure, as the strongest co-occurrences are identified between the following terms: *make* and *decision* (1,349), *transition* and *management* (1,060), *power* and *transition* (737), *actor* and *network* (389), *make* and *process* (299), *process* and *decision* (288).

This result suggests that, while the literature selected for the term *stakeholder* is more focused on its conceptualisation, literature quoting the term *actor* is more operational. The lemma *energy*, strongly correlated with *policy*, *transition* and *management*, reinforce such hypothesis. Further lemmas specify the context of action (*transition, project, use, process, policy, management, decision, plan, change, problem, development*), while others refer to the definition of actor (*power, social, network, different, group*).

2.5.1.2 Significance Analysis

Table 11 – Significance analysis – Actors

Term	p-value	FDR
actor	7.3e-15	4.4e-10
dynamics	1.1e-10	1.6e-06
sociotechnical	2.4e-09	1.5e-05
spatial	6.9e-09	3.5e-05
rip	1.0e-08	4.4e-05
housing	1.2e-08	4.9e-05
renewable	1.8e-08	6.5e-05
trajectory	1.9e-08	6.5e-05
electricity	3.0e-08	8.4e-05
fossil	8.7e-08	2.0e-04

As the main inquired term (*actor*) emerges as peculiar for the selected literature, as well as terms referring to the theoretical framework in which actors are analysed (*dynamics, sociotechnical, spatial, trajectory*), other lemmas – *housing, renewable, electricity, fossil* – suggest, again, a more operational profile of the selected literature.

2.5.2 Official Definitions (Actor)

The research based on terms like *actor*, *multi-actor* and *multi-actor analysis* did not provide relevant results in the IATE Database.

2.5.3 EU Funded Research (Actor)

The selected documents belong to two macro-categories: environmental policies and e-inclusion. They also cover different typologies of documents, e.g., academic papers and policy, survey and technical reports.

The review provided limited theoretical insights, mostly related to specific fields, such as e-inclusion (Garrido et al. 2012) or water management (Vetere Arellano, De Roo, and Nordvik 2007). The selected sources do not provide general definitions of the term actor, as these are generally identified according to their specific, contextual role.

Garrido et al. (2012) propose a categorisation of actors according to the sector they belong to:

- Public
- Private
- Third sector

The paper identifies also intermediary actors as those subjects located in between institutions and citizens.

La Notte and Marques (2017) differentiate between two typologies of actors:

- Enabling actors, who are involved in the production of a specific output.
- Beneficiaries, which may be intended as end-users of that output.

Finally, Gordon et al. (2013) introduce the issue of potential conflict arising among different actors according to their different visions of the issues at stake.

The following table details the relevant findings for every source:

Table 12 – Actors' definitions, EU funded research

Source	Field of research	Document typology	Main definition(s)	Main categorisation(s)	Scope for identification/categorisation
Vetere Arellano, De Roo, and Nordvik 2007	Flood risk management	Policy paper	-	-	«(...) Flood risk actors collaborate with each other via processes that are engraved in institutional frameworks that facilitate and enhance collaboration (particularly in monitoring, collecting, analysing and disseminating flood-related data)» (p. 466)
Garrido et al. 2012	E-inclusion	Technical report	«(...) shared forms of access such as telecenters, libraries and Internet cafés are important means of making ICTs broadly available. Along with other types of organizations, they fall into the category of eInclusion actors: initiatives that not only bring the technology closer (physically and financially) to people who would otherwise have limited or no access, but may also provide additional value by offering unique training facilities, learning environments and additional services that have the potential to impact broader social and economic goals. Thus governments, non-governmental organizations, and business entrepreneurs have invested significant amounts of human and financial resources in telecenters, public libraries and	Public, private and third sector	Provide a theoretical framework of E-inclusion processes

Source	Field of research	Document typology	Main definition(s)	Main categorisation(s)	Scope for identification/categorisation
			other community-based initiatives» (p. 15) Institutional theory Asset-based community development Stakeholder theory Sustainability conceptualisation Development-supported communication Cost-benefit analysis		
Gordon et al. 2013	Conservation planning	Academic paper	«there can be multiple actors undertaking conservation actions, often with divergent or partially overlapping objectives» p. 19	-	Multiple scenario simulation
Rissola et al. 2013	E-inclusion	Survey	Built on Garrido et al. 2012	Built on Garrido et al. 2012	Online survey on e-inclusion actors
Misuraca, Centeno, and Torrecillas 2014	E-inclusion	Final report	Built on Garrido et al. 2012 «eInclusion intermediary actors generate diverse types of impact on their own institutional capacity and on digital inclusion, social inclusion, and employability of the target groups they address» (p. 18)	Built on Garrido et al. 2012	Impact assessment
La Notte and Marques 2017	Ecosystem management	Academic paper	-	«The separation between the benefits received from ecosystems (e.g., clean water, timber) and the actual ecosystem service (water purification, biomass growth) creates the need to differentiate between those	«An accounting system, as support for policy making, should provide information on relationships associated with homogeneous groups of actors in order to evaluate, analyse and forecast economic phenomena»

Source	Field of research	Document typology	Main definition(s)	Main categorisation(s)	Scope for identification/categorisation
				benefiting from the outcome of the service (beneficiaries) and those whose activities create the need for the service and have the power to modify the service flow (enabling actors)»	

2.5.4 Academic Research (Semi-Systematic Review) (Actor)

The selected materials cover different fields of research: spatial and landscape planning, policy and conflict analysis, organisational management, and behavioural simulation, providing a more operational approach, sustained by a smaller body of theory if compared with the term *stakeholder*.

The boundaries of the term *actor* seem thus to be blurrier, while sometimes it is proposed as a synonymous of stakeholder – explicitly, as in Bruijn and Heuvelhof (2008), or implicitely, as in Kapadia et al. (2011) and Ligtenberg, Bregt, and van Lammeren (2001). In Opdam, Steingröver, and Rooij (2006) stakeholders are defined as a subset of actors.

While in some cases the terms *stakeholder* and *actor* seem to overlap, in other the specific use of the term *actor* reveals a network structure which might be more complex than the one defined around the issue at stake in the framework of stakeholder theories. What seem to order the framework of multi-actor theories seem to be a process rather than a simple stake. This allow for a more dynamic view of actors – which are defined as players by Ligtenberg, Bregt, and van Lammeren (2001) and, more than a generic interest on the issue at stake, present an interest to participate and interact (Ligtenberg et al. 2004; Bruijn and Heuvelhof 2008).

Actors might be classified according to their specific role in the analysed context (Ligtenberg, Bregt, and van Lammeren 2001; Ligtenberg et al. 2004), or, as proposed by Bruijn and Heuvelhof (2008), taking into account the following characteristics:

- Stances
- Interests
- Resources
- Relations
- Repetitive character of the relations

Avelino and Wittmayer (2016) suggest other typologies of classification, namely:

- Formal/informal actors
- Profit/non-profit actors
- Public/private actors

In the framework of this categorisation actors might be subdivided also according to their composition: sectors, individuals, and organisations. More simply, Kapadia et al. (2011) takes into consideration single actors and group actors.

The following table details the relevant findings for every source:

Table 13 – Actors' definitions, academic research

Source	Field of research	Methodology	Context of analysis	Main definition(s)	Main categorisation(s)	Main sources
Bana E Costa 2001	Policy analysis; conflict analysis	Model tested through a case study	The context of analysis is defined as 'multi-actorial' and conflicts of interest among actors are shown as to be addressed through multi-criteria analysis	-	-	
Ligtenberg, Bregt, and van Lammeren 2001	Spatial planning	Model tested through a case study	Development of a combination of MAS (multi-agent simulation) and CA (cellular automata) in the context of spatial planning	«Actors are the players (both individuals and groups) in the process of spatial planning. They communicate, negotiate and decide upon the spatial organisation of their environment. The intentions of actors initially differ because of different spatial and temporal horizons. They meet in a process of spatial decision making (…) Actors (…) are driven by their motivation to narrow the gap between the actor's definition of the current organisation and their vision of the future organisation» (Ligtenberg, Bregt, and van Lammeren 2001, p. 21)	The model is based on two typologies of actors: - reconnaissance actors, who have voting power during a planning process, but do not detain power to actually change land uses; - planning actors, who have the authority to change spatial patterns.	

Source	Field of research	Methodology	Context of analysis	Main definition(s)	Main categorisation(s)	Main sources
Ligtenberg et al. 2004	Environmental management	Model tested through a case study	Test of the MAS (multi-agent simulation) in a hypothetical case study	«Actors in decision-making are considered to be organizations or interest groups that have a common interest to participate in the planning process. (...) The main goal of each actor in a planning process is to perform an a-priori defined spatial allocation task. (...) Actors also interact with other actors directly involved in the spatial planning. In a real word situation, actors are likely to encounter also actors not directly involved in the spatial planning process, but who might influence the process» (Ligtenberg et al. 2004, p. 44)	No explicit categorisation of actors is made in the paper. In the specific case study the following categories of actors are identified: - Regional authorities - Farmers' organisations - Environmentalists	
Opdam, Steingröver, and Rooij 2006	Landscape planning	Theoretical paper	Development of the ecological network concept	The paper does not provide a definition of actor. In the paper stakeholders are defined as a subset of actors	.	
Bruijn and Heuvelhof 2008	Organisation management	Theoretical manual	Definition of a consistent theoretical framework on multi-actor network management	No explicit definition of actors is given in the text. The authors assume that actors have interest in the processes in which are – or want to be – involved and	Actors may be categorised according to: - stances - interests - resources - relations	

Source	Field of research	Methodology	Context of analysis	Main definition(s)	Main categorisation(s)	Main sources
				that they are dependent one with the other. Sometimes, stakeholder is used as a synonymous of actor.	- repetitive character of the relations	
Kapadia et al. 2011	Behavioural simulation	Model tested through a case study	Development of a behaviour authoring framework	«An actor is an entity which has a state and can affect the state of itself or other actors by executing actions» (Kapadia et al. 2011, p. 112). Actor are characterised by different effects and costs in performing specific actions, as well as by constraints.	The paper does not provide a categorisation of actors, except for their numerosity characteristic (single or group actors).	
Avelino and Wittmayer 2016	Sustainability transitions	Heuristic framework	Development of a conceptualisation of transition policies	The paper highlights the ambiguity of the term actor, which could both refer to specific individuals and to individual organisations. It also points out the unclarity on the issue of different levels of aggregation of actors themselves, quoting from Farla et al., 2012, p. 994-995: «Actors include different types of organizations such as firms, public authorities (policy-makers), associations (industry as well as social movements) and research institutes. Apart from organizations,	«Four actor categories along the following three axes, namely (1) informal—formal, (2) for profit—non-profit and (3) public—private. The state is characterized as nonprofit, formal and public; the market as also formal, but private and for-profit; and the community as private, informal and non-profit. Finally, the Third Sector is conceptualized as an intermediary sector in between the three others» (Avelino and Wittmayer 2016, p. 634). Also, «the MaP distinguishes between actors at three levels: (1) sectors, (2) individual actors (e.g., entrepreneur, consumer, policy-maker) and (3) organizational actors (e.g., organizations, groups)» (Avelino and Wittmayer 2016, p. 635)	

Source	Field of research	Methodology	Context of analysis	Main definition(s)	Main categorisation(s)	Main sources
				individuals show up as actors in transition processes—as 'independent' players or as members of an organization (e.g., firm owners, employees)».		

2.5.5 EU Funded Projects (Actor)

In WOSCAP project, actors are governmental ones, thus institutions involved in the project field. According to EUNITY, actors are research bodies, while MEDEA mentions actors in the context of the engagement of «critical mass of security practitioners and actors».

The following table details the relevant findings for every source:

Table 14 – Actors' definitions, EU funded projects

Project	Programme and call	Duration	Field of research	Actor(s) mention	Source
WOSCAP	H2020	2015-2017	Conflict prevention	«Through its dissemination plan and communication strategy [WP6], policymakers and governmental **actors** will receive the briefs on the themes, such as civil-military synergies and technologies»	https://www.woscap.eu/deliverables/index.html
EUNITY	H2020	2017-2019	Cyber Security, External Security Policies	«Foster and promote European cybersecurity innovation activities and increase the international visibility of EU activities in cybersecurity, by showcasing important results of projects and including key European research **actors** (companies and researchers) in the project's workshops»	https://www.eunity-project.eu/en/
MEDEA	H2020	2018-2023	Security	«The aim of MEDEA is to engage a critical mass of security practitioners and **actors** including first aid responders, border guards, national police, civil protection teams, humanitarian workers, defence entities and other interested stakeholders in efficient cooperation with cross-discipline entities from other countries»	https://www.medea-project.eu/

2.5.6 Conclusions

Findings related to the definition of the term actor differ from those related to stakeholder for being more blurred in their conceptual accuracy. There is not a prevailing definition of the term actor, while the difference between public, private and third sector actors, as well as profit and non-profit actors, is recurrent.

Trying to draw a relational scheme as it has been done for the term stakeholder, it seems that actors are arranged and related one with the other in a slightly different way: they interact and/or participate to a process, rather than being interested or affected by a specific stake.

They can be considered as players, as they show a more dynamic behaviour than stakeholders. Since they do not relate with a pivotal entity, actors may take part in more complex and articulated relationships; such structures seem to fit more to complex, multi-levelled institutional settings.

On the other hand, they probably could be less operationalised than stakeholder structures: multi-actor networks particularly fit in contexts where the law or other institutional provisions allow for a precise identification of subjects which need to be involved in participatory processes.

Official definitions

EU funded research

- Public, private and third-sector As
- Enabling As and beneficiares
- Conflictual views of As

Academic research

- Blurred boundaries of the term (sometimes synonimous of stakeholder)
- As as players in a process
- As show interest to participate and interact
- Characteristics of As: stances, interests, resources, relations, repetitive character of the relations
- Formal/informal As; profit/non-profit As; public/private As

Semantic review

EU funded projects

- Governmental As
- Research As

Figure 6 – Actors' definitions summary

2.6 End-user(s)

2.6.1 Semantic Analysis (End-user)

2.6.1.1 Co-occurrence Analysis
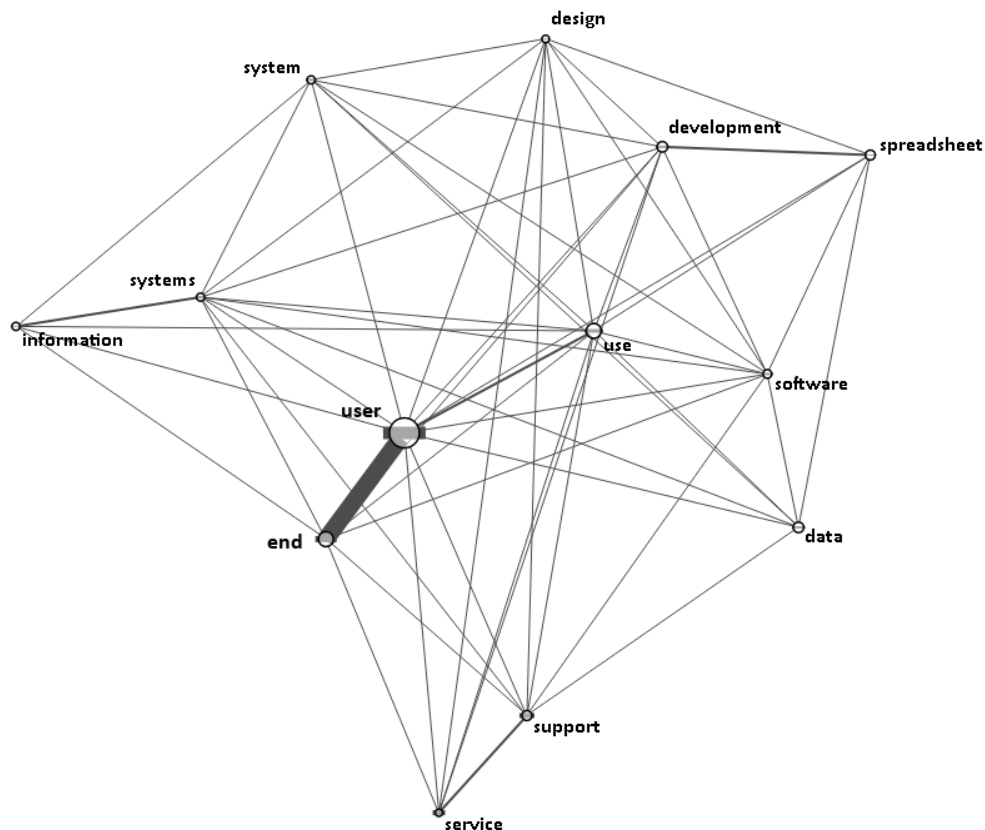
Figure 15 – Co-occurrence Analysis – End-users

The figure shows 13 nodes, representing words with more than 838 occurrences in the selected literature. Edges represent co-occurrences between two words; their thickness denotes the number of co-occurrences.

The highest co-occurrence, of course, is that between *end* and *user* (3,044). Other relevant co-occurrences are those between *information* and *systems* (304), *service* and *support* (277), *spreadsheet* and *development* (256), *user* and *use* (215), and *user* and *system* (188).

Most of the lemmas occurring in the selected literature show that the term end-users is more context-specific than the other inquired terms, as shown by its frequent use in fields such as information technologies system.

2.6.1.2 Significance Analysis

Table 16 – Significance analysis – End-users

Term	p-value	FDR
ACM	1.7e-09	5.0e-05
programmer	6.9e-09	1.4e-04
automation	3.5e-08	5.3e-04
user	1.9e-07	1.7e-03

ware	1.5e-06	0.01157
hardware	2.4e-06	0.01598
software	5.7e-06	0.03451
IBM	1.0e-05	0.05767
prototype	3.0e-05	0.13220
communications	3.4e-05	0.13220

The significance analysis shows that the selected literature building on the conceptualisation of end-user lie in the field information systems issue, as clearly highlighted by this table in which almost all listed terms – except for *user* and *prototype* – pertain quite exclusively to this field.

2.6.2 Official Definitions (End-user)

According to the ECHA Guidance for downstream users[8] an end-user is a «person or body using substances or preparations in an industrial or professional activity (e.g., not a consumer or distributor) who does not supply it further downstream».

Directive 2002/21/EC[9] states that an end-user is an «ultimate user of a telecommunications service, (i.e., who does not provide public communications networks or publicly available electronic communications services).

Regulation (EU) 2019/2020[10] defines an end-user as a «natural person buying or expected to buy a product for purposes which are outside his trade, business, craft or profession». Eventually, Council document ST 14114/17[11] mentions end-user as «competent authority directly searching CS-SIS, N.SIS or a technical copy thereof».

All the definitions of end-user propose a similar perspective, even though adapted to different contexts: end-users are located at the very end of a chain of actions and relationships, for instance at the end of a production chain.

While the third source overlaps the meaning of end-user to that of costumer, the last source suggests that in some cases end-users might be institutional actors, beside individual, groups or private organisations.

2.6.3 EU Funded Research (End-user)

The selected materials come from different fields: media analysis, energy policies, fishery management, security systems. They also cover different kinds of document, such as academic contributions and technical guides. All of these are based on an essential definition of end-user: the final user of a product, an instrument, a resource.

No relevant categorisations are deployed in the selected materials. End-users are taken into consideration as target of policies/action (Punie 2011; Bertoldi et al. 2013; Spisto 2016), as

---

[8] https://echa.europa.eu/documents/10162/23036412/du_en.pdf

[9] Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32002L0021

[10] Regulation (EU) 2019/2020 laying down eco-design requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.315.01.0209.01.ENG

[11] Council document ST 14114/17: Proposal for a Regulation of the European Parliament and of the Council on the use of the Schengen Information System for the return of illegally staying third-country nationals, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52016PC0881

providers of feedback (Castro Ribeiro 2015), as targets for an information effort (Doyle, European Commission, and Joint Research Centre 2016).

The following table details the relevant findings for every source:

Table 17 – End-users' definitions, EU funded research

Source	Field of research	Document typology	Main definition(s)	Main categorisation(s)	Scope for identification/categorisation	Main sources
Punie 2011	Media	Chapter of a book	-	Generational differences among media technologies end-users	Analysis of how different generations are affected by new media technologies	
Bertoldi et al. 2013	Energy policies	Academic paper	End-users as final energy consumers	Large and small energy end-users	Policy suggestion on who to address with energy efficiency schemes (whether producers, suppliers, end-users…)	
Castro Ribeiro 2015	Fishery management	Technical report	End-users as database users	Nine specific end-users are identified in the document	«One of the main points from the end-user feedback is that it provides insight and highlight issues that can be used in the future to streamline and improve the MS activities in support of the production their data» (p. 5)	
Castro Ribeiro and Guillen 2016	Fishery management	Report	As in Castro Ribeiro (2015)	As in Castro Ribeiro (2015)	As in Castro Ribeiro (2015)	
Doyle, European Commission, and Joint Research Centre 2016	Security systems	Guide	«Those addressing security issues as opposed to adopting video analytics for operational purposes, such as shopper footfall analysis» (p. 7)	-	«This report outlines the basics of the technology, how it is used and its advantages. It aims to draw end-users attention to the key factors which must be taken into account when considering its adoption» (p. 6)	
Spisto 2016	Energy policies	Academic paper	-	-	Energy costs assessment in relation to the promotion of renewable energy sources	

2.6.4 Academic Research (Semi-Systematic Review) (End-user)

The analysed sources cover the fields of IT studies and informatics and entrepreneurial management.

Among the reviewed materials, only one paper provides an explicit definition of end-users which, even though related to a specific field of inquiry (IT studies) may be easily extended to other contexts: «An end-user is any organizational unit or person who has an interaction with the computer-based information system as a consumer or producer/consumer of information» (Cotterman and Kumar 1989, 1315).

Another key finding is that, maybe counterintuitively, end-user are not only external to 'providers'; software builders, for instance, may be framed as end-users when they deploy existing instruments (Hall 1992; Pereira, Feitosa, and Conte 2016).

Scherrer-Rathje and Boyle (2012) suggest that the identification of end-users as such depends upon the context of analysis. For instance, they define as end-users (of entrepreneurial strategic choices) several categories of employees and managers.

The following table details the relevant findings for every source:

Table 18 – End-users' definitions, academic research

Source	Field of research	Methodology	Context of analysis	Main definition(s)	Main categorisation(s)	Main sources
Cotterman and Kumar 1989	IT Studies	Theoretical paper	End-user computing (EUC) early studies	«An end-user is any organizational unit or person who has an interaction with the computer-based information system as a consumer or producer/consumer of information» (p. 1315)	The user cube is proposed as a taxonomy based on three characteristics: operations, development and control. The combination of these characteristics generates eight different profiles.	
Hall 1992	Informatics	Thesis	Spreadsheets management	-	End-users of a spreadsheet software may be builders, users and readers	
Scherrer-Rathje and Boyle 2012	Entrepreneurial management	Research paper	European clothing manufacturers strategic choices	-	Internal functional roles, i.e., CEO, IT Manager, designer, Purchase planner etc.	
Pereira, Feitosa, and Conte 2016	IT studies	Literature review	-	-	Computer users may be categorised according to: knowledge (basic/intermediate/advanced), experience (beginner/intermediate/experienced) use of information (consumer/producer/consumer and producer)	

2.6.5 EU Funded Projects (End-user)

IECEU's definition of end-user suggests that end-users, when grouped, present a structure similar to stakeholders. The proposed definition, indeed, recalls that of stakeholder. In BODEGA the term *user* seems to overlap with *stakeholder*.

The following table details the relevant findings for every source:

Table 19 – End-users' definitions, EU funded projects

Project	Programme and call	Duration	Field of research	End-user(s) mention	Source
IECEU (Improving the Effectiveness of Capabilities in EU Conflict Prevention)	H2020-BES-2014	2015-2018	Conflict prevention and peace building	«The stakeholders and **EUGs** of the project are all internal or external groups, individuals or organizations, which can be impacted by the project, or can impact the outcomes of the project»	Dissemination Plan, p. 12 https://www.iceu-project.com/wp-content/uploads/2016/12/D8.1-Dissemination-Plan-PU.pdf
BODEGA (Proactive Enhancement of Human Performance in Border Control)	H2020-BES-2014	2015-2018	Security, Border Control	«The PROPER Toolbox is an environment created for border authorities, the border technology industry and travellers that offers interactive content for exploring the outputs of the BODEGA project. It is a free, online resource for BODEGA's key stakeholders to translate and utilise the project's results into their own operational context. The PROPER Toolbox Resources can be exploited to support decision-making, enhance the engineering of **user-friendly** systems and equipment for professional use, improve the working conditions of employees in border management, design next-generation border guard training and educate travellers on border procedures»	https://bodega-project.eu/

2.6.6 Conclusions

The recurrent concept attached to end-user through the different methodological approaches is that of final, ultimate user of a product, an instrument, a resource, or a service. However, this does not mean necessarily neither that an end-user is always a consumer – it could be, for instance, a competent authority using a specific software – nor that it is placed at the very end of a hypothetical chain of actors – for example, an intermediate developer deploying a specific instrument is an end-user of that instrument.

In order to represent the abovementioned findings in a scheme, as already done for stakeholders and actors, the strict relationship between end-users and their object of use has to be underline as the key element ordering the whole structure.

The research underlined relevant categorisations according to the different modality of use of a resource (operation, development, and control) or according to the different levels of knowledge, experience, and modality of use of information.

Official definitions
- E-Us does not supply [items] downstream
- E-Us as ultimate user of a service
- E-Us as natural persons buying or expected to buy a product for purposes which are outside his trade, business, craft or profession
- E-Us as competent authorities

EU funded research
- E-Us as final users of products, instruments, resources
- No relevant categorisations

Academic research
- E-Us as organisational unit or person who has an interaction with an item as a consumer or producer/consumer
- E-Us as intermediate developers/employees and managers, when deploying specific instruments/resources
- Categorisations of E-Us based on operations, development and control, knowledge, experience, use of information

Semantic review

EU funded projects
- E-U as quasi-synonimous of S

Figure 7 – End-users' definitions, summary

3 ANALYSIS OF THE METHODS OF INVOLVEMENT

3.1 Research Questions

The following chapter is devoted to analysing the methodologies and instruments quoted in the selected literature and reported in EU funded projects for what concerns the methods of involvement of stakeholders, actors, and end-users.

The chapter is structured around three main research questions, modulated for every inquired field:

- What are the contexts or the field of action for which methodologies of involvement are proposed and/or implemented?
- Which are the main involvement tools reviewed and proposed in the sources and/or whose implementation is analysed?
- Which are the roles implicitly and/or explicitly foreseen for stakeholders/actors/end-users in structuring and/or Implementing of the methodologies of involvement?

3.2 Rationale and Methodology

The abovementioned research questions are addressed for every inquired term through the combination of three research approaches, namely:

1. EU Funded Research Review, following the same methodology as described in **2.3.4 EU Funded Research Review** and taking into consideration the following number of sources:

Table 20 – Total of analysed sources for EU funded research review

Inquired term	n. of sources
stakeholders' involvement	4
actors' participation	6
end-users' involvement	5
TOTAL	15

2. Academic Research Semi-Systematic Review, following the same methodology as described in **2.3.1 Academic Research: Semi-Systematic Review** and taking into consideration the following number of sources:

Table 21 – Total of analysed sources for academic semi-systematic review

Inquired term	n. of sources
stakeholders' involvement	7
actors' participation	6
end-users' involvement	6
TOTAL	19

3. EU Funded Projects Review, following the same methodology and reviewing the same sources as described in **2.3.5 EU Funded Projects Review**. Proposed tools have been clustered in six areas, namely:

- **Information and training activities**, such as tutorials, webinars, training courses.
- **Quantitative inquiry activities**, such as questionnaires and surveys.
- **Qualitative inquiry activities**, such as structured and semi-structured interviews.

- **Participatory meetings** such as focus group and world café. Focus groups are usually made of a small group of people, expert, or non-expert, gathering to participate in a guided open discuss about a selected topic. World café is a structured dialogue process in which groups of people share their knowledge about selected topics in several small circles of conversation.
- **Participatory evaluation** such as the implementation of multi-criteria analysis schemes. Multi-criteria analysis implies the definition of models of evaluation taking in consideration multiple and even conflicting criteria of selection on selected topics, leading to informed decisions.
- **Participatory processes** such as co-creation and co-design activities.

3.3 Stakeholders' Involvement

3.3.1 EU Funded Research (Stakeholders' Involvement)

The selected materials cover mainly scientific contributions such as sections of academic books or contributions to conferences, in fields such as spatial data infrastructure development, water management and energy management.

All the selected sources recognise stakeholders' support as crucial in the development of projects and/or initiatives. However, they often do not define involvement tools in detail, rather they tend to focus on theoretical definitions concerning the role of stakeholders in involvement processes or policy advices on the necessity to implement such procedures.

When a lower level of participation is proposed, stakeholders are seen mainly as a target to be inquired (Matinga et al. 2014).

When the participation level increases, stakeholders may form communities of interest (Craglia and Annoni 2007) and/or engage in dialogues with expert and policy makers (Grizzetti, Bouraoui, Barkved, et al. 2010). Furthermore, they can also be the protagonists of participatory modelling processes (Grizzetti, Lo Porto, et al. 2010).

Generally, stakeholders' involvement is recognised by these sources as key in guaranteeing sustainability and legitimacy in a decision-making/implementation process (Craglia and Annoni 2007; Grizzetti, Lo Porto, et al. 2010). Stakeholders are also often framed as producers of relevant, local knowledge (Grizzetti, Lo Porto, et al. 2010) which may positively affect both content and process.

The following table details the relevant findings for every source:

Table 22 – Stakeholders' involvement, EU funded research

Source	Field of research	Document typology	Field of action	Main tool(s)	Stakeholders seen as…
Craglia and Annoni 2007	Spatial data infrastructure development	Methodological scheme + case study of its application	Development of INSPIRE infrastructure	Process-centered approach with a structured engagement of user communities and geographic information stakeholders by organizing them through spatial data interest communities, facilitating self-organisation of stakeholders. SDICs identified and described user requirements, provided expertise, participated in the review process and developed implementation pilot as well as initiatives for guidance, awareness rising and training	Key actors in the long-term sustainability as well as consensus building
Grizzetti, Bouraoui, Gooch, et al. 2010	Water management	Theoretical review + case study	STRIVER project	Science-policy-stakeholder interface (SPSI) through integration at all the levels of decision-making processes and with different means, i.e., information exchange, collaboration, active collaboration and joint research. Participatory modelling, joint panels and multi-criteria analysis allowed stakeholders to prioritise objectives.	Stimulus for transdisciplinary research and production of relevant knowledge
Grizzetti, Lo Porto, et al. 2010	Water management	Theoretical review + case study	STRIVER project	Participatory watershed modelling through: - inputs collection in the model set-up phase - consultation for the model validation - participatory scenario formulation and analysis for the model predictions	Local knowledge bearers and legitimiser of the decision-making process
Matinga et al. 2014	Energy management	Case study	SE4ALL initiative	Q Methodology Survey composed of qualitative questions addressed through quantitative evaluation	Target for the survey

3.3.2 Academic Research (Stakeholders' Involvement)

Many sources agree in defining stakeholders as both target and active subject of proposed involvement tools (Becu et al. 2003; Kavadas et al. 2013; Ramos, Ferreira, and Barcelo 2013; Dvarioniene et al. 2015).

Other projects identify stakeholders either as target groups (Mettepenningen, Beckmann, and Eggers 2011) or as active participants (Vlachokostas et al. 2011). According to Tako and Kotiadis (2015) stakeholders need to be generally involved in decision-making processes in light of the specific knowledge they often bear and to avoid/take into consideration possible conflicting perspectives.

Among the tools proposed for the involvement of relevant stakeholders we can mention:

- Surveys (Mettepenningen, Beckmann, and Eggers 2011).
- Participatory multi-criteria analysis (Vlachokostas et al. 2011).
- Facilitated dialogue through representation modelling depicting or imitating a selected part of the reality concerning the issue at stake (Becu et al. 2003) or other models (Ramos, Ferreira, and Barcelo 2013; Tako and Kotiadis 2015), e.g., prototypes.
- Living lab methodology (Dvarioniene et al. 2015). Living lab is a user-centred, iterative, open-innovation research context, usually focused on a specific territorial context where users are engaged in exploration, experimentation and evaluation activities.
- Co-creation activities (Kavaratzis 2012).

The following table details the relevant findings for every source:

Table 23 – Stakeholders' involvement, academic research

Source	Field of research	Methodology	Field of action	Main tool(s)	Stakeholders seen as…
Becu et al. 2003	Natural resources management	Methodological scheme + case study of its application	Farmers' representations of runoff and erosion in south of France	Stakeholders' representation modelling as a mean to facilitate dialogue among stakeholders, combining Knowledge Engineering elicitation techniques and Agent-Based Modelling	Agents which need to be modelled through a simulation in order to promote dialogue among them
Mettepenningen, Beckmann, and Eggers 2011	Ecological economy	Research	National agri-environmental schemes' transaction costs	Survey through a questionnaire to relevant actors identified via previous research and snowball sampling	Target group for a questionnaire
Vlachokostas et al. 2011	Environmental management	Methodological scheme + case study of its application	Air pollution policies in Thessaloniki, Greece	Multi-criteria analysis which proceeds from a review of available measures, as well as the strongest pressures existing in the target area. The selected measures are then evaluated by relevant actors and experts according to economic, environmental and social criteria. Sensitivity analysis closes the decision-making circuit.	Active participants in the multi-criteria analysis process
Kavaratzis 2012	Urban policies	Methodological review	Participatory place branding	Participation of relevant and interested stakeholder in every step of place branding decision-making, where possible, to determine a co-creative process where place branding managers act as initiators, facilitators and moderators for dialogue	Internal audience and creative pool for place branding effectiveness
Ramos, Ferreira, and Barcelo 2013	System engineering	Methodological scheme + case study of its application	Development of the Guiding Urban Intelligent Traffic and Environment system	Model-based system engineering	Not only as a component of the system but as an integrative/decision-maker element

Dvarioniene et al. 2015	Energy management	Methodological scheme + case study of its application	INTERREG IVC RENERGY project	Living lab paradigm as an instrument to encourage and coordinate stakeholders	Both observed subjects and sources of innovation through active involvement
Tako and Kotiadis 2015	Healthcare policies	Methodological scheme	Participative simulation study on healthcare	Facilitated modelling, combining DES (Discrete-event simulation) and SSM (soft systems methodology)	Possessors of tacit knowledge about the system, as well as conflicting views which need to be taken into consideration

3.3.3 EU Funded Projects (Stakeholders' Involvement)

The results show a prevalence of collective meetings solutions to involve stakeholders – such as focus groups or world café. All inquired projects mentioning stakeholders, except for CyberROAD and MEDEA, reported the use of such instruments.

Results show also a limited use of training activities (WISER), quantitative inquiry (TAKEDOWN, CyberROAD), qualitative inquiry (IECEU), participatory evaluation (BODEGA), and participatory processes (MEDEA).

The following table details the relevant findings for every source:

Table 24 – Stakeholders' involvement, EU funded projects

Project	Programme and call	Duration	Field of research	Information and	Quantitative inquiry	Qualitative inquiry	Participatory	Participatory	Participatory	Source
TAKEDOWN	H2020-FCT-2015	2016-2019	Security		X		X			https://www.takedownproject.eu/overview/
WOSCAP	H2020-BES-2014	2015-2017	Conflict prevention				X			https://www.woscap.eu/deliverables/index.html
IECEU (Improving the Effectiveness of Capabilities in EU Conflict Prevention)	H2020-BES-2014	2015-2018	Conflict prevention and peace building			X	X			Dissemination Plan, p. 14 https://www.ieceu-project.com/wp-content/uploads/2016/12/D8.1-Dissemination-Plan-PU.pdf
BODEGA (Proactive Enhancement of Human Performanc	H2020-BES-2014	2015-2018	Security, Border Control				X	X		Stakeholder Map and network, p. 8 https://bodega-project.eu/IMG/pdf/bodega_d7.1_311216_final_pu.pdf

e in Border Control)										
DOGANA(Advanced Social Engineering and Vulnerability Assessment Framework)	H2020-DS-2014-1	2015-2018	Risk management and assurance models				X			Dissemination Plan and Calendar of Activities, pp. 14-16 https://www.dogana-project.eu/images/PDF_Files/D8.1-Dissemination-plan-and-calendar-of-activities.pdf
EUNITY	H2020-DS-SC7-2016	2017-2019	Cyber Security, External Security Policies				X			https://www.eunity-project.eu/en/
WISER	H2020-DS-2014-1	2015-2017	Risk management and assurance models	X			X			Communication & Stakeholder Plan, pp. 10-13 https://www.cyberwiser.eu/system/files/CYBERWISER.eu_D6.4_Communication_Stakeholder_v0.12%281%29.pdf
RED-Alert	H2020-SEC-2016-2017-1	2017-2020	Fight crime, illegal trafficking and terrorism				X			Dissemination Plan, p. 19 http://redalertproject.eu/wp-content/uploads/2018/03/D8-3-Dissemination-Plan-1.pdf
GAMMA	FP7-SEC-2012-1	2013-2017	Air traffic Management/Control threat assessment model				X			http://www.gamma-project.eu/news-and-events/news/user-group-gamma-project/

| CyberROAD | FP7-SEC-2013-1 | 2014-2016 | Cyber Crime ad Cyber Terrorism | | X | | | | | Stakeholders Needs and Threats Evaluation, pp. 15-16 http://www.cyberroad-project.eu/m/filer_public/2016/05/02/d51_stakeholder_needs_and_threats_evaluation.pdf |
| MEDEA | H2020-SEC-2016-2017-2 | 2018-2023 | Security | | | | | | X | https://www.medea-project.eu/ |

3.3.4 Conclusions

When proposing stakeholders' involvement methodologies – or discussing implemented approaches – the analysed sources take into consideration stakeholders as both target groups and active subjects. However, in some cases stakeholders are considered either as objects or subjects of involvement processes.

According to the abovementioned sources, stakeholders should be involved in order to collect relevant knowledge, prevent and/or manage potential conflict and guarantee sustainability and legitimacy of the decision-making process.

Proposed tools range from inquiries – surveys, interviews – to structured and/or facilitated dialogue – focus group, modelling, multi-criteria analysis, living lab methodology, world café – as well as co-creation activities.

EU funded research

- •HOW
  Ss as a target to be inquired
  Ss engaged in communities of interest
  Ss engaged in a dialogue among science, policy and interests
  Ss involved in participatory modelling process
- •WHY
  guaranteeing sustainability and legitimacy of decision-making processes
  steering the production of relevant, local knowledge positively affecting both content and process

Academic research

- •HOW
  Ss as target groups and active subjects of the proposed tools (often both)
  Surveys
  Participatory multi-criteria analysis
  Facilitated dialogue through modelling
  Living lab methodology
  Co-creation activities
- •WHY
  Ss as possessor of knowledge and bearers of conflicts

EU funded projects

- •HOW
  Ss mainly involved through collective meetings (such as focus groups or world cafès)

Figure 8 – Stakeholders' involvement, summary

3.4 Actors' Participation

3.4.1 EU Funded Research (Actors' Participation)

The selected materials consist in academic publications as well as technical reports and similar documents, generally pertaining to the fields of data management and water/waste management.

According to the selected sources, actors' participation may allow for the exploitation of their resources in terms of:

- Knowledge (Paneque Salgado et al. 2009).
- Their ability to learn from each other (Ferraro 2014).
- Their making capabilities (Craglia and Shanley 2015).
- Their capability to act as intermediaries between citizens and political processes (Garrido et al. 2012).
- Them being the selected target of research/project (Misuraca, Centeno, and Torrecillas 2014).

Ferraro and Martell state explicitly that actors should be involved across the whole process (Ferraro and Martell 2015). Building on a similar perspective, Paneque Salgado et al. (2009) propose the use participatory multi-criteria analysis to involve actors across the whole processes,

In the same perspective, Ferraro (2014) supports the establishment of knowledge centres as spaces of encounter for different actors. Similarly, in Garrido et al. (2012) telecentres are considered as potential spaces of involvement and participation.

The following table details the relevant findings for every source:

Table 25 – Actors' participation, EU funded research

Source	Field of research	Document typology	Field of action	Main tool(s)	Actors seen as…
Paneque Salgado et al. 2009	Water management	Case study	Evaluation of water supply alternatives in Costa del Sol Occidental (Málaga, Spain)	Novel Approach to Imprecise Assessment and Decision Environments (NAIADE) participatory multi-criteria analysis developed through: problem framing; identification of social actors and relevant vested interests; identification of alternatives and criteria to evaluate them; multi-criteria analysis; final presentation in focus groups	«(…) social actors [to] acquire knowledge from each other and acknowledge different perspectives, agendas and interests» (p. 1002)
Garrido et al. 2012	E-inclusion	Technical report	Theoretical framework of E-inclusion processes	Community-building activities, telecentres, youth-oriented telecentres	«intermediaries who '(re)connect' citizens and political processes» (p. 84)
Ferraro 2014	Radioactive waste management	Technical report	E-TRACK annual activities	«Knowledge centre for the promotion of public participation in the implementation of energy policy initiatives» (p. 7) Collect information, connect actors, share knowledge	Involved in mutual learning activities
Misuraca, Centeno, and Torrecillas 2014	E-inclusion	Technical report		Mapping activity of intermediary actors	Objects of a mapping activity
Craglia and Shanley 2015	Data management	Academic paper	Recognition of technology developments and their impact on participation processes	Citizen science, crowdsourcing, data mining of citizen-generated content	Generators, producers, co-producers
Ferraro and Martell 2015	Radioactive waste management	Technical report	Recognition of best practices in EURATOM projects	Involvement on two levels (policy-level and project-level) through informal/formal means. In the implementation process, participation is guaranteed through intergovernmental relations, local partnerships and	Fundamental component of the decision-making and implementing system

Source	Field of research	Document typology	Field of action	Main tool(s)	Actors seen as…
				phased decision-making. Resources might be allocated both for capacity building processes and for compensation/development strategies.	

3.4.2 Academic Research (Actors' Participation)

The results prevalently consist in methodological or theoretical papers in different fields: quality assessment, cognitive studies, marketing techniques, environmental planning, children engagement and energy policies.

Krogstrup (1997) pictures actors as the protagonists of a pluralistic context. Such a context may be characterised both by competition among them (Jolivet and Heiskanen 2010; Mäläskä, Saraniemi, and Tähtinen 2011) and by cooperation or dialogue (Damart 2010).

It is worth to notice that in Cotton and Mahroos-Alsaiari (2015) the term actor is used as a synonymous of stakeholder, while in Krogstrup (1997) its definition overlaps with that of user.

Considering the case described by Alderson (2008) – children participation – as very specific, the other relevant sources mapping and/proposing tool for enhancing actors' participation, are:

- Krogstrup (1997), proposing User Participation in Quality Assessment (UPQA).
- Jolivet and Heiskanen (2010), Mäläskä, Saraniemi, and Tähtinen (2011) and Cotton and Mahroos-Alsaiari (2015), proposing ex-post evaluation involving actors.
- Damart (2010), describing cognitive mapping as an instrument supporting the involvement of actors in project formulations.

The following table details the relevant findings for every source:

Table 26 – Actors' participation, academic research

Source	Field of research	Methodology	Field of action	Main tool(s)	Actors seen as…
Krogstrup 1997	Quality assessment	Methodological paper	Public services assessment	User Participation in Quality Assessment (UPQA), bottom-up action learning and exploratory evaluation	Determining a pluralistic context in which social policies have to be defined and validated. Actor as public institution confronting with users
Alderson 2008	Children engagement	Literature review	-	Child-centred research. Many different tools, related with education, play and work activities	Specific age target capable to promote significant change
Damart 2010	Cognitive studies	Methodological paper	-	Cognitive mapping method for organising participation in relevant sub-groups managed by facilitators	Individual with different roles and perspectives, participants of a dialogue
Jolivet and Heiskanen 2010	Energy policies	Case study	Deployment of wind power and the related local controversies in Southern France	Actor-Network Theory (ANT) as an analytical tool	Part of 'competitive' networks trying to frame the reality
Mäläskä, Saraniemi, and Tähtinen 2011	Marketing techniques	Theoretical paper	Branding processes	Definition of the concept of "branding pool" as the business and social networks of relationships which influence decisions about branding	Considered as a synonymous of stakeholder, influencer of branding processes
Cotton and Mahroos-Alsaiari 2015	Environmental Planning	Evaluation Analysis	Stakeholders' engagement in Environmental Impact Assessment (EIA) in Oman	Q methodology to appraise stakeholders' effective participation in EIA	Considered as a synonymous of stakeholder (used as "stakeholder actor")

3.4.3 EU Funded Projects (Actors' Participation)

The results show a general absence of qualitative inquiring, participatory processes and information and training activities for which actors' participation is implemented.

The only reviewed projects propose foreseeing actors' participation implemented participatory meetings (EUNITY) and participatory evaluation (WOSCAP).

The following table details the relevant findings for every source:

Table 27 – Actors' participation, EU funded projects

Project	Programme and Call	Duration	Field of research	Information and training activities	Quantitative inquiry activities	Qualitative inquiry activities	Participatory meetings	Participatory evaluation	Participatory processes	Source
WOSCAP	H2020-BES-2014	2015-2017	Conflict prevention					X		https://www.woscap.eu/deliverables/index.html
EUNITY	H2020-DS-SC7-2016	2017-2019	Cyber Security, External Security Policies				X			https://www.eunity-project.eu/en/

3.4.4 Conclusions

The combination of the abovementioned sources provides a clear picture of both the rationale for actors' participation and the main deployed tools/methods. As already underlined in **paragraph 1.1.1**, actors are conceived as interacting in a pluralistic context through competition as well as cooperation, or dialogue, patterns. They bear resources, or capabilities, in terms of knowledge, ability to learn, making and intermediation.

Several sources take into consideration the issue of 'where' to place actors' participation, whether across the whole process, in the definition of a multi-criteria analysis or at the end of the process, in an ex-post evaluation.

Proposed or analysed tools range from participated multi-criteria analysis and participated quality assessment, to the establishment of knowledge centres, collective meetings, and the use of cognitive mapping.

EU funded research

- HOW
  As involved across the whole process
  Participatory multi-criteria analysis
  Knowledge centres as spaces of encounter for different As
- WHY
  Expoit As' resources in terms of knowledge, ability to learn, making and intermediation capabilities

Academic research

- HOW
  User Participation in Quality Assessment (UPQA)
  ex post evaluation
  cognitive mapping
- WHY
  As in a pluralistic context characterised both by competition and cooperation, or dialogue

EU funded projects

- HOW
  collective meetings and participatory multi-criteria analysis

Figure 9 – Actors' participation, summary

3.5 End-Users' Involvement

3.5.1 EU Funded Research (End-Users' Involvement)

The selected materials consist in academic publications as well as technical reports and similar documents, in the fields of spatial information, soil studies and fishery management.

The main difference among the selected references lies in the typology of involvement proposed for end-users. Most of the sources support the institution of feedback mechanisms (Hengl and Husnjak 2006; Abella et al. 2013; Castro Ribeiro and Guillen 2016; Bernard et al. 2018). Ben-Dor et al. (2008), on the other hand, call for a continuous interaction between developers and end-users, along all the phases of a project.

The following table details the relevant findings for every source:

Table 28 – End-users' involvement, EU funded research

Source	Field of research	Document typology	Field of action	Main tool(s)	End-users seen as…
Hengl and Husnjak 2006	Spatial information	Academic paper	Evaluation of adequacy and usability of soil maps in Croatia	Interviews	-
Ben-Dor et al. 2008	Soil studies	Chapter of a book	Development of Imaging Spectrometry (IS) systems	Education activities, proper data provision, interaction looking for feedbacks	Potential users of proposed technology
Abella et al. 2013	Fishery management	Policy report	STECF project	Consultation meetings	«Bodies with a research or management interest in the scientific analysis of data in the fisheries sector» (p. 17)
Castro Ribeiro 2015	Fishery management	Technical report	Yearly end-users feedback	Feedbacks gathered through an IT platform	Providers of feedbacks
Bernard et al. 2018	Spatial information	Conference proceedings	INSPIRE Project	Group discussions steered by position papers	Differentiation between developers and end-users in the effort of making the system more user-centric

3.5.2 Academic Research (End-Users' Involvement)

The results show a preponderance of methodological papers as well as case studies reviews.

According to L'Astorina et al. (2015), end-users are seen as final users of a product, their definition overlapping with that of stakeholders, by. On the contrary, according to Almirall, Lee, and Wareham (2012) end-users are co-creators rather than a mere subject of study.

As already noticed concerning actors' participation, sources may be classified according to the duration proposed for the involvement of end-users. Some sources frame it as a feedback process, sometimes iterate (Singh and Kotzé 2003; Sun 2013). Others support their involvement along the whole process (Othman 2007; Almirall, Lee, and Wareham 2012; Sun 2013; L'Astorina et al. 2015).

Pedeliento et al. (2019) focus on the structures of power deployed by end-users in conditioning outputs and outcomes of a process.

The following table details the relevant findings for every source.

Table 29 – End-users' involvement, academic research

Source	Field of research	Document typology	Field of action	Main tool(s)	End-users seen as…
Singh and Kotzé 2003	IT Development	Literature review	-	«Many of the shortcomings of the development models could be catered for by making the end-user of the system a primary element in the entire process, and include explicit guidelines for the inclusion of other external issues such as laws and regulations, human rights issues (including accessibility), the abilities and skills of the human resource complement of the IT department, the supplier chain and availability of technology, et cetera» (p. 47)	The paper generally refers to 'users'. No specific definition provided.
Othman 2007	Construction industry	Literature review, case studies and research recommendations	-	(Review of) customer satisfaction appraisal (Suggestion of) end-users involvement since the early stages of a project	«Individuals or groups with a presumed right to use the facility. Using a facility entails the ability to perform activities within and around it for specified objectives. All people are users of buildings (…) There are three types of end-users: occupants, visitors, and owners or tenant organisations. » (p. 90)
Almirall, Lee, and Wareham 2012	Innovation management	Methodological review	-	Living Lab approach Engagement of users in the early stages of innovation processes in co-design exercises Living lab methodologies are useful in capturing market and domain-based knowledge, as well as tacit knowledge emerging in real-life contexts. Living lab involves a wide range of actors in a lowly regulated environment	As co-creators in real life environments rather than mere subjects of study

Sun 2013	IT Development	Methodological review	-	Inviting users to join the initial study phase to get the useful information. In the analysis phase only key users are involved. In the design phase users might balance technical aspects with simplification aspects. Users may also evaluate the system providing feedbacks, and they can be involved in education and training activities.	«Effective user involvement can contribute a better understanding to the system development, and provide satisfactory product as well» (p. 410)
L'Astorina et al. 2015	Public policies	Case study paper	Development of Earth Observation (EO) services in Italy	Responsible Research and Innovation (RRI) approach Involvement in the early stage of the process through interview of end-users' sample. Process repeated in the second stage of the project to collect feedbacks	Policy-makers and public authorities, but also business enterprises and research centres End-users as stakeholders
Pedeliento et al. 2019	Marketing	Research paper	End-users influences in heavy trucks purchasing decisions	Analysis of structures of power in end-user purchasing strategies: reinforcement, referent, legitimate, expert and information power	Potential influencers on purchasing process

3.5.3 EU Funded Projects (End-Users' Involvement)

The results show a general absence of quantitative inquiry, participatory processes and participatory evaluation for which end-users' involvement is implemented.

According to its Dissemination Plan, IECEU project addressed its end-users through interviews and collective meetings. BODEGA provides an online platform and organised a scenario-focused meeting.

The following table details the relevant findings for every source:

Table 30 – End-users' involvement, EU funded projects

Project	Programme and Call	Duration	Field of research	Information and training activities	Quantitative inquiry activities	Qualitative inquiry activities	Participatory meetings	Participatory evaluation	Participatory processes	Source
IECEU (Improving the Effectiveness of Capabilities in EU Conflict Prevention)	H2020-BES-2014	2015-2018	Conflict prevention and peace building			X	X			Dissemination Plan, p. 14 https://www.ieceu-project.com/wp-content/uploads/2016/12/D8.1-Dissemination-Plan-PU.pdf
BODEGA (Proactive Enhancement of Human Performance in Border Control)	H2020-BES-2014	2015-2018	Security, Border Control	X			X			https://bodega-project.eu/

3.5.4 Conclusions

While little findings regarding the rationale of end-users' involvement have been found in the abovementioned sources. From a methodological point of view, feedback mechanisms appear as the most common involvement tools applied, thus including end-users mainly in monitoring and evaluation activities.

On the other hand, other sources suggest involving end-users along the whole process, facilitating an exchange between developers and end-users along all the phases of a project.

EU funded research

- HOW
  Feedback mechanisms
  Interaction between developers and end-users along all the phases of a project

Academic research

- HOW
  Feedback processes, sometimes iterate
  Involvement along the whole process
- WHY
  E-Us as co-creators
  E-Us exercising power

EU funded projects

- HOW
  interviews
  collective meetings
  online platforms

Figure 10 – End-users' involvement, summary

3.6 Lessons Learned by Covid-19 Experience

The Covid-19 outbreak had a significant impact on the activities of involvement of stakeholders, actors and end-users planned for the last few months. Several European institutions reacted to the new situation by adapting and innovating the means through which keeping on the involvement of stakeholders, actors and end-users in their activities, respecting health, and safety protocols, in particular those concerning physical distancing.

The brief overview of some of the main examples of such a process of adaptation and innovation shows how a preponderant use of ICTs allowed for the development of participation events, even with complex patterns as hackathons. Web trainings, on the other hand, allowed for the circulation of ideas and good practices to both increase and exchange knowledge about issues at stake and keep a strong sense of belonging in project communities or other networks.

In the framework of this deliverable, a non-exhaustive list of activities encompassing participatory and involvement processes was produced after a research on the websites of the main European institutional bodies, such as: the European Parliament, the Committee of Regions, the European Economic and Social Committee, the Council of Europe, the European Commission and the European Institute of Innovation & Technology.

The following table lists several participatory activities performed during the Covid-19 pandemic, detailing the different participants and groups involved in the processes (stakeholders/actors/end-users).

Table 31 – Collection of involvement methodologies during the Covid-19 pandemic

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
European Parliament, Commitee of Regions, European Economic and Social Committee	**#EUvsVirus- Matchathon & Hackathon**	In April 2020 #EUvsVirus created 2,164 multi-disciplinary, multi-nationality teams with innovative solutions. In May 2020, the project sparked the development of 2,235 new cross-European partnerships by matching the best 120 teams with 458 supportive partners from the public and private sectors. #EUvsVirus has triggered the emergence of a new pan-European community of purposed driven innovators, entrepreneurs and members of the civil society. This new #EuvsVirus community is the foundations of a future European innovation ecosystem ready to solve societal problems by using the power of innovation and technology.	EUvsVirus has triggered the emergence of a new pan-European community of purposed **driven innovators, entrepreneurs** and **members of the civil society.**	https://www.euvsvirus.org/ https://www.euvsvirus.org/finalreport.pdf
Council of Europe	**Council of Europe International Mentoring Programme**	In the framework of the Council of Europe response to the challenges presented by COVID-19 outbreak, the Council of Europe Project *"Promoting Civil Participation in the Democratic Decision-*	Improve participants' dialogue with other **stakeholders** in the decision-making process.	https://rm.coe.int/coe-programme-mentoring-for-change-2020-international-mentoring-progra/16809e40ed

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
		Making Process in Ukraine" launched International Mentoring Programme. Objectives of the programme: • Improve participants' dialogue with other stakeholders in the decision-making process; • Enhance their skills essential for their professional performance; • Advance their personal development plans.		
Council of Europe	**Academy of Civil Participation (Online)**	The academy was designed as part of CoE COVID-19 response, within the project *"Promoting civil participation in democratic decision-making in Ukraine."* It is a unique online learning and practical course aimed at expanding the knowledge of European standards, local regulatory and institutional frameworks for civil participation mechanisms. Furthermore, it aims at increasing the awareness of civil participation instruments that are guaranteed by the	**More than 1100 people took part in the initiative. 329 participants**, representing Drohobych citizens and local officials, enrolled in the online Academy of Civil Participation designed as part of the CoE COVID-19 response, within the project "Promoting civil participation in democratic decision-making in Ukraine."	https://rm.coe.int/civil-participation-toolbox-how-to-ensure-continuous-citizens-engageme/16809e40ee https://www.coe.int/en/web/civil-society/-/drohobych-ensuring-continuous-citizens-engagement-in-the-time-of-covid-19

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
		city Statute and at developing the skills of citizens and locals in participatory decision-making. The Academy promotion and awareness-raising campaign "IParticipate" has been launched in Drohobych to increase the awareness of civil participation tools and opportunities. Thousands of Drohobych citizens were encouraged to undertake the course, including young people and children, through the incorporation of the online Academy into the school curriculum.		
Council of Europe	**"No-touch" online public consultations in Ukraine**	To ensure continuous civic engagement in urban planning under quarantine constraints, the CoE project is assisting Drohobych in planning and conducting online consultations for the reconstruction of a street in the city centre. Proper dialogue methods were implemented to reach all stakeholders and social groups using 'no-touch'	Deploying proper dialogue methods to reach all **stakeholders** and social groups using 'no-touch' consultation plans in the time of Coronavirus constraints.	https://www.coe.int/en/web/civil-society/-/covid-19-response-supporting-no-touch-online-public-consultations-in-ukraine

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
		consultation plans in the time of Coronavirus constraints. The most diverse channels of communication, stakeholder mapping, high-quality pre-consultation phase, consideration of the views of all critical audiences are some of the key components of quality public consultations during quarantine restrictions.		
Council of Europe	**Public Consultation – Online courses**	In partnership with "The Consultation Institute", the CoE offered public officials, experts, active citizens, NGOs and civil activists the possibility to undergo online courses on key elements for effective public consultations. The courses were interactive, and theoretical knowledge was interconnected with practical cases provided. Here some of the tools deployed: - Stakeholder mapping consultation; - Focus Groups; - Survey and Questionnaires;	The Council of Europe offer **public officials, experts, active citizens, NGOs and civil activists** to undergo online courses on key elements for effective public consultations.	https://www.coe.int/en/web/civil-society/online-courses

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
		• Data Analysis and Report Writing; • Collection Data, information and sampling; • Consultation and Public Events.		
European Commission	**Brussels Economic Forum 2020 – Digital Event**	The digital event stimulated debate around Europe's current and future economic challenges.	European and international **policymakers, opinion leaders, influential academics, civil society and business leaders** were involved in the event.	https://ec.europa.eu/economy_finance/bef2020/
European Commission	**Public consultation on a new Digital Education Action Plan**	The COVID-19 crisis presents both challenges and opportunities for digital transformation in the EU. The Commission's updated action plan will apply the lessons learnt from the crisis and set out a long-term vision for the digital transformation of education & training in the EU. It will aim to: • Increase digital literacy; • Help EU countries work together to adapt their education & training systems to the digital age;	All interested **stakeholders**.	https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12453-Digital-Education-Action-Plan

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
		• Harness the internet's potential to make online learning available to all. Through a public consultation, the participants were able to express their views on aspects of EU laws and policies before the Commission finalises its proposals.		
European Commission	**Digital Services Act – Public Consultation**	The EC Communication "Shaping Europe's Digital Future" a Digital Services Act package, including a proposal of new and revised rules to deepen the Single Market for digital services, by increasing and harmonising the responsibilities of online platforms and information society service providers as well as reinforcing the oversight over platforms' content policies in the EU. The Commission launched an open public consultation to collect information and to offer all interested stakeholders the opportunity to provide their views and input on a range of issues	All interested **stakeholders**.	https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12417-Digital-Services-Act-deepening-the-Internal-Market-and-clarifying-responsibilities-for-digital-services/public-consultation

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
		considered for the Digital Services Act		
European Commission	**European Citizens Initiative**	Organisation of a webinar to explore the measures to address the effects of the Covid-10 pandemic on the implementation of the European Citizens Initiative.	All interested **stakeholders**.	https://europa.eu/citizens-initiative/_en
European Commission	**Coronavirus Global Response – International Pledging Event**	Promotion and dissemination of "People's stories" video that features testimonials from citizens, who tell us about their daily lives during the pandemic and about their hope for a corona-free future.	**Citizens** from all EU countries	https://global-response.europa.eu/peoples-stories_en
European Parliament	**European Citizen's Prize**	The European Parliament awards 'The European Citizen's Prize'. This prize is an award for exceptional achievements in the following areas: • Projects promoting better mutual understanding and closer integration between citizens of the Member States or facilitating cross-border or transnational cooperation within the European Union;	**Citizens, groups of citizens, associations or organizations** can apply for the European Citizen's Prize for projects they have carried out, or can nominate one other citizen, group, association or organisation for the European Citizen's Prize. **Members of the European Parliament** have the right to submit nominations – one per Member each year.	https://www.europarl.europa.eu/at-your-service/en/be-heard/prizes

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
		• Projects involving long-term, cross-border or transnational cultural cooperation contributing to the strengthening of a European spirit; • Projects giving concrete expression to the values enshrined in the Charter of Fundamental Rights of the European Union. In addition to the abovementioned areas, citizens and organisations are also encouraged to nominate projects dealing with the fight against the coronavirus.		
European Parliament	**European Youth Event 2020**	Due to the postponement of EYE2020 due to the pandemic, "EYE online" offered young people from the EU and beyond an opportunity to virtually meet and exchange views with experts, decision-makers, activists and influencers. It will address youth concerns about the role of the EU in the context of COVID-19 crisis, as part of the	"EYE online", following the postponement of EYE2020 due to the pandemic, offers **young people** from the EU and beyond an opportunity to virtually meet and exchange views with **experts, decision-makers, activists and influencers.**	https://www.europarl.europa.eu/news/en/press-room/20200519IPR79427/european-youth-event-2020-giving-a-voice-to-young-people-to-influence-eu-policy

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
		#EuropeansAgainstCovid19 campaign.		
European Committee of the Regions, OECD	**Webinar – The impact of the COVID-19 on EU regions and cities**	The COVID-19 pandemic is having enormous repercussions in the EU. In addition to the human and social cost, economies and public finances are under considerable strain. All levels of government are mobilised to mitigate its effects, starting by the ones closest to citizens, the local and regional levels. Cities and regions have been on the frontline to fight the pandemic, building solidarity within their territory and providing a wide range of public services during lockdown, to protect and help their citizens. The event was also an occasion to highlight the importance to participate in the CoR-OECD joint survey,	All interested **stakeholders**. Participants were also invited to take part in the COR-OECD 2020 consultation on the impact of covid-19 on regions and cities: governance, finance and recovery plans.	https://cor.europa.eu/en/events/Pages/ECON-impact-covid-19-on-EU-regions-n-cities.aspx

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
		as there are still many uncertainties about the impact of the COVID-19.		
European Committee of the Regions	**Written Stakeholder Consultation on "A Strong Social Europe for Just Transitions"**	The European Commission Communication "A Strong Social Europe for Just Transitions", adopted in January 2020, seeks to launch a broad debate about the implementation of the European Pillar of Social Rights so far. At the same time, the Communication is a roadmap for key actions announced by the Commission in the course of 2020-2021. The key objective is to ensure that the three main transitions that the EU is confronted with – namely, climate neutrality,	**Relevant stakeholders** were involved, and their input gathered via written consultation.	https://cor.europa.eu/en/events/Pages/SEDEC-wsc-strong-social-Europe-for-just-Transitions.aspx

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
		digitalisation and demographic change – are dealt with in a fair manner.		
European Committee of Regions	**Covid-19 Exchange Platform – An exchange platform to support regional and local communities across Europe**	Creation of an exchange platform to help sharing needs and solutions, to enhance mutual support and act as a feedback mechanism to enable a reality check of the EU measures from the local and regional angle. The European Committee of Regions (CoR) will provide local communities with regular and practical information about EU actions.	The exchange platform will empower **local and regional leaders** to share their needs and solutions and to enhance mutual support between local communities across Europe. It will also enable **CoR Members** to give their feedback on the EU actions already put in place,	https://cor.europa.eu/en/news/Pages/COVID-19-EU-Committee-of-regions-to-launch-an-exchange-platform.aspx
CEPOL – European Union Agency for Law Enforcement Training	**Online Conference Policing the Pandemic**	The conference looked at new crime trends and social challenges emerging from this novel scenario that raise concerns among the entire EU community.	The conference brought together **senior law enforcement professionals** from all over Europe to share their experiences and	https://www.cepol.europa.eu/media/news/25-june-2020-online-conference-%E2%80%9Cpolicing-pandemic%E2%80%9D

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
			lessons learnt from the Covid-19	
Council of Europe, UNESCO	**Online Survey: Student voice during the pandemic**	UNESCO and the Council of Europe have developed a survey, as part of a broader cooperation, to better understand some of the effects of the COVID-19 Pandemic on student voice. The outcomes of this survey will feed into the content of a joint conference to be organised in cooperation between UNESCO and the Council of Europe on 23-25 November 2020 under the title: 'From making student voice heard to active civic participation: The role of schools in the digital age' .	The survey was aimed at **secondary school teachers from Europe, the Middle East and North Africa.**	https://www.coe.int/en/web/education/newsroom/-/asset_publisher/ESahKwOXlcQ2/content/it-just-takes-10-minutes-unesco-council-of-europe-online-survey-student-voice-during-the-pandemic?inheritRedirect=false&redirect=https://www.coe.int/en/web/education/newsroom%3Fp_p_id%3D101_INSTANCE_ESahKwOXlcQ2%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-4%26p_p_col_count%3D1

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
Council of Europe	**Online International Conference on Civil Participation in Decision Making**	The City of Tbilisi and the Council of Europe under the aegis of the Georgian Presidency of its Committee of Ministers are organising an online international conference on "Civil Participation in Decision Making". The conference aimed to identify useful and innovative examples of successful civil engagement at local, regional and national level and to highlight and promote the unique work of the Council of Europe in this area.	Open to **all interested stakeholders**, the event featured **expert contributors** from Georgia, other Council of Europe member states and countries further afield including the USA	https://www.coe.int/en/web/portal/-/may-6-online-international-conference-on-civil-participation-in-decision-making
European Committee on Democracy and Governance (CDDG)	**Video conference meeting – A democratic governance response to Covid-19**	On 18 June, the European Committee on Democracy and Governance (CDDG) held a thematic videoconference meeting on "A democratic governance response to Covid-19", under the auspices of the Greek chairmanship of the Committee of Ministers. Participants stressed the importance of cooperation, coordination and communication between	Over 100 **participants (national, ragional and local authorities, experts**) discussed the lessons learned so far with regards to multilevel governance, the frontline role of local authorities and cross border cooperation.	https://www.coe.int/en/web/good-governance/thematic-meeting

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
		governing bodies and with civil society and other actors		
European Committee of the Regions	**Webinar – Europe in my living room**	The event details the impact of the Covid-19 emergency on the public life of the regions and cities under their administration.	**Young elected politicians** share their stories regarding the impact of the Covid-19 emergency	-
European Committee of Regions	**Webinar – Mind the digital gap**	In the context of Covid-19 crisis, the YFACTOR project "Mind the digital gap" highlighted the commitment of regional and local actors and their effort to facilitate the digital transition and to ensure continuity of services across the EU regions. The event consisted of a webinar series and interactive workshops focused on the theme of inclusive access to education, culture, and civic participation engaging.	**Public administrators, citizens, practitioners, civil society groups and other stakeholders.**	https://cor.europa.eu/en/events/Pages/mind-the-digital-gap.aspx?fbclid=IwAR04VOePwf-qgQzCUwvNIU-6dBL0Etpu0PTF3bM_9uJETXTbJ3RoX7KHTrY&utm_source=Twitter&utm_medium=social&utm_campaign=YFactor%20Project%20Mind%20the%20digital%20gap

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
European Committee of Regions	**2-minutes videos – Local 20230-Localizing the SDGs**	Local 2030 the initiative of the UN Secretary General on Localizing the Sustainable Development Goals, has launched the Local2030 Spotlight Series Cities and regions around the world are invited to share 2-minute videos highlighting their perspectives on the main challenges and innovative solutions developed at the local level to fight the outbreak in the context of a global effort to implement Sustainable Development Goals (SDGs). Local 2030 is convinced that local efforts are essential to win the fight against COVID-19 and that the SDGs offer a framework to do so.	All interested **stakeholders**	https://cor.europa.eu/en/news/Pages/ECON-Local-2030-localizing-the-SDGs.aspx

Institutional Body	Activities	Brief Description	Participants (Stakeholders/actors/ end-users)	Link
European Committee of Regions	**Joint Consultation – Cohesion Alliance**	On the occasion of Europe Day on 9 May, the European Committee of the Regions (CoR) and #CohesionAlliance partner organisations launched a joint consultation on a renewed declaration in response to the challenges brought about by the Covid-19 crisis. The Cohesion Alliance is therefore taking a new step ahead to ensure that Cohesion is a key objective for all EU policies and investments and a crucial element in the EU recovery plan.	**Regional and local actors** were involved in the consultation.	https://cor.europa.eu/en/news/Pages/Cohesion-Alliance-starts-consultation-on-new-declaration.aspx
European Institute of Innovation & Technology (EIT)	**Student Webinar – A green recovery from the Covid-19**	The event aimed to provide solutions to the Covid-19 crisis and support local & regional start-ups an SMEs fostering local economy recovery.	**Experts, local & regional start-ups** and **SMEs representatives**.	https://eit.europa.eu/news-events/events/student-webinar-green-recovery-covid-19-pandemic
European Institute of Innovation & Technology (EIT)	**Webinar Mobility Talks – Analysis of mobility behaviour using data during and after the Covid-19 confinement**	EIT organised a series of webinars with different format and focus on themes linked to urban mobility innovations and the impact of Covid-19 on liveable urban spaces.	All interested **stakeholders**.	https://eit.europa.eu/news-events/events/mobility-talks-analysis-mobility-behaviour

4 Defining the Context of Action for the ARESIBO Participatory Model

The previous chapters proposed a general review on the definitions and key-elements of the terms relating to the subjects that will be part of the ARESIBO participatory model (i.e., stakeholders, actors, and end-users), as well as on the ways (i.e., models, tools, etc.) in which these subjects are usually involved in participatory processes.

In this chapter, this analysis is embedded in the context of action of ARESIBO (i.e., borders conceived both as geographical areas (border areas) and contexts on interactions among stakeholders/actors/end-users.

Furthermore, the chapter offers a deep-dive literature review of some key-concepts of the project –surveillance, security, privacy – in order to further explore the concept of SOST.

4.1 Borders

For the purpose of this paper, the border should not be interpreted only as a geographical locus, but rather as a complex context of interaction among different stakeholders, actors, end-users. Borders work as sites «at and through which socio-spatial differences are communicated» (Van Houtum 2005, 672) and thus the construction of the border may be understood as the result of bordering practices, discursive and emotional as well as technical (Kinnvall and Svensson 2014). The construction of a border implies the definition of a mobile equilibrium among surveillance technologies and practices, the respect of privacy and the aim to guarantee security.

When framed as contexts of interaction, borders lose their 'fixed' and 'static' image which is usually associated to that concept. It is then easier to identify two pivotal transformations can be framed as the extension of the geographical location of borders, i.e., the "diffuse" border (Pavone and Degli Esposti 2012, p. 559), and the externalisation of EU frontiers (Guild, Carrera, and Balzacq 2008).

More particularly, in the last years a clear security nexus between irregular forms of human mobility and security emerged both in common knowledge and existing policies (Carrera and Guild 2007). At the same time, the issue of border control has been more and more closely linked with counter terrorism aims, following the link – controversial yet strong – suggested between migration policies and counter terrorism policies (Argomaniz, Bures, and Kaunert 2015).

4.2 SOSTs

4.2.1 Surveillance, Security and Privacy

4.2.1.1 Surveillance

From an historical standpoint, Dratwa recalls that the term surveillance comes from «the French verb *surveiller* […], from *sur-* 'over' and *veiller* 'to watch', from Latin *vigilare*, from *vigil* 'watchful'. Interestingly, 'surveiller' carried with it from the start a tension between the meanings of watching over, of taking care of, and of suspicion and control. It also comprised from the start the complementary notion of watching over oneself and one's own behaviour» (2017, XIX).

Moving on a more specific field related to the interest area of this deliverable, surveillance may be defined as the set of instruments and procedures through which privacy is compressed in order to guarantee security. Of course, then, the definition of surveillance is strictly intertwined

with those of privacy and security. Therefore, the term surveillance has no absolute value *per se*, but its definition is indeed the result of social, political, and cultural processes of legitimisation and delegitimization.

4.2.1.2 Security

The review shows that security is a very broad, ambiguous, and mobile term. From a theoretical point of view, it could stand for all the actions – usually institutional – claiming to reach a positive output in different contexts (Wæver 1993). As a result of this, Friedewald et al. (2015, p. 42) felt an effort of specification was needed, thus identifying seven typologies of security:

- physical security
- political security
- socio-economic security
- cultural security
- environmental security
- radical uncertainty security
- information security.

The proposed list open to further meanings encompassed by the term security that, in turn, may bear a positive or a negative meaning according to the specific context of utterance. The formulation "social security", for instance, tend to bear a positive meaning in nowadays European societies, while an expression such as "coercive security" is a much more contested field.

Pavone and Degli Esposti summarise security as «the right and duty of national governments to ensure citizens' personal safety» (2012, p. 558). In this case, they argue, security is presented as "freedom from fear" as in Manners (2006, 192) or "human security" (Liotta and Owen 2006, 40).

As a conclusive remark, it is relevant to highlight that Guild, Carrera and Balzacq state that security, differently from privacy, «is not a value as such» (2008, p. 9).

4.2.1.3 Privacy

Already in 1980, Gavison (1980, p. 423) provides a general definition of privacy, as «the extent to which we are known to others, the extent to which others have physical access to us, and the extent to which we are the subject of others' attention». The concept of privacy varies across space and time, being continuously shaped by socio-economic, political, cultural, and technological factors. Changes in technology, more particularly, «have continually required a more precise re-working of the definition in order to capture the ethical and legal issues that current and emerging surveillance and security technologies engender» (Friedewald et al. 2015, 41). Such instability led to the point reported by Solove, when he states: «Privacy is a concept in disarray. Nobody can articulate what it means» (2006, 477).

More recent definitions of the term, however, show that the focus still lays on the issue of availability of sensitive information – not necessarily data in the strict sense of the term – pertaining to individuals. According to Riley (2007), privacy is defined as the right to have one's personal information protected vis-à-vis the government and/or private organisations interested in accessing them for trade, profit or other uses which exceed the exceptional circumstances defined by the law. Such definition introduces the aspect of exceptional circumstances which, according to this perspective, limit the exercise of the right to privacy.

To further tackle the ambiguity of the definition of the concept, (Finn, Wright, and Friedewald 2013, pp. 7-9) identify seven typologies of privacy:

- privacy of the person
- privacy of behaviour and action
- privacy of communication
- privacy of data and image.
- privacy of thoughts and feelings.
- privacy of location and space.
- privacy of association (including group privacy).

4.2.2 From Security to Securitisation

The shift from an abstract idea of *security* – and of *surveillance* as the complex of means through which this is guaranteed– to securitisation as a process derives from a socially constructed idea of security. As Léonard pointed out, «what security scholars can and should study is the process through which an issue becomes socially constructed and recognised as a security threat» (Léonard 2010, 235). It follows that securitisation policies and practices address issues that have been 'securitised' (i.e., constructed as such through securitising discourses).

What is meant as discourse vary from author to author: some scholars consider discourses mainly as speech acts (Wæver 1993), while others consider them as performative practices in the broader sense, ranging from administrative tools to the deployment of technical knowledge (Bigo 2000). Léonard (2010) remarks that, in the EU context, securitisation processes have been mainly enacted through practices. The EU, indeed, does not possess the same power of national, sovereign States in terms of the utterance of securitising speech acts. At the same time, the EU complex institutional structure, with its thick network of regulations and other legislative and administrative tools, convey strong securitisation practices.

Following a similar path, when discussing the issue of securitisation, Kinnvall and Svensson define it as a "pragmatic act", consisting of: «(i) a relatively stable system of heuristic artefacts or resources (metaphors, image repertoires, stereotypes, emotions), (ii) discursively mobilized by an agent, who (iii) works persuasively to prompt a target audience to build a coherent network of implications (feelings, sensations, thoughts, intuitions) that concurs with the enunciator's reasons for choices and actions, by (iv) investing the referent subject with such an aura of unprecedented threatening complexion that (v) a customized political act must be undertaken immediately to block its development within a specific spacetime continuum or a social field» (2014, 2).

Such logic is clearly at play when migration policies are framed as a response to a security threat (Léonard 2010; Kinnvall and Svensson 2014), in particular policy fields, such as EU external borders control.

4.2.3 Surveillance-Oriented Security Technologies

Securisation processes are increasingly characterised by the use of new technologies, defined as SOSTs (surveillance-oriented security technologies). Among others, two remarkable examples of these are the use of biometrics and the deployment of drone technology.

The definition of specific infrastructures for data storage and exchange is often needed for the implementation of SOSTs (Pavone and Degli Esposti 2012) and poses new challenges in terms of privacy and data protection. This is as thoroughly analysed in Marin (2017), concerning the use of drone technology in border surveillance.

In a historical context in which technology could have bridged the gap between institutions and citizens, SOSTs development seems to be trapped in what has been called a proximity paradox (Lodge 2005): the increasing closeness between institutions and citizens raises concerns and suspicions more than trust and legitimisation.

The relationship between security and privacy, often conceived as a balance, appears thus now more complex than ever before. As underlined by Pavone and Degli Esposti, SOSTs engage citizens in the controversial process of trading «part of their privacy in exchange for enhanced security» (2012, 558) and even to take on themselves the burden of proof (Argomaniz, Bures, and Kaunert 2015, 200). Similar dynamics are particularly questionable since it is difficult to quantify the effectiveness of these technologies in promoting security while safeguarding fundamental rights and the rule of law (Argomaniz, Bures, and Kaunert 2015; Guild, Carrera, and Balzacq 2008).

Dratwa (2017) defines the current state of SOSTs development as "beta" and, consequently, marked by the ambivalent processes of both exploitation and empowerment of citizens' rights. More specifically, in the European context the development of SOSTs increased the need of structured relationships between the EU and Member States: such need has often resulted in a trigger of competition among national and international institutions (Guild, Carrera, and Balzacq 2008).

5 ARESIBO PARTICIPATORY MODEL – A THREE-COMPONENTS METHODOLOGICAL FRAMEWORK

This section builds both upon the results of the Literature review (i.e., presented in Sections 2, 0 and 1) as well as on to existent and consolidated frameworks for analysis and implementation of engagement/involvement activities (i.e., Institutional framework of Common-pool resources management – Ostrom, Gardner and Walker, 1994 and Civil participation framework of the Council of Europe – ISIG/CoE 2017), and aims to advance the methodological components of the ARESIBO Participatory Model (i.e., APM)

The ARESIBO Participatory Model entails 3 components (i.e., methodological, strategical, and operational) as follows:

- **ARESIBO Participation Framework** (i.e., APF) – the methodological component of the model which entails a conceptual framework within which the targets and methods of involvement are defined.
- **ARESIBO Participation Strategy** (i.e., APS) – the strategical component of the model, detailing the goals and specific objectives of involvement for a specific context (e.g., ARESIBO pilot communities).
- **ARESIBO Participation Action Plan** (i.e., APA) – the operational component, detailing the operational steps and tools to be implemented by partners in the involvement process, as well as the tools for the monitoring and evaluation of such process.

The following paragraphs aim to illustrate the details of each of the above-mentioned components.

5.1 ARESIBO Participation Framework

Ostrom, Gardner, and Walker (1994) describe the functioning of common pool resources management through a framework, where the attributes of physical world, the attributes of community and the rules-in-use contribute to shape an action arena, where action situations (i.e., the chance for actors to interact, exchange resources, knowledge etc.) and actor themselves are included. The action arena results in some patterns of interaction which produce an outcome. The outcome is then considered as the object of evaluative criteria.

The institutional framework applied to the analysis of common-pool resources management is represented in the following figure:

INSTITUTIONAL FRAMEWORK

```
Attributes of
Physical
World

Attributes of
Community

Rules-in-use
```

```
Action Arena

    Actors

    Action
    Situation
```

```
Patterns of
Interactions

Outcomes

Evaluative
Criteria
```
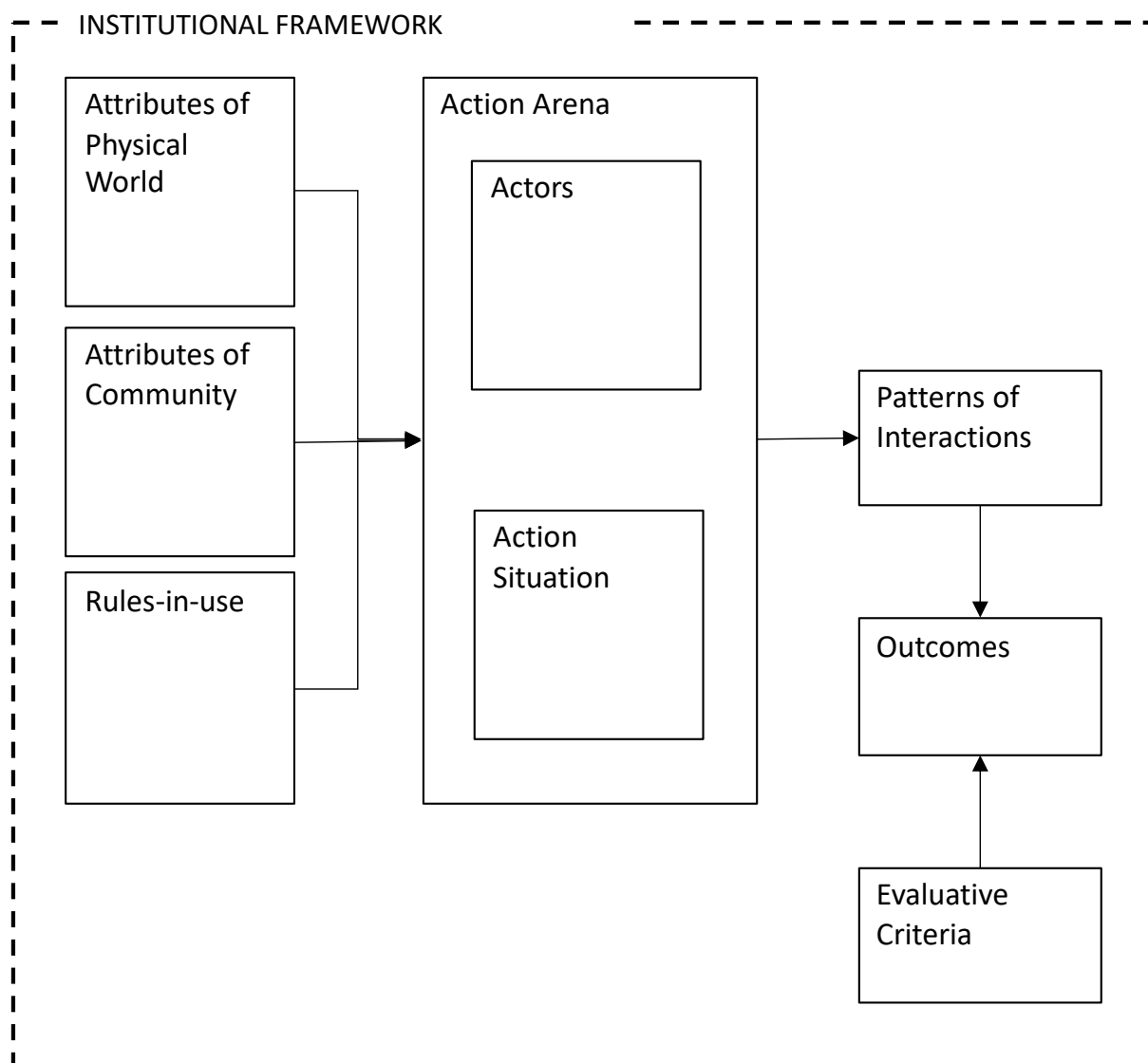
Figure 11 – Institutional framework applied to the analysis of common-pool resources management

For the purpose of APF, the Action arena is understood as the SOST development process. To this end, the above-mentioned framework was interpreted for the purpose of elaborating the APF as illustrated by the following figure:
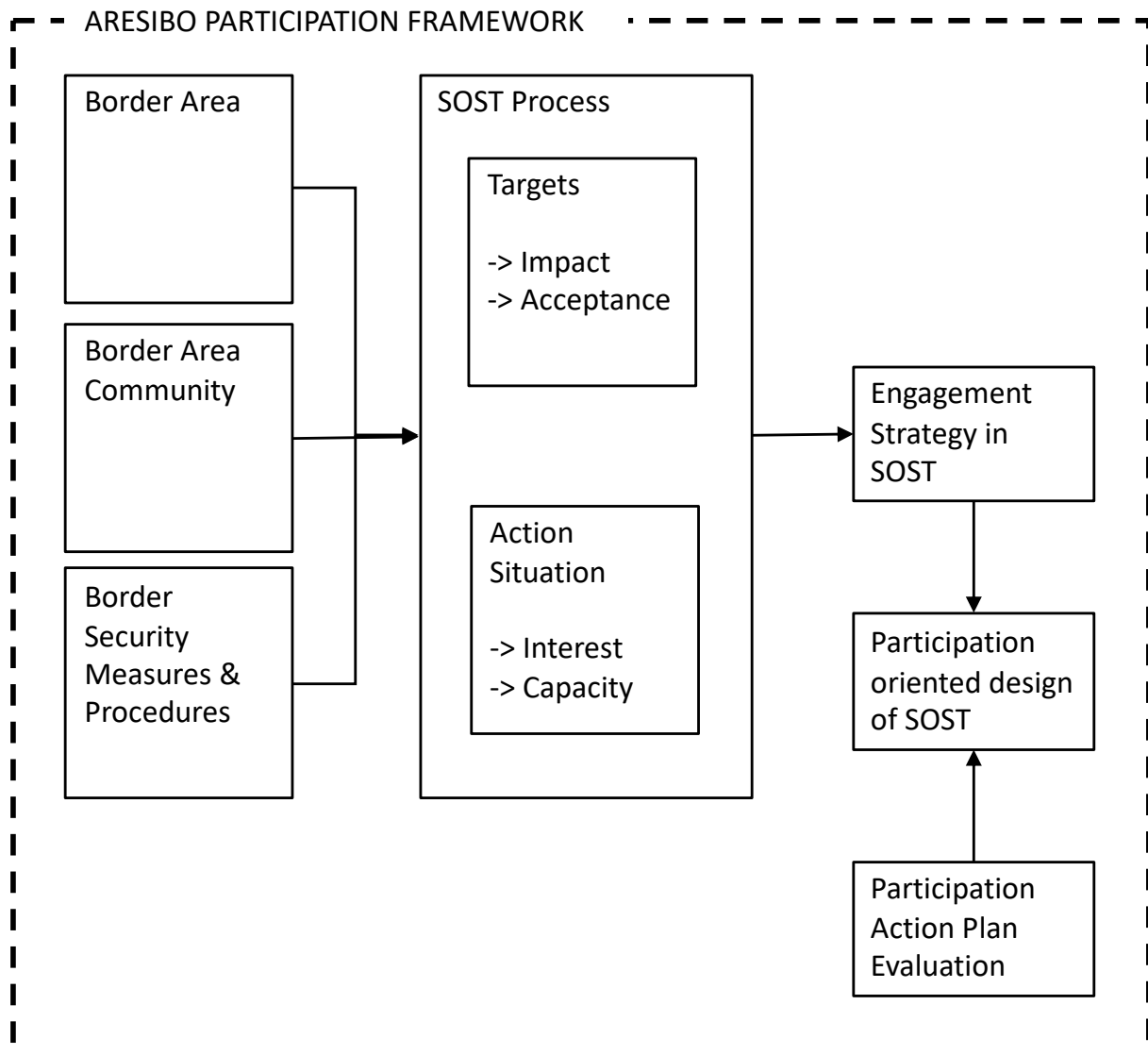
Figure 12 – ARESIBO Institutional Framework

The following paragraphs intend to provide a detailed explanation of the APF, in terms of concepts, interactions and expected outcomes.

- **Attributes of the physical world** – is intended within the APF as the **Border Area** under focus for the purpose of designing and implementing involvement activities. The 'physical world' is described in this sense by geographic and infrastructural elements that characterise the border area at stake. Specifically, for the purpose of ARESIBO, border areas under analysis are given by the project demo-sites/pilots.
- **Attributes of Community** – is intended within the APF as the **Border Area Community** composed by:
  - the border conurbation (i.e., administrative units on both sides of the border, 'affected'/influenced by its presence);
  - the variety of institutional actors of the overall border governance and management system (i.e., intra-national authorities and agencies, inter-national authorities and agencies, etc.)
- **Rules-in-Use** – are intended within the APF as the set of Border Security measures and Procedures in place at a specific border.

The above-mentioned elements, shape thus the Action Arena of the APF (i.e., SOST development process) within which Action situations and Actors of the future involvement activities are identified, for the purpose of the APF.

5.1.1 Identifying targets for the ARESIBO Participatory Model

For what concerns the '**Actors**', they are intended within the APF as the **Targets of the future involvement activities**.

The results of the analysis illustrated in Section 2 show how, the definitions of the Targets of Involvement (i.e., stakeholders, actors, end-users) tend to overlap and in particular those of actor and end-user take the concept of stakeholder as a reference point. The research however, highlighted some specificities of the three concepts which might be taken into account while designing an involvement/participatory model.

As stakeholders are defined as such according to the issue at stake – and interests/claims seem to be their most remarkable characteristic – the schematization implicitly or explicitly proposed by this term allows for a brief and clear analysis, even though it may oversimplify the analysed context by putting in the background relevant relationships among stakeholders. For this reason, stakeholder analysis could be integrated with actor analysis, which takes into consideration a process – rather than a static stake – as the context where relationships among actors develop. This analysis, which standing alone may result in less operational outcomes, could shed light on relevant aspect of the context of action otherwise neglected by the stakeholder analysis.

Eventually, end-user analysis may be useful to differentiate among those who are, or perceive to be, affected by, or capable to affect the analysed issue, and those who directly use a specific resource, good, service, instrument etc.

The following table further summarises the main findings of the literature review presented in the previous paragraphs.

Table 32 – Definitions of stakeholder, actor and end-user

	Official definitions	EU funded research	Academic research	Semantic analysis	EU funded projects
Stakeholder(s)	Affection Interest Knowledge	Interest Influence Responsibility	Claim Influence		Impact
Actor(s)	-	Public/private/ third sector Enabling/ beneficiaries	Synonymous of S Play Participation Interaction Formal/ informal Profit/ non-profit Public/private		Institutional/ research As
End-user(s)	Ultimate user Costumer Competent authority	Final user	Interaction with an item		Synonymous of Stakeholders

Building upon the above definitions, the APF proposes a Taxonomy for further identification of targets, that considers two types of dimensions that ultimately describe the relation between the future target and the SOST development process and related end-results/product, that is impact and acceptance.

By analysing targets based on these dimensions it will be possible to highlight their potential relevance in the involvement process, specifically in terms of the type of information/feedback/ insights that will have to be collected.

The two types of dimensions are described thus, as follows:

- **Impact** of the SOST development process – What type of impact will the final results of the SOST development have on the target? In this sense impact is articulated in two dimensions:
    a. **Direct impact** – the target has a direct relation with the products/end-results of SOST development process, such as direct deployment of the product or direct exposure to the product.
    b. **Indirect impact** – the target has an indirect relation with the products/end-results of SOST development process. The target is not exposed to the product.
- **Acceptance** of the SOST development – What type of acceptance is expected from the target in relation to the results of the SOST development process? What kind of feedback is thus envisaged from the target? In this sense acceptance is articulated in two dimensions:
    a. **Technical acceptance** – the target expresses ultimately its levels of acceptance with the deployment of the product, thus with the usability of the product.
    b. **Societal acceptance** – the target expresses ultimately its levels of acceptance with the perceived effects of the deployment of the product in a specific (societal) context.

Ultimately, the Taxonomy for Targets identification, allows for depicting four main profiles of Targets of involvement: Citizens, Stakeholders, Actors and End-users.
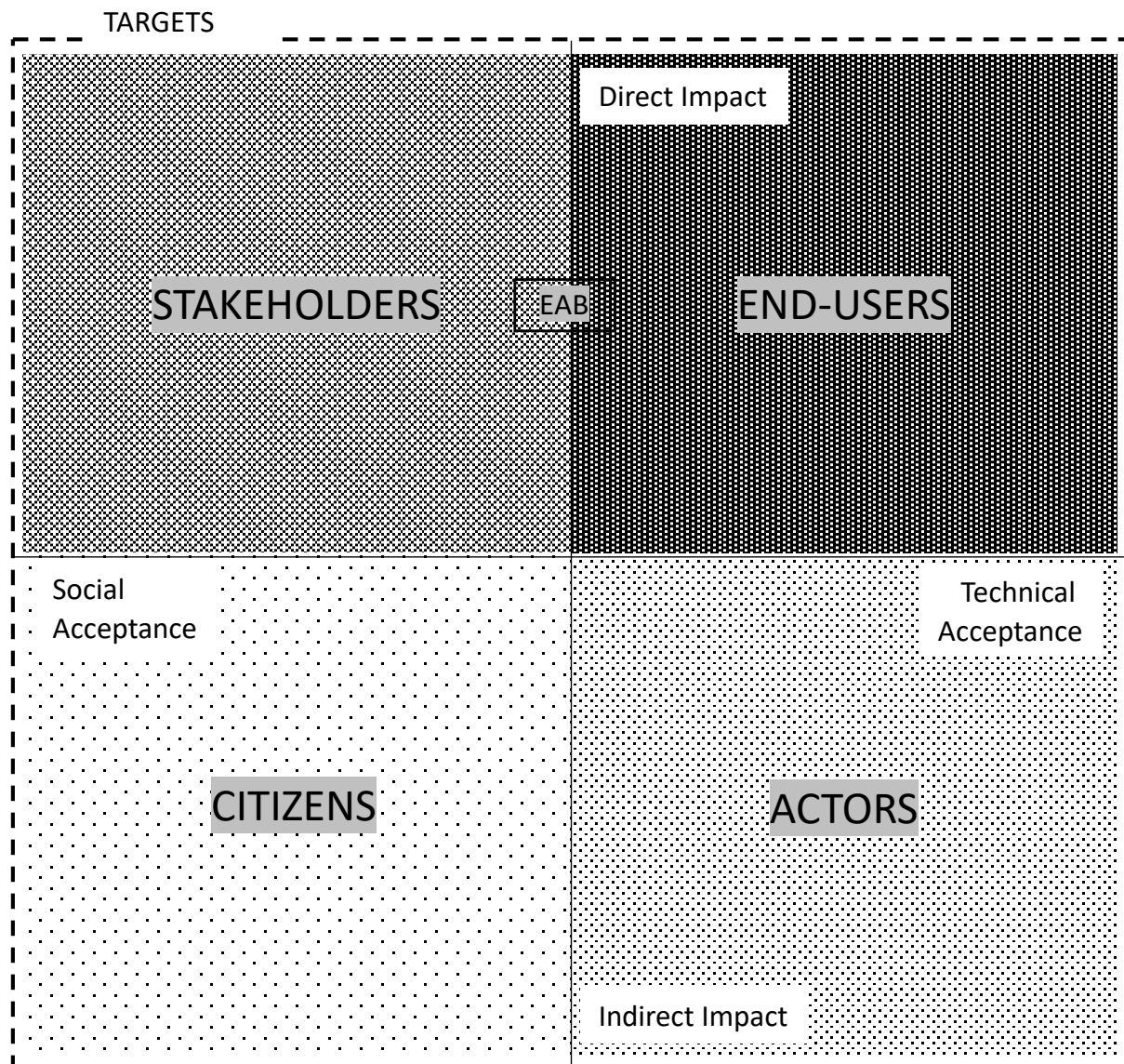
Figure 13 – Taxonomy for Targets' identification

The four Target profiles defined by the taxonomy may be described as follows:

1. **Citizens** – this profile of involvement target is characterised by means of Societal acceptance and Indirect Impact variables. The end-result of the SOST development process impacts indirectly on the target insofar as the target is not necessarily exposed to the product and does not deploy it directly. Similarly, the target may express its levels of acceptance with the product in terms of the perceived effects of the potential deployment of the product generally, in society and not with reference to a specific case.

2. **Stakeholders** – this profile of involvement target is characterised by means of Societal acceptance and Direct impact variables. The end-result of the SOST development process impacts directly on the target insofar as the target is exposed directly to the product (e.g., member of a border community). Furthermore, the target may express its levels of acceptance with the product in terms of the perceived effects of the potential deployment of the product in a specific (societal) context.

3. **Actors** – this profile of involvement target is characterised by means of Technical Acceptance and Indirect Impact variables. The end-result of the SOST development

process impacts indirectly on the target insofar as the target is not necessarily exposed to the product and does not deploy it directly. The target, however, may express feedbacks/insights related to the deployment of the products.

4. **End-users** – this profile of involvement target is characterised by means of Technical Acceptance and Direct Impact variables. The end-result of the SOST development process impacts directly on the target insofar as the target deploys the products. Furthermore, the target may express its levels of acceptance with the product in terms of usability.

Moreover, the ARESIBO Participatory Model envisages the engagement of the EAB[12] – External Advisory Board. For the purpose of the APF, the EAB is envisaged as transversal to the Stakeholders and End-users categories.

5.1.2 Identifying the Action Situations for the ARESIBO Participation model

Following the Institutional Framework model proposed by Ostrom, the Action situations describes within the APF the potential interactions of the identified targets within the Action arena – that is to say within the SOST development process.

For the identification of the potential Action situations, the APF proposes a Taxonomy that considers two types of dimensions that ultimately describe the potential interaction of the identified target and the SOST development process itself, that is Capacity and Interest.

The two types of dimensions are described thus, as follows:

- **Capacity** of the target in relation to SOST development process – Capacity is understood as the type/level of knowledge of the target vis-à-vis the SOST development process. What kind of knowledge does the target have? What kind of feedback/info/insights can be requested from the target? Ultimately what is the target's relevance for the SOST development process?

In this sense capacity is articulated in two dimensions:

a. **Context capacity** – defining a high level of awareness/knowledge on the specific (societal) context at stake.
b. **Technical capacity** – defining a high/expert level of technical knowledge on the SOST.

- **Interest** of the target towards SOST development process – Interest is understood as the level of willingness of the targets to engage in the interaction, for the purpose of the SOST development. What is the incentive that motivates the target to engage?

In this sense interest is articulated in two dimensions:

a. **Direct interest** – targets that show a high willingness to engage in/feedback on the development process.
b. **Indirect interest** – targets with low willingness to engage in/feedback on the development process.

Ultimately, the Taxonomy of Action situations, allows for depicting four main patterns of interaction, as follows: Information, Consultation, Dialogue and Partnership.

---

[12] This deliverable reports on the first results of the engagement of the EAB in Annex 8.1
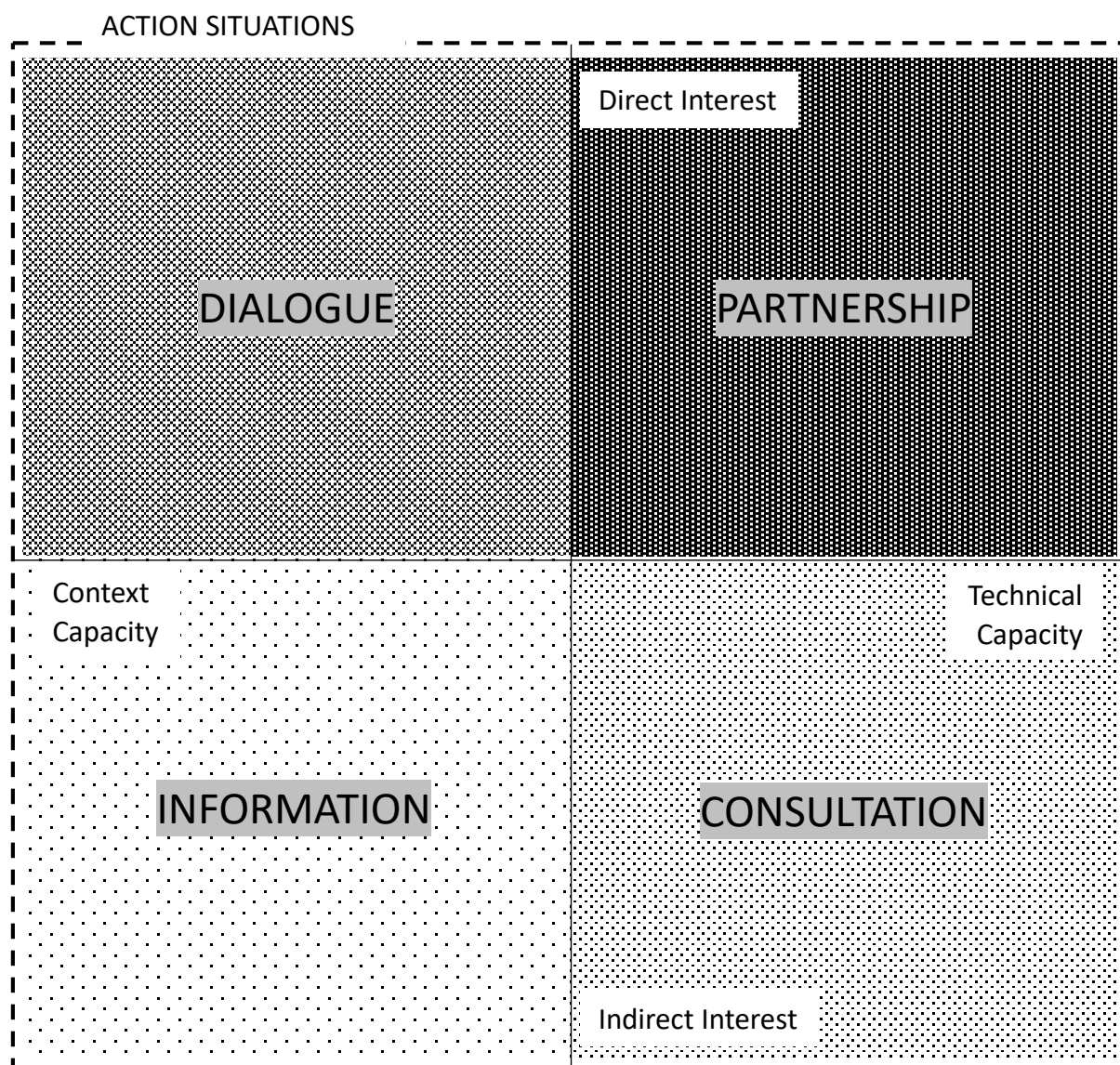
ACTION SITUATIONS

Figure 14 – The Taxonomy of Action Situations

1. **Information** – this action situation considers targets characterised by Context Capacity and Indirect Interest variables. Targets do not play an active role in the involvement process, but rather they are considered as recipients of general information regarding the development process at stake. This pattern of interaction aims thus to ensure overall visibility and to provide general information to the public (i.e., understood as the representatives of a specific community where an involvement process is foreseen).

2. **Consultation** – this action situation considers targets characterised by Technical Capacity and Indirect Interest variables. This action situation considers thus targets with expert/technical knowledge that, however, do not have a direct stake/interest of being involved. For this purpose, such action will be characterised mainly by targeted/sporadic consultation activities, focused mainly on the context.

3. **Dialogue** – this action situation considers targets characterised by Direct interest and Context capacity variables. This pattern of interaction is characterised by structured exchanges with targets mainly focused on context related aspects.

4. **Partnership** – this action situation considers targets characterised by Direct interest and Technical capacity variables. This pattern of interaction is characterised thus by structured exchanges focused mainly on technical aspects.

5.1.3 Identifying patterns of interaction and engagement methods for the ARESIBO Participation model

Based on the combination of elements within the Action Arena (i.e., type of targets and type of action situations), the interaction patterns are defined. For the purpose of the APF, patterns of interaction are described as the 'Engagement process in SOST', which identifies, for each of the potential pattern of interaction (i.e., combination of target and action situation) the specific tools and procedures for involvement.

In a nutshell, the engagement process defines:

- Who is involved – type of target.
- What is the purpose/goal of the involvement – action situation.
- How is the involvement activity carried out – tools, channels, and procedures.
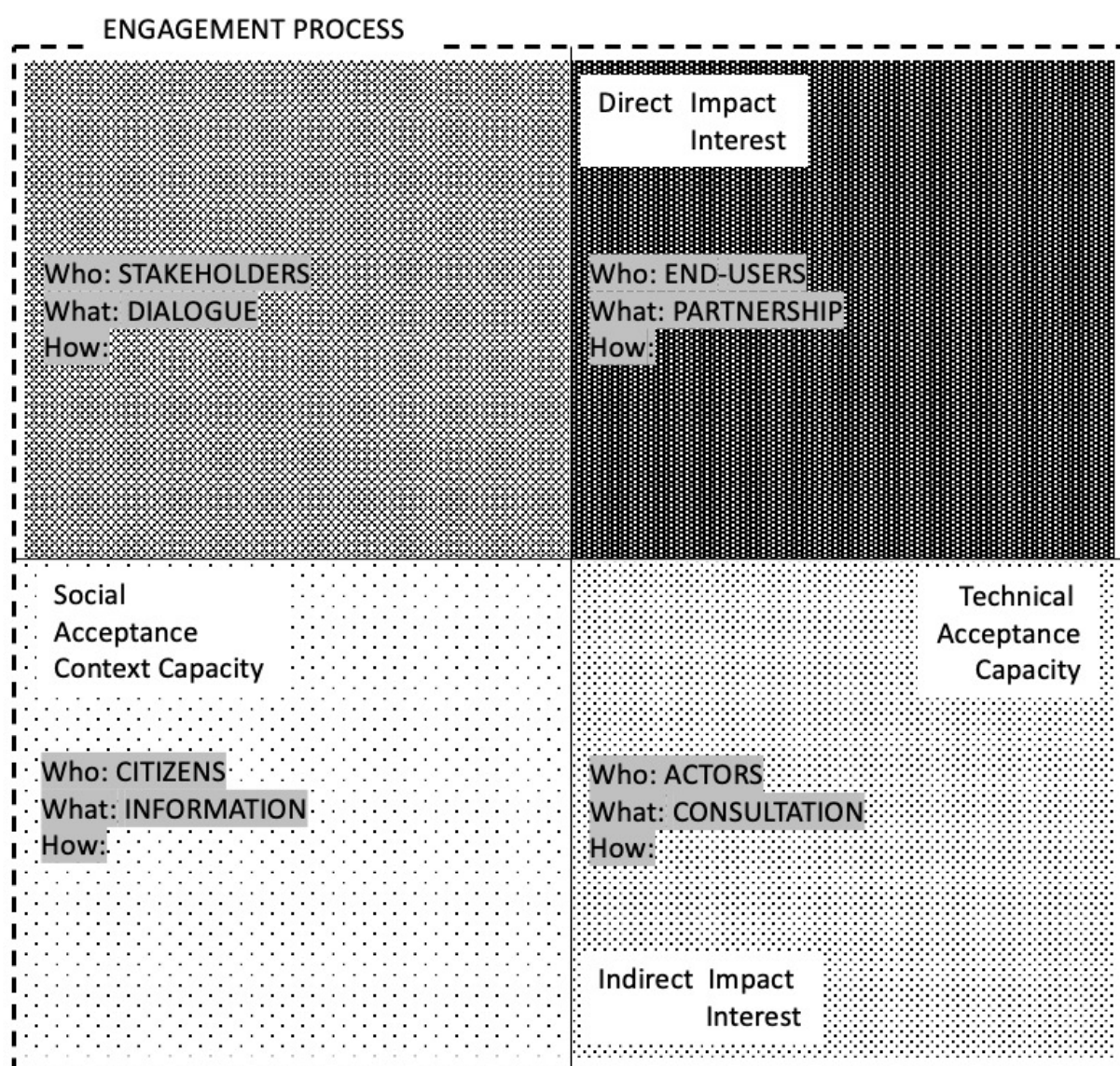
Figure 15 – Engagement Process

The analysis on involvement tools carried out in Section 0 shows some similarities and differences in the predominantly proposed methodologies for every developed framework:

while for instance stakeholders seem to be mainly addressed through dialogue, aggregation based on interests and shared goals, as they are expected to be challenged through their interest at stake, actors are called into action through tools like multi-criteria analysis since knowledge and capabilities are two main features through which are taken into consideration. End-users are often mentioned in relation to the establishment of feedback mechanisms, thus building on their experience as final users of products, tools or services.

Table 33 – Tools of involvement

	EU funded research	*Academic research*	*EU funded projects*
Stakeholder(s) Involvement	Target of inquiry, communities of interest, dialogue, participatory modelling process	Surveys, multi-criteria analysis, facilitated dialogue, living lab, co-creation	Collective meetings
Actor(s) Participation	Multi-criteria analysis, knowledge centres	User Participation Quality Assessment, ex post evaluation, cognitive mapping	Collective meetings, participatory multi-criteria analysis
End-user(s) Involvement	Feedback mechanisms, interaction developers-end-users	Feedback processes, involvement	Interviews, collective meeting, online platform

5.1.4 The participation dimensions of the ARESIBO Participation Model

Ultimately, the APF allows for the identification of 8 dimensions that describe the involvement/participation framework regarding the SOST development process, as follows:

1. Direct impact
2. Technical acceptance
3. Technical capacity
4. Indirect interest
5. Indirect impact
6. Societal acceptance
7. Context capacity
8. Direct interest

The 8 dimensions are deployed in the APF with a twofold objective:

1. Performing an initial context analysis (i.e., SWOT analysis) that will shape the Action Plan for a Participation oriented SOST development.
2. Performing monitoring and evaluation activities (i.e., evaluative criteria) on the implementation of the Participation oriented SOST development (i.e., involvement activities).
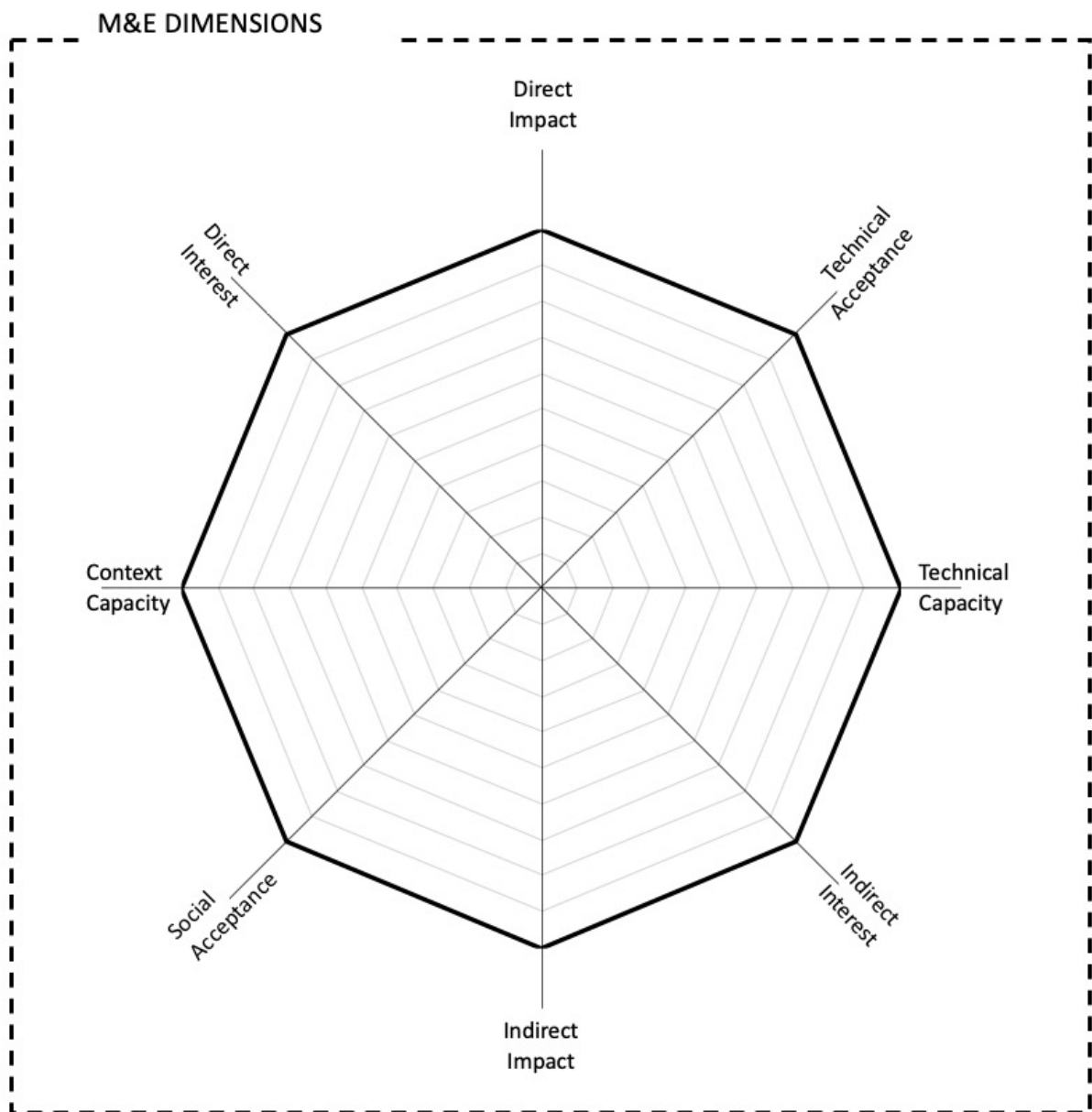
Figure 16 – The Dimensions of Civil Participation

M&E DIMENSIONS: SCENARIOS
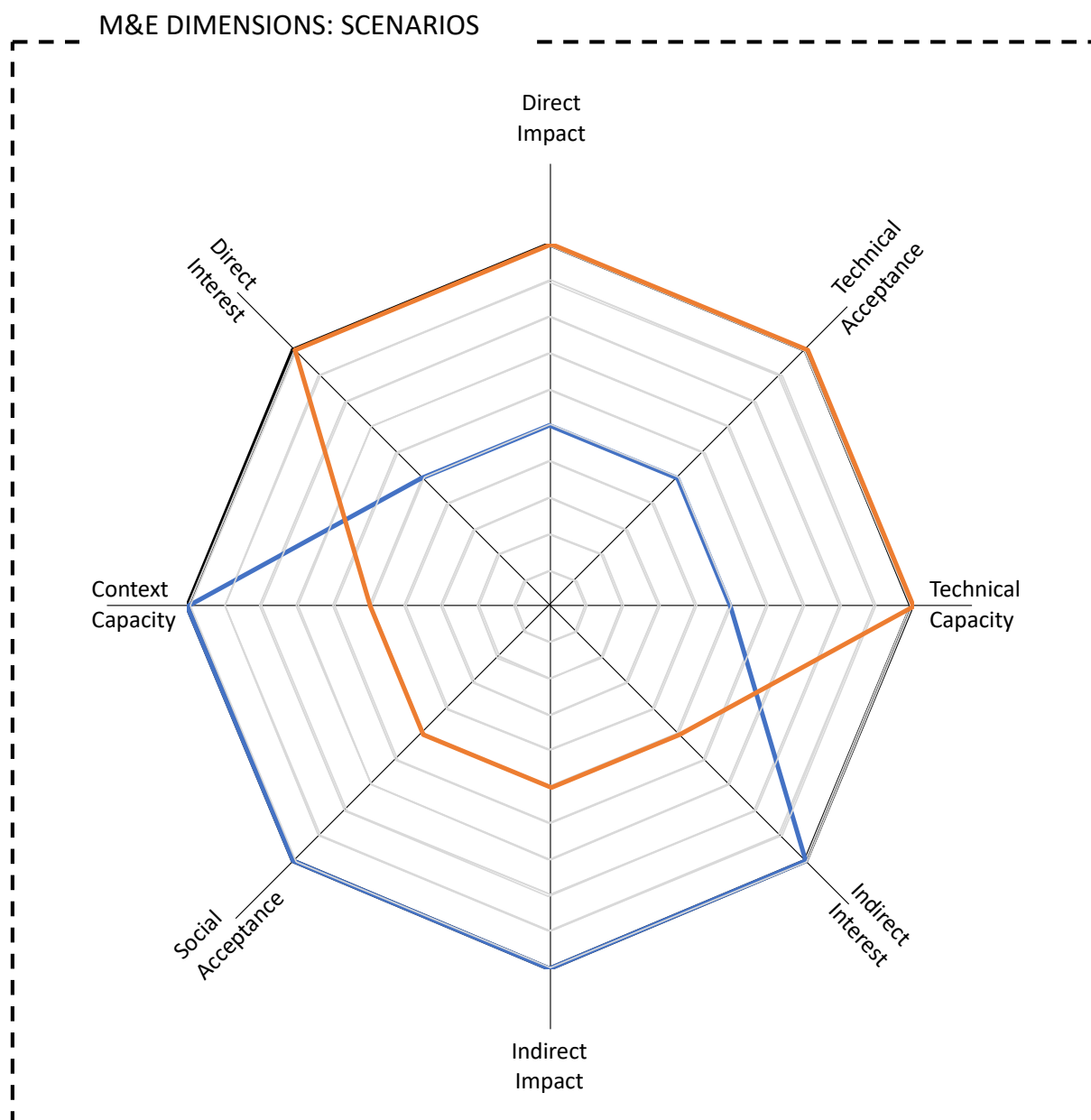
Figure 17 – An example of context analysis through the 8 dimensions

5.2 The ARESIBO Participation Strategy

As mentioned above, the APM aims to ensure a coherent and standard framework within which different relevant targets (i.e., citizens and communities, stakeholders, actors, and end-users) are efficiently and effectively involved in the development process of ARESIBO technologies across the project cycle.

The ARESIBO Participation Strategy aims to define the goals and specific objectives of involvement for specific activities (e.g., pilots) and contexts (e.g., ARESIBO pilot communities).

5.2.1 Vision and values

The ARESIBO participation strategy aims to ensure that all ARESIBO products are developed so to be:

- Useful to and owned by end-users and actors.
- Accepted by and relevant for stakeholders and citizens.

In order to do so, the APS sets as overall objectives of all ARESIBO involvement activities, the following:

1. Clearly mapping the targets of involvement in each ARESIBO pilot site – according to the categories envisaged by the APF (i.e., citizens, stakeholders, actors, end-users), both within and beyond the project consortium (i.e., internal and external).
2. Engaging both internal and external targets so to gather feedbacks on usability, relevance, usefulness of ARESIBO tools (i.e., from end-users and actors), as well as on overall perceived impact and level of societal acceptance of the tools (i.e., citizens and stakeholders).
3. Ensuring that all project partners are equipped with the tools and the capacity to contribute to the engagement process.

5.2.2 Mission: principles and values

The engagement strategy promotes a Co-creation approach in the SOST development process, thus fostering a structured engagement of targets in different phases of the project.

Such an approach establishes a constant dialogue between partners developing the ARESIBO products (i.e., technical partners) and partners end-users (e.g., FBG, Marinha, etc) throughout the entire cycle of the development process.

The approach is structured in two main phases, as follows:

- **Co-design** – engagement activities aimed at the identification and analysis of problems and related solutions. Such activities refer to the initial phase of the development process and serve the purpose of identifying specific user needs and requirements (i.e., within the framework of WP2 activities).
- **Co-production** – engagement activities aimed at the implementation/testing of the proposed solutions. Such activities refer to the implementation phase of the development process and serve the purpose of feedback gathering to check the compliance with identified needs and requirements (i.e., within the framework of WP7 activities).

Moreover, the involvement activities will be designed so to reflect the following core values:

- **Participation** – Targets of involvement are at the centre of the ARESIBO SOST development process and they are involved in clearly defined ways. The tools and methods of involvement, as well as the objectives of the involvement activities (e.g., co-design, co-production) are clearly and timely communicated by the promoters of the engagement activity (i.e., Task leader, WP leader, Task owners, etc.).
- **Responsiveness** – Partners promoting involvement activities (i.e., Task leaders, WP leaders, Task owners) establish clear channels and procedures of communication with targets and ensure a timely reply to y requests.
- **Efficiency & effectiveness** – Involvement activities are planned to capitalise on existing resources, such as financial resources, human resources, time, etc.
- **Openness & transparency** – Results of involvement activities are communicated to targets (e.g., reports, minutes of the meetings, etc.).
- **Innovation** – Involvement activities are designed so to allow for COVID-19 safe interactions (e.g., use of online platforms and tools for interviews, online surveys, etc.).

- **Diversity** – Involvement activities are designed in respect of diversity and promoting gender mainstreaming.
- **Accountability** – Promoters of involvement activities are clearly identified in all stages of the process and are fully accountable towards targets.

5.2.3 Incentives for participation

Finally, in order to sustain the involvement activities, attention should be paid to viable incentives for participation.

In the field of research design an incentive is usually proposed as a strategy to increase recruitment and retention (Bower et al. 2014); more generally, an incentive operates to overcome barriers which prevent relevant/interested actors from participating in a research process, and to enhance positive side effects resulting from the participation. Barriers are those linked with time, effort, or financial costs, as well as discomfort in relation with research procedures.

Taking the perspective of economic theory, as proposed in Parkinson et al. (2019), an incentive can be framed as a contract between a principal and multiple agents.

The literature often warns about the side effects – being positive and/or negative, thus unintended – of incentives on the research process. Altruistic benefits and recognition as key actors in the research process may be taken into consideration as positive side effects embedded in the research procedures: such positive effects may be labelled as "implicit" incentives, when they are not explicitly stated as such (Parkinson et al. 2019). Incentives may produce also unintended, negative consequences, for instance benefiting specific groups of stakeholders more than others. Indirect psychological effects of incentives should be taken into account as well (Gneezy, Meier, e Rey-Biel 2011), as, for instance, the presence of incentives may lead potential participants to consider the participation to a research process difficult and unpleasant.

Incentives may be grouped in two macro-areas:

- Monetary
- Non-monetary incentives (Parkinson et al. 2019).

Incentives may also be divided into:

- Material, or tangible.
- Non-material, or intangible ones (Tang 2005).

More specifically, Tang (2005) proposes to classify incentives in:

- **Material** – Tangible rewards, being monetary or non-monetary.
- **Purpose-driven** – Intangible and intrinsic rewards derived from the fulfilment of personal goals.
- **Social** – Intangible and intrinsic rewards derived from the sense of being-in-society.
- **Status** – Intangible rewards, such as prestige and recognition, which can boost motivation and morale.

The following table summarises the main typologies of incentives quoted in the selected literature:

Table 34 – Incentives for participation

Incentive	Typology (according to Tang 2005 and Parkinson et al. 2019)	Description	Quoted in
Payment	Material, monetary	A payment is a direct transferring of money in exchange of participation to a research process.	(Tang 2005; Black et al. 2013; Schroeder et al. 2016; Parkinson et al. 2019)
Provision of additional services	Material, non-monetary	Additional services reserved for the participants to a research process may be activated as an incentive, or rather compensation for time-consuming activities (e.g., dedicated transportation service for a meeting with participants).	(Tang 2005)
Lottery	Material, monetary	A lottery provides for randomized payment of participants to a research process.	(Parkinson et al. 2019)
Access to new technologies	Material, non-monetary	Participation to research processes may disclose new technology useful for participants' businesses, for instance when participants are involved in prototyping or testing activities which can be embedded in their usual business activities.	(Ortiz et al. 2011)
Reward/monetary prize	Material, monetary, purpose-driven	A monetary prize is a direct transferring of money occurring when participants to a research process fulfill a goal, or perform a specific behaviour (for instance, attending to all the phases in which their participation is requested). It incorporates both material and purpose-driven incentives.	(Parkinson et al. 2019; Oxford City Council 2014)
Reward/non-monetary prize	Material, non-monetary, purpose-driven	A monetary prize is a direct transferring of goods or services occurring when participants to a research process fulfill a goal, or perform a specific behaviour (for instance, attending to all the phases in which their participation is requested). It incorporates both material and purpose-driven incentives.	(Tang 2005; Oxford City Council 2014)
Expanded opportunities for professional development	Purpose-driven, non-monetary	Participants may access to new opportunities in their professional/business field as a direct result of research activities and/or dissemination activities.	(Black et al. 2013)
Access to additional information	Purpose-driven, non-monetary	Participants may access to valuable information while involved in research activities.	(Ortiz et al. 2011)

Networking	Social, non-monetary	Networking opportunities result from the participation process itself, i.e., the possibility to interact with other participants and create new networks of interest, thus strengthening participants' social capital. It can be enhanced by providing for specific settings for the interaction among participants across the participation process.	(Tang 2005; Black et al. 2013; Ortiz et al. 2011)
Exposure/Public acknowledgement	Status, non-monetary	Participants' effort, which may implicitly be recognized through the participation process itself, can be enhanced by researchers through the definition of specific communicative and performative actions, such as information to the general public or specific audiences, or the organization of convivial moments.	(Tang 2005; Black et al. 2013)

5.3 The ARESIBO Participation Action Plan

The ARESIBO Participation Action Plan represents the operationalisation in concrete activities of the overall ARESIBO Participatory Model.

The APA represents a live document that provides the operational steps and tools to be implemented by partners in the involvement process, as well as the tools for the monitoring and evaluation of such process.

The APA establishes, for each involvement activity the following:

- **Responsibilities** – ownership of involvement activities (i.e., WP, Task leaders).
- **Objectives** – what is scope of the involvement activity at hand (i.e., co-design, co-production) and who are the targets (i.e., citizens, stakeholders, actors, end-users).
- **Outputs** – desired tangible results of the involvement activities (e.g., type of data/feedback collected from targets).
- **Timeframe** – setting the involvement activities in the overall project GANTT.

The APA will be structured and implemented within the framework of the activities of T1.4 and a detailed report will be provided in Version 2 of this deliverable.

The following table intends to map all project tasks that entail involvement activities. The table sets the first draft of the APA and will be updated in the v2 of this deliverable.

Table 35 – ARESIBO Action Plan V1

Tasks	Target of involvement	Aim	Tools	When
Task 1.3 – Coordination with stakeholders	Relevant expert from EU and Associated Countries Members of the EAB	Validation of project results Dissemination of project results	Workshops (at least 2) EAB meetings (twice a year)	Throughout the whole project: 1 Workshop at the beginning of the project 1 Workshop prior to cross-border exercise *Ad hoc* EAB meetings EAB meetings on the occasion of project Plenary Meetings
Task 1.4 – Legal, Ethical and Social Issues Management	Citizens and stakeholders	Gathering insights with reference to the impact the project could have at the societal level	Workshops (at least 3)	Throughout the whole project: 3 Workshop on the occasion of demonstrations and field trials at pilot sites
Task 2.1 – User requirements for border security operations	(project) End-users	Identify the overall user requirements of the ARESIBO system	Workshops Questionnaires	First 22M of the project: *Ad hoc* end-users' workshops and questionnaires
Task 2.2 Cognitive and UX requirements for enhanced situation awareness	(project) End-users	Analysing users' cognitive aspects and requirements linked to Augmented Reality (AR) tools and equipment	Workshops Questionnaires	First 22M of the project: *Ad hoc* end-users' workshops and questionnaires
Task 2.3. – Security, data privacy and confidentiality requirements	(project) End-users	Specification of security, data privacy and confidentiality requirements	Workshops Questionnaires	First 22M of the project: *Ad hoc* end-users' workshops and questionnaires
Task 2.4 – Ethical, legal and social requirements for border security (T2.4.1 Identification of relevant dimensions in border security/management)	(project) End-users	Identification of relevant dimensions in border security/management	Workshops Questionnaires	First 22M of the project: *Ad hoc* end-users' workshops and questionnaires

Task 2.4 – Ethical, legal and social requirements for border security (T2.4.3 Citizens' acceptance and perception of security and monitoring technologies)	EU and non-EU citizens	Analysing citizens acceptance and perception of security and monitoring technologies	(on-line) Questionnaires	Second half of project implementation
Task 7.1 – End-user evaluation methodology based on human factors and UX	(project and external) End-users	Evaluation of the ARESIBO system and its components	Workshops Questionnaires	Second half of project implementation: End-users' workshop on the occasion of demonstrations and field trials at pilot sites
Task 8.1 – Community Building	All the identified target groups	Building a community of ARESIBO members (i.e., border authorities, law enforcement agencies, stakeholders, practitioners, experts, scientists, etc.) Raising awareness of ARESIBO results Collecting stakeholders' feedbacks	On-line activities Workshops Conferences	Throughout the whole project
Task 8.3 – Dissemination and Communication activities	All the identified target groups	Planning and implementing project's communication activities	On-line activities Workshop Conferences	Throughout the whole project

Moreover, in order to ensure an efficient implementation of the involvement activities, monitoring and evaluation actions are envisaged by the APA – such actions are embedded/engrained within the monitoring and evaluation mechanism of the overall project (e.g., project GANTT). However, it is expected that the next versions of D1.2 will collect and report on the overall implementation of such actions for tasks that promote involvement activities (see table with map of involvement activities), in light of the overall objective of D1.2 to set a general framework for involvement for the entire project.

The Monitoring and evaluation principles for the purpose of the APA, are:

- **Object of monitoring and evaluation** – involvement activities implemented within the framework of the ARESIBO Participation Strategy.
- **Goals of monitoring and evaluation** – to check the progress of the APS implementation.
- **Phases of monitoring and evaluation** – through the entire cycle of the APS, thus throughout the project lifespan.
- **Responsibilities for monitoring and evaluation** – each partner that promotes involvement activities will have the responsibility to perform the monitoring and evaluation actions (with the support of ISIG) and report the results to the project coordinator.
- **Tools and procedures for monitoring and evaluation** – the tools are engrained in the monitoring and evaluation mechanism of the overall project (e.g., project GANTT). Specific tools such as reporting templates will be developed by responsible partners and/or ISIG.

5.3.1 Methods and Tools

Stemming from the literature review and related analysis (Section **Errore. L'origine riferimento non è stata trovata.**) around the methods and tools deployed in involvement activities, as well as from the project map of involvement activities, the following have been identified as relevant for the purpose of the ARESIBO Participatory Model:

Table 36 – Methods and tools of the APM

METHOD	DESCRIPTION	OBJECTIVE	IMPLICATIONS	TOOLS
Targets Mapping	Mapping targets according to the proposed Taxonomy in the APM (i.e., citizens, stakeholders, actors, end-users), both within and beyond the project consortium (i.e., internal, and external)	To identify the targets of involvement for each of the ARESIBO pilot sites.	Partners end-users representing ARESIBO pilot sites will be coordinated by ISIG in the mapping activity	Mapping Tool (Annex 2)
Questionnaires	Questionnaires focused on specific SOST development steps.	To gather feedback from specific targets in different phases of SOST development and on specific topics.	Online questionnaires are designed by responsible (technical) partners and distributed to targets, according to the mapping results. ISIG facilitates the exchanges and supports the feedback collection and integration.	Informed consent form (to be developed by ISIG and/or responsible partners) Online questionnaire (to be developed by responsible partners) Feedback/report procedures (to be developed by ISIG and/or responsible partners)
Workshops	Participatory meetings with targets on specific SOST development steps.	To gather feedback from stakeholders and citizens in different phases of SOST development an on specific topics (e.g., impact of SOST, societal acceptance, etc.).	Participants are selected based on the mapping activity results.	Informed consent form (to be developed by ISIG and/or responsible partners) Workshop/webinar structure (to be developed by ISIG and/or responsible partners) Workshop reporting template (to be developed by ISIG)

5.3.2 Implemented activities in the framework of the APA

During the first year of project implementation, several involvement activities took place within the framework of the overall ARESIBO Participation Action plan.

These activities foresaw the involvement of:

- **ARESIBO end-users** – for the purpose of the identification of users' requirements, the specification security, data privacy and confidentiality requirements and the identification of the relevant dimensions in border security/management (within the framework of WP2 activities), by means of:
  - ARESIBO end-users' workshops (i.e., 2-3.10.2019 – ESPOO, Finland; 2-3.12.2019 – Frankfurt, Germany).
  - Questionnaires for end-users (e.g., under T2.1, T2.2; T2.3; T2.4).
- **ARESIBO EAB members** – for a preliminary introduction of the project and its progress on the implementation of the activities to EAB members, by means of:
  - EAB meetings (i.e., EAB Welcome Telco, 30.01.2020; EAB Physical Meeting, 19.02.2020 – Gorizia, Italy) (ref. Annex I).

5.3.3 Next steps in APA implementation

It is envisaged that during the next phase of the project, ISIG is going to coordinate with relevant partners, so to:

- Structure and implement Task 1.4 – Sub task b – Involvement of citizens activities
- Coordinate and support the implementation of involvement activities by responsible partners, so to ensure the compliance with the ARESIBO Participatory Model.

To this end, two main streams of activities are foreseen:

- **T1.4 related activities, such as:**
  - Mapping of targets at pilot sites – ISIG will contact end-users representing ARESIBO pilot sites so to request the implementation of the Mapping Tool (see Annex 2). The results of the mapping exercise will be preliminary to both T1.4 and overall involvement activities to be performed within relevant tasks.
  - Coordination meeting with end-users representing pilot sites for the organisation of 3 workshops gathering insights with reference to the impact the project could have at the societal level. The workshops will be organised in the context of pilots and demonstrations and will be agreed at consortium level, also in accordance with the overall SOST development process phases and milestones.
  - Elaboration of workshop methodology – script, reporting templates, communication and visibility material and activities, etc.
- **Coordination with partners promoting involvement activities** – ISIG will ensure a transfer of knowledge and capacity-building (i.e., on specific involvement tools such as questionnaires, workshop structure, reporting procedures, etc.) with partners promoting involvement activities, in which the overall ARESIBO Participatory Model will be presented (e.g., webinars with relevant partners). It is envisaged that such coordination will be performed on bilateral basis with relevant partners. Moreover, monitoring data will be collected and reported in the next versions of D1.2.

All activities and related outputs will be reported in version 2 of this deliverable.

6 CONCLUSIONS

Within the framework of Task 1.4, Sub task b – *Involvement of citizens,* D1.2 periodic report on Citizens and stakeholders' inputs – V1, aimed to:

- Illustrate the ARESIBO Participatory Model, as the overall methodological framework for the citizens' involvement process concerning T1.4 activities, to be developed across project countries and pilots throughout the project lifespan.
- Propose the ARESIBO Participatory Model as the general framework for all involvement activities foreseen by the project.
- Report on the first involvement activities carried out in the first period of the project, specifically on the EAB involvement activities.

To do so, the documented presented:

- The results of the literature review and related analyses performed around the elements of a participatory model:
  - o Targets of involvement (Section 2)
  - o Methods and tools of involvement (Section **Errore. L'origine riferimento non è stata trovata.**)
- The proposal for the ARESIBO Participatory Model – a general framework within which all project activities concerning involvement of specific targets (i.e., citizens, stakeholders, end-users, actors) are going to be performed.

The next versions of this deliverable will aim to present the further implementation of the ARESIBO Participatory Model, as follows:

- D1.3 – present the preliminary results of the involvement process (i.e., detailing the Participation Strategy and updated version of the Action Plan, as well as concrete inputs resulting from T1.4 activities).
- D1.4 – present the results of the involvement process, as well as setting the goals for future research regarding participatory models applied to SOSTs development processes.

The following figure aims to summarise the main objectives of the three deliverables reporting on the achievements of Task 1.4.

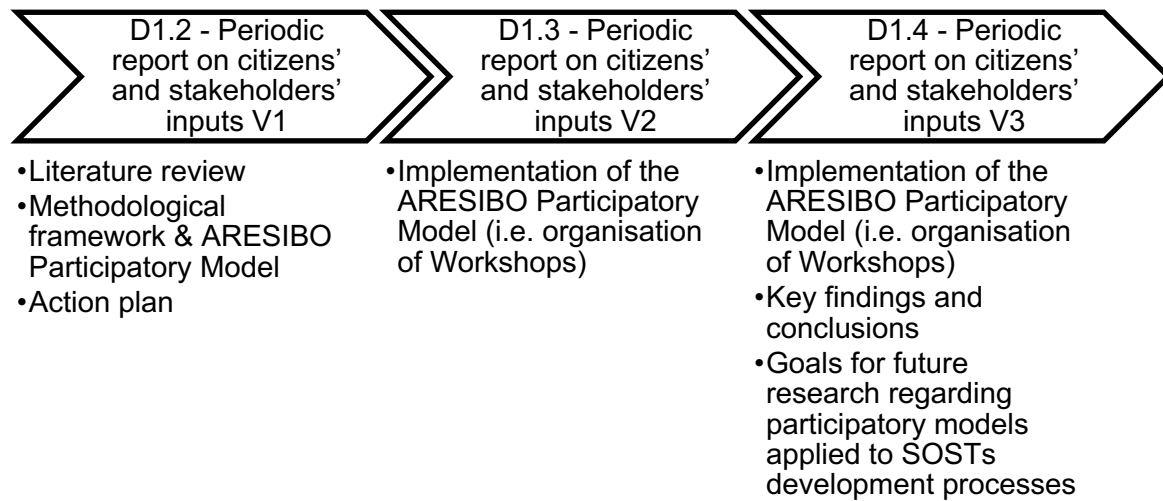| D1.2 - Periodic report on citizens' and stakeholders' inputs V1	D1.3 - Periodic report on citizens' and stakeholders' inputs V2	D1.4 - Periodic report on citizens' and stakeholders' inputs V3
• Literature review • Methodological framework & ARESIBO Participatory Model • Action plan	• Implementation of the ARESIBO Participatory Model (i.e. organisation of Workshops)	• Implementation of the ARESIBO Participatory Model (i.e. organisation of Workshops) • Key findings and conclusions • Goals for future research regarding participatory models applied to SOSTs development processes

Figure 18 – ARESIBO T1.4 Deliverables

Moreover, the two future versions of the deliverable will aim to collect and report monitoring data concerning the implementation of the overall project involvement activities, as per APA.

7 REFERENCES

Abella, J.A, J Andersen, N Bailey, M Bertignac, M Cardinale, J Casey, H Curtis, et al. 2013. *Scientific, Technical and Economic Committee for Fisheries (STECF) Review of DC MAP.* http://bookshop.europa.eu/uri?target=EUB:NOTICE:LBNA25974:EN:HTML.

Achterkamp, Marjolein C., and Janita F.J. Vos. 2008. 'Investigating the Use of the Stakeholder Notion in Project Management Literature, a Meta-Analysis'. *International Journal of Project Management* 26 (7): 749–57. https://doi.org/10.1016/j.ijproman.2007.10.001.

Alderson, Priscilla. 2008. 'Children as Researchers: Participation Rights and Research Methods'. In *Research With Children: Perspectives and Practices*, 276–90. Routledge.

Almirall, Esteve, Melissa Lee, and Jonathan Wareham. 2012. 'Mapping Living Labs in the Landscape of Innovation Methodologies'. *Technology Innovation Management Review*, 7.

Argomaniz, Javier, Oldrich Bures, and Christian Kaunert. 2015. 'A Decade of EU Counter-Terrorism and Intelligence: A Critical Assessment'. *Intelligence and National Security* 30 (2–3): 191–206. https://doi.org/10.1080/02684527.2014.988445.

Avelino, Flor, and Julia M. Wittmayer. 2016. 'Shifting Power Relations in Sustainability Transitions: A Multi-Actor Perspective'. *Journal of Environmental Policy & Planning* 18 (5): 628–49. https://doi.org/10.1080/1523908X.2015.1112259.

Bana E Costa, Carlos A. 2001. 'The Use of Multi-Criteria Decision Analysis to Support the Search for Less Conflicting Policy Options in a Multi-Actor Context: Case Study'. *Journal of Multi-Criteria Decision Analysis* 10 (2): 111–25. https://doi.org/10.1002/mcda.292.

Becu, Nicolas, François Bousquet, Olivier Barreteau, Pascal Perez, and Andrew Walker. 2003. 'A Methodology for Eliciting and Modelling Stakeholders' Representations with Agent Based Modelling'. In *Multi-Agent-Based Simulation III*, edited by David Hales, Bruce Edmonds, Emma Norling, and Juliette Rouchier, 2927:131–48. Lecture Notes in Computer Science. Berlin, Heidelberg: Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-540-24613-8_10.

Ben-Dor, E., R.G. Taylor, J. Hill, J.A.M. Demattê, M.L. Whiting, S. Chabrillat, and S. Sommer. 2008. 'Imaging Spectrometry for Soil Applications'. In *Advances in Agronomy*, 97:321–92. Elsevier. https://doi.org/10.1016/S0065-2113(07)00008-9.

Bernard, L, T Hansen, R Lucchi, M Lutz, C Portele, E Tiainen, European Commission, Joint Research Centre, and INSPIRE – What if? (. 2018. *INSPIRE: What If? : Summary Report from the What If...? Sessions at the 2017 INSPIRE Conference.* http://publications.europa.eu/publication/manifestation_identifier/PUB_KJ0218377ENN.

Bertoldi, Paolo, Nicola Labanca, Silvia Rezessy, Sibyl Steuwer, and Vlasis Oikonomou. 2013. 'Where to Place the Saving Obligation: Energy End-Users or Suppliers?' *Energy Policy* 63 (December): 328–37. https://doi.org/10.1016/j.enpol.2013.07.134.

Bigo, Didier. 2000. 'When Two Become One: Internal and External Securitisations in Europe'. *International Relations Theory and the Politics of European Integration, Power, Security and Community*, 171–205.

Black, Kristin Z., Christina Yongue Hardy, Molly De Marco, Alice S. Ammerman, Giselle Corbie-Smith, Barbara Council, Danny Ellis, et al. 2013. «Beyond Incentives for Involvement to Compensation for Consultants: Increasing Equity in CBPR Approaches». *Progress in Community Health Partnerships: Research, Education, and Action* 7 (3): 263–70. https://doi.org/10.1353/cpr.2013.0040.

Boden, Mark, Effie Amanatidou, Yannis Tolias, Elisabetta Marinelli, and Institute for Prospective Technological Studies. 2016. *Stakeholders' Engagement beyond the EDP: The Working-Groups on Governance and Human Resources in Eastern Macedonia and Thrace.* Luxembourg: Publications Office. http://bookshop.europa.eu/uri?target=EUB:NOTICE:LFNA27774:EN:HTML.

Borowiak, A, S Galmarini, J Hjorth, P Thunis, R Van Dingenen, F Dentener, European Commission, Joint Research Centre, and Stakeholder Meeting. 2012. *Support to the Review of the Thematic Strategy on Air Pollution: JRC's Contribution to the 2nd Stakeholder Meeting, January 2012.* Luxembourg: Publications Office. http://dx.publications.europa.eu/10.2788/22063.

Bower, P., V. Brueton, C. Gamble, S. Treweek, C. T. Smith, B. Young, e et al. 2014. «Interventions to improve recruitment and retention in clinical trials: a survey and workshop to assess current practice and future priorities». *Trials*, 15–399.

Bruijn, J. A. de, and E. F. ten Heuvelhof. 2008. *Management in Networks: On Multi-Actor Decision Making*. London ; New York: Routledge.

Carrera, Sergio, and Elspeth Guild. 2007. 'An EU Framework on Sanctions against Employers of Irregular Immigrants'. *CEPS Policy Brief*, no. 140: 11.

Castro Ribeiro, Cristina. 2015. 'Fisheries Data Collection Framework'. Joint Research Centre.

Castro Ribeiro, Cristina, and Jordi Guillen. 2016. 'Reports of the Scientific, Technical and Economic Committee for Fisheries (STECF) – Evaluation of DCF 2015 Annual Reports & Data Transmission to End-users in 2015 Quality Assurance Procedures (STECF-16-12)'. Joint Research Centre.

Cotterman, William W., and Kuldeep Kumar. 1989. 'User Cube: A Taxonomy of End-users'. *Communications of the ACM* 32 (11): 1313–20. https://doi.org/10.1145/68814.68816.

Cotton, Matthew David, and Ahmed A. Mahroos-Alsaiari. 2015. 'Key Actor Perspectives on Stakeholder Engagement in Omani Environmental Impact Assessment: An Application of Q-Methodology'. *Journal of Environmental Planning and Management* 58 (1): 91–112. https://doi.org/10.1080/09640568.2013.847822.

Craglia, Max, and Alessandro Annoni. 2007. 'INSPIRE: An Innovative Approach to the Development of Spatial Data Infrastructures in Europe', 15.

Craglia, Max, and Lea Shanley. 2015. 'Data Democracy – Increased Supply of Geospatial Information and Expanded Participatory Processes in the Production of Data'. *International Journal of Digital Earth* 8 (9): 679–93. https://doi.org/10.1080/17538947.2015.1008214.

Damart, Sébastien. 2010. 'A Cognitive Mapping Approach to Organizing the Participation of Multiple Actors in a Problem Structuring Process'. *Group Decision and Negotiation* 19 (5): 505–26. https://doi.org/10.1007/s10726-008-9141-y.

Doyle, Sarah, European Commission, and Joint Research Centre. 2016. *Video Analytics Adoption Key Considerations for the End-user.* Luxembourg: Publications Office.

Dratwa, J. 2017. 'Ethical Experimentations of Security and Surveillance as an Inquiry into the Open Beta Society'. In *Privacy and Security: Citizens' Perspectives*, XV–XXV. Oxford: Routledge.

Dvarioniene, Jolanta, Inga Gurauskiene, Giedrius Gecevicius, Dora Ruth Trummer, Catarina Selada, Isabel Marques, and Carmelina Cosmi. 2015. 'Stakeholders Involvement for Energy Conscious Communities: The Energy Labs Experience in 10 European Communities'. *Renewable Energy* 75 (March): 512–18. https://doi.org/10.1016/j.renene.2014.10.017.

Fassin, Yves. 2012. 'Stakeholder Management, Reciprocity and Stakeholder Responsibility'. *Journal of Business Ethics* 109 (1): 83–96. https://doi.org/10.1007/s10551-012-1381-8.

Ferraro, Gianluca. 2014. 'E-TRACK/RWM 2014 Annual Activity Report'. Joint Research Centre.

Ferraro, Gianluca, and Meritxell Martell. 2015. 'EURATOM Projects, Radioactive Waste Management and Public Participation: What Have We Learnt so Far?' Joint Research Centre.

Finn, Rachel L., David Wright, and Michael Friedewald. 2013. 'Seven Types of Privacy'. In *European Data Protection: Coming of Age*, edited by Serge Gutwirth, Ronald Leenes,

Paul de Hert, and Yves Poullet, 3–32. Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-94-007-5170-5_1.

Freeman, R. Edward. 1984. *Strategic Management: A Stakeholder Approach*. Pitman Series in Business and Public Policy. Boston: Pitman.

Friedewald, Michael, Marc van Lieshout, Sven Rung, Merel Ooms, and Jelmer Ypma. 2015. 'Privacy and Security Perceptions of European Citizens: A Test of the Trade-Off Model'. In *Privacy and Identity Management for the Future Internet in the Age of Globalisation*, edited by Jan Camenisch, Simone Fischer-Hübner, and Marit Hansen, 457:39–53. IFIP Advances in Information and Communication Technology. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-18621-4_4.

Garrido, Maria, Araba Sey, Tabitha Hart, and Luis Santana. 2012. 'Literature Review of How Telecentres Operate and Have an Impact on EInclusion'. Joint Research Centre.

Gavison, Ruth. 1980. 'Privacy and the Limits of Law'. *The Yale Law Journal* 89 (3): 421. https://doi.org/10.2307/795891.

Gneezy, U., S. Meier, e P. Rey-Biel. 2011. «When and why incentives (don't) work to modify behavior». *J Econ Perspect* 25 (4): 191–210.

Gordon, Ascelin, Lucy Bastin, William T. Langford, Alex M. Lechner, and Sarah A. Bekessy. 2013. 'Simulating the Value of Collaboration in Multi-Actor Conservation Planning'. *Ecological Modelling* 249 (January): 19–25. https://doi.org/10.1016/j.ecolmodel.2012.07.009.

Grizzetti, Bruna, Faycal Bouraoui, Line Barkved, and J. Deelstra. 2010. 'Modelling Water Nutrient Pollution with Stakeholders Involvement'. In *Integrating Water Resources Management : Interdisciplinary Methodologies and Strategies in Practice*, 25–33. IWA Publishing.

Grizzetti, Bruna, Faycal Bouraoui, Geoffrey D. Gooch, and Per Stålnacke. 2010. 'Putting the "Integration" in the Science–Policy–Stakeholder Interface'. In *Science, Policy and Stakeholders in Water Management*, 17–28. Earthscan.

Grizzetti, Bruna, A. Lo Porto, L. Barkved, K. Joy, Paranjape, J. Deelstra, Faycal Bouraoui, and S. Manasi. 2010. 'The Science-Policy-Stakeholder Interface in Water Pollution Assessment'. https://doi.org/10.13140/2.1.1923.1687.

Guild, Elspeth, Sergio Carrera, and Thierry Balzacq, eds. 2008. 'The Changing Dynamics of Security in an Enlarged European Union'. In *Europe's 21st Century Challenge*, by Didier Bigo and R.B.J. Walker, 0 ed., 53–70. Routledge. https://doi.org/10.4324/9781315581095-11.

Gusenbauer, Michael. 2019. 'Google Scholar to Overshadow Them All? Comparing the Sizes of 12 Academic Search Engines and Bibliographic Databases'. *Scientometrics* 118 (1): 177–214. https://doi.org/10.1007/s11192-018-2958-5.

Hall, Maria Jean. 1992. 'The A.D.E. Taxonomy of Spreadsheet Application Development', 362.

Hengl, Tomislav, and Stjepan Husnjak. 2006. 'Evaluating Adequacy and Usability of Soil Maps in Croatia'. *Soil Science Society of America Journal* 70 (3): 920–29. https://doi.org/10.2136/sssaj2004.0141.

Holzer, Boris. 2008. 'Turning Stakeseekers Into Stakeholders: A Political Coalition Perspective on the Politics of Stakeholder Influence'. *Business & Society* 47 (1): 50–67. https://doi.org/10.1177/0007650307306341.

Jolivet, Eric, and Eva Heiskanen. 2010. 'Blowing against the Wind—An Exploratory Application of Actor Network Theory to the Analysis of Local Controversies and Participation Processes in Wind Energy'. *Energy Policy* 38 (11): 6746–54. https://doi.org/10.1016/j.enpol.2010.06.044.

Kaler, John. 2002. 'Morality and Strategy in Stakeholder Identification'. *Journal of Business Ethics* 39: 91–99.

Kapadia, Mubbasir, Shawn Singh, Glenn Reinman, and Petros Faloutsos. 2011. 'Multi-Actor Planning for Directable Simulations'. In *2011 Workshop on Digital Media and Digital*

Content Management, 111–16. Hangzhou, Zhejiang, China: IEEE. https://doi.org/10.1109/DMDCM.2011.40.

Kavadas, S., D. Damalas, S. Georgakarakos, C. Maravelias, G. Tserpes, C. Papaconstantinou, and G. Bazigos. 2013. 'IMAS-Fish: Integrated MAnagement System to Support the Sustainability of Greek Fisheries Resources. A Multidisciplinary Web-Based Database Management System: Implementation, Capabilities, Utilization and Future Prospects for Fisheries Stakeholde'. *Mediterranean Marine Science* 14 (1): 109. https://doi.org/10.12681/mms.324.

Kavaratzis, Mihalis. 2012. 'From "Necessary Evil" to Necessity: Stakeholders' Involvement in Place Branding'. Edited by Ares Kalandides. *Journal of Place Management and Development* 5 (1): 7–19. https://doi.org/10.1108/17538331211209013.

Kinnvall, C., and T. Svensson. 2014. 'Bordering Securities in a Global World'. In *Governing Borders and Security: The Politics of Connectivity and Dispersal*, 1–13. London: Routledge.

Krogstrup, Hanne Kathrine. 1997. 'User Participation in Quality', 20.

La Notte, Alessandra, and Alexandra Marques. 2017. 'The Role of Enabling Actors in Ecosystem Service Accounting'. *One Ecosystem* 2. https://doi.org/2: e20834.

L'Astorina, Alba, Irene Tomasoni, Anna Basoni, and Paola Carrara. 2015. 'Beyond the Dissemination of Earth Observation Research: Stakeholders' and Users' Involvement in Project Co-Design'. *Journal of Science Communication* 14 (03). https://doi.org/10.22323/2.14030303.

Léonard, Sarah. 2010. 'EU Border Security and Migration into the European Union: FRONTEX and Securitisation through Practices'. *European Security* 19 (2): 231–54. https://doi.org/10.1080/09662839.2010.526937.

Ligtenberg, Arend, Arnold K. Bregt, and Ron van Lammeren. 2001. 'Multi-Actor-Based Land Use Modelling: Spatial Planning Using Agents'. *Landscape and Urban Planning* 56 (1–2): 21–33. https://doi.org/10.1016/S0169-2046(01)00162-1.

Ligtenberg, Arend, Monica Wachowicz, Arnold K Bregt, Adrie Beulens, and Dirk L Kettenis. 2004. 'A Design and Application of a Multi-Agent System for Simulation of Multi-Actor Spatial Planning'. *Journal of Environmental Management* 72 (1–2): 43–55. https://doi.org/10.1016/j.jenvman.2004.02.007.

Liotta, P., and T. Owen. 2006. 'Why Human Security?' *Whitehead Journal of Diplomacy and International Relations* 7 (1): 37–55.

Littau, Paul, Nirmala Jyothi Jujagiri, and Gerald Adlbrecht. 2010. '25 Years of Stakeholder Theory in Project Management Literature (1984-2009)'. *Project Management Journal* 41 (4): 17–29. https://doi.org/10.1002/pmj.20195.

Lodge, J. 2005. 'E-Justice, Security and Biometrics: The EU's Proximity Paradox'. *European Journal of Crime, Criminal Law and Criminal Justice* 13 (4): 533–64.

Mäläskä, Minna, Saila Saraniemi, and Jaana Tähtinen. 2011. 'Network Actors' Participation in B2B SME Branding'. *Industrial Marketing Management* 40 (7): 1144–52. https://doi.org/10.1016/j.indmarman.2011.09.005.

Manners, I. 2006. 'Normative Power Europe Reconsidered: Beyond the Crossroads'. *Journal of European Public Policy* 13 (2): 182–99.

Marin, L. 2017. 'The Deployment of Drone Technology in Border Surveillance'. In *Surveillance, Privacy and Security: Citizens' Perspectives*, 107–22. Oxford: Routledge.

Martinsohn, Jann Th, Johann Hofherr, European Commission, Joint Research Centre, and Institute for the Protection and the Security of the Citizen. 2014. *Identifying Key Stakeholders and Developing a Roadmap for the Risk Assessment: Strategy Document in the Frame of Work Package 11 'Risk Assessment and Management Recommendations' of the FP7 Project AquaTrace.* Luxembourg: Publications Office. http://dx.publications.europa.eu/10.2788/64827.

Matinga, Margaret N., Irene Pinedo-Pascua, Jonathan Vervaeke, Fabio Monforti-Ferrario, and Sándor Szabó. 2014. 'Do African and European Energy Stakeholders Agree on Key

Energy Drivers in Africa? Using Q Methodology to Understand Perceptions on Energy Access Debates'. *Energy Policy* 69 (June): 154–64. https://doi.org/10.1016/j.enpol.2013.12.041.

McGrath, Stephen Keith, and Stephen Jonathan Whitty. 2017. 'Stakeholder Defined'. *International Journal of Managing Projects in Business* 10 (4): 721–48. https://doi.org/10.1108/IJMPB-12-2016-0097.

Meritxell, Martell, and Gianluca Ferraro. 2014. 'Radioactive Waste Management Stakeholders Map in the European Union'. Joint Research Centre.

Mettepenningen, E., V. Beckmann, and J. Eggers. 2011. 'Public Transaction Costs of Agri-Environmental Schemes and Their Determinants—Analysing Stakeholders' Involvement and Perceptions'. *Ecological Economics* 70 (4): 641–50. https://doi.org/10.1016/j.ecolecon.2010.10.007.

Miles, Samantha. 2012. 'Stakeholder: Essentially Contested or Just Confused?' *Journal of Business Ethics* 108 (3): 285–98. https://doi.org/10.1007/s10551-011-1090-8.

———. 2017. 'Stakeholder Theory Classification: A Theoretical and Empirical Evaluation of Definitions'. *Journal of Business Ethics* 142 (3): 437–59. https://doi.org/10.1007/s10551-015-2741-y.

Misuraca, Gianluca, Clara Centeno, and Cristina Torrecillas. 2014. 'Measuring the Impact of EInclusion Actors: Impact Assessment Framework Main Report'. Joint Research Centre.

Mitchell, Ronald K., Bradley R. Agle, and Donna J. Wood. 1997. 'Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts'. *The Academy of Management Review* 22 (4): 853. https://doi.org/10.2307/259247.

Nevan Wright, J. 1997. 'Time and Budget: The Twin Imperatives of a Project Sponsor'. *International Journal of Project Management* 15 (3): 181–86. https://doi.org/10.1016/S0263-7863(96)00059-2.

Olander, Stefan, and Anne Landin. 2005. 'Evaluation of Stakeholder Influence in the Implementation of Construction Projects'. *International Journal of Project Management* 23 (4): 321–28. https://doi.org/10.1016/j.ijproman.2005.02.002.

Opdam, Paul, Eveliene Steingröver, and Sabine van Rooij. 2006. 'Ecological Networks: A Spatial Concept for Multi-Actor Planning of Sustainable Landscapes'. *Landscape and Urban Planning* 75 (3–4): 322–32. https://doi.org/10.1016/j.landurbplan.2005.02.015.

Ortiz, Oscar, Ricardo Orrego, Willy Pradel, Peter Gildemacher, Renee Castillo, Ronald Otiniano, Julio Gabriel, et al. 2011. «Incentives and Disincentives for Stakeholder Involvement in Participatory Research (PR): Lessons from Potato-Related PR from Bolivia, Ethiopia, Peru and Uganda». *International Journal of Agricultural Sustainability* 9 (4): 522–36. https://doi.org/10.1080/14735903.2011.605640.

Othman, A A E. 2007. 'Supporting End-Users Involvement in Developing Sustainable Housing Projects', 15.

Oxford City Council. 2014. «Consultation Toolkit: A Guide to Effective Consultation».

Paneque Salgado, P., S. Corral Quintana, Â. Guimarães Pereira, L. del Moral Ituarte, and B. Pedregal Mateos. 2009. 'Participative Multi-Criteria Analysis for the Evaluation of Water Governance Alternatives. A Case in the Costa Del Sol (Málaga)'. *Ecological Economics* 68 (4): 990–1005. https://doi.org/10.1016/j.ecolecon.2006.11.008.

Parkinson, Beth, Rachel Meacock, Matt Sutton, Eleonora Fichera, Nicola Mills, Gillian W. Shorter, Shaun Treweek, et al. 2019. «Designing and Using Incentives to Support Recruitment and Retention in Clinical Trials: A Scoping Review and a Checklist for Design». *Trials* 20 (1): 624. https://doi.org/10.1186/s13063-019-3710-z.

Pavone, Vincenzo, and Sara Degli Esposti. 2012. 'Public Assessment of New Surveillance-Oriented Security Technologies: Beyond the Trade-off between Privacy and Security'. *Public Understanding of Science* 21 (5): 556–72. https://doi.org/10.1177/0963662510376886.

Pedeliento, Giuseppe, Daniela Andreini, Mara Bergamaschi, and Jari Salo. 2019. 'End-users' Purchasing Task Involvement, Power and Influence Strategies in Organizational Buying'. *Journal of Business & Industrial Marketing* 34 (1): 150–65. https://doi.org/10.1108/JBIM-01-2018-0037.

Pereira, Karla Susiane, Eduardo Feitosa, and Tayana Conte. 2016. 'A Taxonomy to Classify Risk End-User Profile in Interaction with the Computing Environment'. In *Human Aspects of Information Security, Privacy, and Trust*, edited by Theo Tryfonas, 9750:268–76. Lecture Notes in Computer Science. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-39381-0_24.

Punie, Yves. 2011. 'Introduction: New Media Technologies and User Empowerment. Is There a Happy Ending?' In *Broadband Society and Generational Changes*, 9–15. Colombo, F. and Fortunati, V.

Ramos, Ana Luisa, Jose Vasconcelos Ferreira, and Jaume Barcelo. 2013. 'LITHE: An Agile Methodology for Human-Centric Model-Based Systems Engineering'. *IEEE Transactions on Systems, Man, and Cybernetics: Systems* 43 (3): 504–21. https://doi.org/10.1109/TSMCA.2012.2207888.

Riley, T. B. 2007. 'Security vs. Privacy: A Comparative Analysis of Canada, the United Kingdom, and the United States'. *Journal of Business and Public Policy* 1 (2): 1–21.

Rissola, Gabriel, Maria Garrido, Cristina Torrecillas, Clara Centeno, Gianluca Misuraca, and Institute for Prospective Technological Studies. 2013. *Survey on EInclusion Actors in the EU27.* Luxembourg: Publications Office. http://dx.publications.europa.eu/10.2791/29523.

Scherrer-Rathje, Maike, and Todd A. Boyle. 2012. 'An End-User Taxonomy of Enterprise Systems Flexibility: Evidence from a Leading European Apparel Manufacturer'. *Information Systems Management* 29 (2): 86–99. https://doi.org/10.1080/10580530.2012.660820.

Schroeder, Doris, Julie Cook Lucas, Solveig Fenet, e Francois Hirsch. 2016. «"Ethics Dumping" – Report on Paradigmatic Case Studies», 122.

Singh, Shawren, and Paula Kotzé. 2003. 'An Overview of Systems Design and Development Methodologies with Regard to the Involvement of Users and Other Stakeholders', 11.

Snyder, Hannah. 2019. 'Literature Review as a Research Methodology: An Overview and Guidelines'. *Journal of Business Research* 104 (November): 333–39. https://doi.org/10.1016/j.jbusres.2019.07.039.

Solove, Daniel J. 2006. 'A Taxonomy of Privacy'. *University of Pennsylvania Law Review* 154 (3): 477. https://doi.org/10.2307/40041279.

Spisto, Amanda. 2016. 'Impact of Flexible Technologies on End-Users' Price under Different Levels of Renewable Generation'. In *2016 13th International Conference on the European Energy Market (EEM)*, 1–5. Porto, Portugal: IEEE. https://doi.org/10.1109/EEM.2016.7521180.

Sun, Zhiwei. 2013. 'User Involvement in System Development Process', 4.

Svedung, Inge, and Giacomo G. M. Cojazzi. 2006. *The Geographical Component of Safety Management: Combining Risk, Planning and Stakeholder Perspectives*. Joint Research Centre.

Tako, Antuela A., and Kathy Kotiadis. 2015. 'PartiSim: A Multi-Methodology Framework to Support Facilitated Simulation Modelling in Healthcare'. *European Journal of Operational Research* 244 (2): 555–64. https://doi.org/10.1016/j.ejor.2015.01.046.

Tang, C. 2005. «Enhancing Involvement in Community Planning Using Incentives». Center for Land Use Education

Van Houtum, Henk. 2005. 'The Geopolitics of Borders and Boundaries'. *Geopolitics* 10 (4): 672–79. https://doi.org/10.1080/14650040500318522.

Vetere Arellano, A. L., A. De Roo, and J.-P. Nordvik. 2007. 'Reflections on the Challenges of EU Policy-Making with View to Flood Risk Management'. In *Flood Risk Management in Europe*, 433–68. Springer.

Vlachokostas, Ch., Ch. Achillas, N. Moussiopoulos, and G. Banias. 2011. 'Multicriteria Methodological Approach to Manage Urban Air Pollution'. *Atmospheric Environment* 45 (25): 4160–69. https://doi.org/10.1016/j.atmosenv.2011.05.020.

Wæver, Ole. 1993. 'Securitization and Desecuritization'. Centre for Peace and Conflict Research.O

8 ANNEXES

8.1 Annex I – Periodic report on External Advisory Board (EAB) activities (first year of the project)

8.1.1 The role of the External Advisory Board (EAB) in ARESIBO

The External Advisory Board (EAB) in ARESIBO is part of the strategic management and represents the interface with and the support of end-users/stakeholders/external bodies.

It assists to validate the requirements, inputs and outputs of the project. The primary role of the ARESIBO EAB is to ensure that end-user needs are met and that the approach for achieving objectives is understood and effectively directed. In this sense, a major EAB involvement takes place in Milestone 2 'Preliminary System Requirements Validation'. EAB members can ensure the alignment with existing initiatives and support the dissemination of ARESIBO activities and results.

The primary responsibilities of the EAB are foreseen in building relationships with end-users and to maximise the dissemination by providing their individual networks. In addition, the EAB is foreseen to support and discuss the requirements validation processes within the project, by monitoring the project development. Also, the EAB is intended to augment the technical expertise of the consortium in the border security domain, by involving also technology experts in the ARESIBO technology pillars and, in particular, Augmented Reality.

The EAB plays a crucial role in the dissemination of project outcomes and has a first access to dissemination plans for their validation and for supporting the dissemination process by using their network in various domains of border security. The composition of the EAB is intended to allow for a continuous link to end-users and the direct promotion, as well as validation, of project outcomes.

The EAB also helps to create awareness for the project and its results, as an active part of the ARESIBO community, also supporting the promotion of ARESIBO's communication channels (e.g., social media channels used, website contents, forum conversations, etc.).

Strategic management – interface with stakeholders/external bodies

Validation of requirements input and output of the project

Support to the dissemination of ARESIBO results and alignment with existing initiatives

Building relationships with end-users

Monitor the project development and support the requirement validation processes

Increase the technical expertise of the consortium in the border security domain (in particular in the field of Augmented Reality)
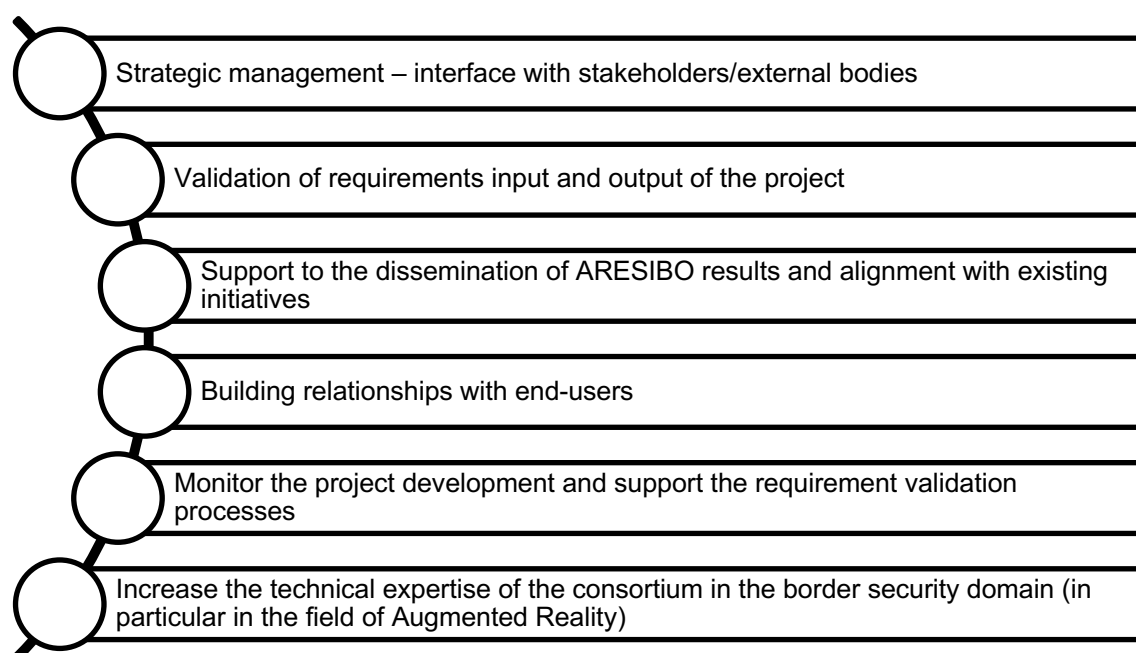
Figure 19 – The role of the EAB in ARESIBO

8.1.2 EAB set up and composition

In the first year of the project the ARESIBO External Advisory Board (EAB) has been be set up in order to:

- Strictly refer to the real structures, procedures and tools of the acting governmental and non-governmental organizations in the border security domain.
- Monitor the project's developments.

The EAB is composed by experts' world-wide to ensure the visibility of the project outcomes in and beyond Europe. Five members of the EAB with complementary expertise have carefully been selected and invited by the ARESIBO Coordinator to participate in the Board. The EAB will remain active throughout the entire project duration.

The five experts in the ARESIBO EAB come from the following areas:

- Border control authorities of Member States (MS)
- Border and coast guard organisations
- Agencies and international organisations
- Non-governmental organisations (NGOs)
- Experts from the border security domain.

The main domain of expertise of the EAB members are:

- Situation Awareness (SA) and Internet of Things (IoT).
- Soldier Systems (SSs), Soldier Protection and EU Regulations.
- Unmanned Vehicles (UxVs) and Mechatronics.
- illicit trades and smuggling.
- Computer Science (SC).

8.1.3 Information and data shared with EAB members

The data and information exchanged and discussed within the EAB are limited to PU (Public) data and information, because:

- Members of the EAB have not signed the Grant Agreement (GA) and are hence not bound to the security obligations outlined in the GA.
- Members of the EAB do not have a need-to-know and might not have been briefed on their security obligations and/or have the right level of clearance.
- Members of EAB have not signed the Consortium Agreement (CA) and are not bound to the non-disclosure clauses.
- Some members of the EAB are from countries that do not have an agreement with EU to exchange classified information.

In the first year of ARESIBO, the following information has been shared with the EAB members[13]:

- ARESIBO EAB Information Leaflet – giving an overview on the project, in terms of duration, objectives and activities, on the role of the EAB within ARESIBO and on the EAB meeting plan.
- Grant Agreement extract – containing:
  - List of Beneficiaries.
  - Work Packages short description, duration and objectives.
- List of the Tasks for each Work Package.

---

[13] All EAB members have signed a Non-Disclosure Agreement (NDA).

- List of foreseen deliverables.

8.1.4 EAB meeting plan

According to the GA, the ARESIBO EAB should meet twice a year and be consulted whenever the progress of the project requires it. At least one physical meeting takes place per year. EAB members are also invited to participate in the final project pilots. The board chair coordinates remote and on-site meetings.

The EAB role of the individual members is planned to be executed throughout the project (3 years).

Table 37 – Meeting Plan for the EAB

Meeting	Month	Date
EAB Meeting 1 (remote meeting)	Month 9	January 2020
EAB Meeting 2 (hybrid)	Month 10	February 2020
EAB Meeting 3	Month 15	July 2020
EAB Meeting 4	TBA	2021
Pilot Demonstration 1	TBA	TBA
Pilot Demonstration 2	TBA	TBA
Pilot Demonstration 3	TBA	TBA
Pilot Demonstration 4	TBA	TBA

8.1.5 EAB meetings in the first year of ARESIBO

8.1.5.1 EAB Welcome Telco

The EAB welcome Telco was organised remotely on January 30th, 2020. The telco was aimed at:

- Presenting the EAB member, their role and expertise to the ARESIBO Consortium.
- Presenting the role of the EAB within ARESIBO and its future involvement within the project.
- Presenting of the project time plan in terms of integration, demonstration and validation events foreseen.

8.1.5.2 EAB physical meeting

The first official EAB meeting, was organised as a hybrid[14] event, on the occasion of the third ARESIBO Plenary meeting (19.02.2020, Gorizia – IT). The first EAB meeting was aimed at:

- Introducing the overall project and the progress on the implementation of the activities.
- Introducing the technical pillars of ARESIBO.
- Introducing ARESIBO end-users and their expectations within the project.
- Allowing for a first discussion between the Consortium and the EAB.

ARESIBO end-users stressed as main expectations from the ARESIBO project the following aspects:

- Improvement of data/information analysis in order to avoid errors and false alarms.

---

[14]   It was foreseen both a physical and a remote participation of the EAB members.

- Support in the integration of information from multiple types of sensor sources and platforms, thus enhancing Situational Awareness and improving the collaboration between different teams and supporting collaborative decision-making.
- Support to the development of a Common Operational Picture (COP).
- Support risk analysis and the planning of actions.

8.2 Annex II – Mapping Tool

- Targets are mapped at ARESIBO pilot site level, in accordance with the methodology highlighted in the ARESIBO Participation Framework.
- Targets are considered both internally and externally to the consortium.

STAKEHOLDERS – Direct impact, social acceptance	END-USERS – Direct impact, technical acceptance
- Stakeholder 1 - Stakeholder 2 …	- End-user 1 - End -user 2 …
CITIZENS – Indirect impact, social acceptance	ACTORS – Indirect impact, technical acceptance
- Association 1 - Association 2 …	- Actor 1 - Actor 2 …

8.3 Annex II – Consulted EU projects (Programme H2020, FP7-Security)

Table 38 – EU projects included in the research

Project	Programme	Call	Project Duration	Consultation Date	Source
Takedown	H2020	H2020-FCT-2015	1 September 2016 – 31 August 2019	7 July 2020	https://cordis.europa.eu/project/id/700688
Woscap	H2020	H2020-BES-2014	1 June 2015 – 30 November 2017	7 July 2020	https://cordis.europa.eu/project/id/653866
IECEU (Improving the Effectiveness of Capabilities in EU Conflict Prevention)	H2020	H2020-BES-2014	1 May 2015 – 31 January 2018	7 July 2020	https://cordis.europa.eu/project/id/653371
BODEGA (Proactive Enhancement of Human Performance in Border Control)	H2020	H2020-BES-2014	1 June 2015 – 31 October 2018	8 July 2020	https://cordis.europa.eu/project/id/653676
Dogana (Advanced Social Engineering and Vulnerability Assessment Framework)	H2020	H2020-DS-2014-1	1 September 2015 – 31 August 2018	8 July 2020	https://cordis.europa.eu/project/id/653618
EUNITY	H2020	H2020-DS-SC7-2016	1 June 2017 – 31 May 2019	8 July 2020	https://cordis.europa.eu/project/id/740507
CYBERWISER.EU	H2020	H2020-DS-2014-1	1 June 2015 – 30 November 2017	9 July 2020	https://cordis.europa.eu/project/id/786668
RED-Alert	H2020	H2020-SEC-2016-2017-1	Ongoing Project: 1 June 2017-30 September 2020	9 July 2020	https://cordis.europa.eu/project/id/740688
GAMMA	FP7-SECURITY	FP7-SEC-2012-1	1 September 2013 – 31 August 2017	9 July 2020	https://cordis.europa.eu/article/id/170097-gamma-project-hands-over-the-keys-to-future-air-traffic-management

| CyberROAD | FP7-SECURITY | FP7-SEC-2013-1 | 1 June 2014 – 31 May 2016 | 10 July 2020 | https://cordis.europa.eu/project/id/607642 |
| MEDEA | H2020 | H2020-SEC-2016-2017-2 | Ongoing project: 1 June 2018 – 31 May 2923 | 10 July 2020 | https://cordis.europa.eu/project/id/787111 |

Table 39 – Other consulted EU projects

Project	Programme	Call	Project Duration	Consultation Date	Source
SURVEIRON	H2020	H2020-SMEINST-2-2015	1 March 2016-28 February 2018	6 July 2020	https://cordis.europa.eu/project/id/711264
NO FEAR	H2020	H2020-SEC-2016-2017-2	Ongoing project: 1 June 2018-31 May 2023	6 July 2020	https://cordis.europa.eu/project/id/786670
iProcureNet	H2020	H2020-SU-SEC-2018	Ongoing project: 1 May 2019-30 April 2024	6 July 2020	https://cordis.europa.eu/project/id/832875
ProBOS	H2020	H2020-SMEINST-2-2016-2017	1 October 2016-31 March 2019	6 July 2020	https://cordis.europa.eu/project/id/726818
IDAaaS	H2020	H2020-SMEINST-2-2016-2017	1 October 2017-30 November 2019	6 July 2020	https://cordis.europa.eu/project/id/784247
VisiOn	H2020	H2020-DS-2014-1	1 July 2015-30 June 2017	6 July 2020	https://cordis.europa.eu/project/id/653642
KNOX	H2020	H2020-SMEINST-2-2016-2017	1 August 2017-31 July 2019	6 July 2020	https://cordis.europa.eu/project/id/768242
SPIDERS	H2020	H2020-SMEINST-2-2014	1 October 2015-31 May 2018	6 July 2020	https://cordis.europa.eu/project/id/674274
OPERANDO	H2020	H2020-DS-2014-1	1 May 2015-30 April 2018	6 July 2020	https://cordis.europa.eu/project/id/653704
STAIR4SECURITY	H2020	H2020-IBA-SC7-PSM-2018	Ongoing project: 1 January 2019-31 December 2020	6 July 2020	https://cordis.europa.eu/project/id/853853

Project	Programme	Call	Project Duration	Consultation Date	Source
TENSOR	H2020	H2020-FCT-2015	1 September 2016-30 November 2019	6 July 2020	https://cordis.europa.eu/project/id/700024
VICTORIA	H2020	H2020-SEC-2016-2017-1	Ongoing project: 1 May 2017-30 November 2020	6 July 2020	https://cordis.europa.eu/project/id/740754
EMYNOS	H2020	H2020-DRS-2014	1 September 2015-28 February 2018	6 July 2020	https://cordis.europa.eu/project/id/653762
CREDENTIAL	H2020	H2020-DS-2014-1	1 October 2015-30 September 2018	6 July 2020	https://cordis.europa.eu/project/id/653454
PROTON	H2020	H2020-FCT-2015	1 October 2016-30 September 2019	6 July 2020	https://cordis.europa.eu/project/id/699824
ENTRAP	H2020	H2020-SEC-2016-2017-1	Ongoing project: 1 May 2017-31 October 2020	6 July 2020	https://cordis.europa.eu/project/id/740560
DANTE	H2020	H2020-FCT-2015	1 September 2016-28 February 2019	6 July 2020	https://cordis.europa.eu/project/id/700367
CITYCoP	H2020	H2020-FCT-2014	1 June 2015-31 May 2018	6 July 2020	https://cordis.europa.eu/project/id/653811
GHOST	H2020	H2020-DS-SC7-2016	1 May 2017-30 April 2020	6 July 2020	https://cordis.europa.eu/project/id/740923
HERMENEUT	H2020	H2020-DS-SC7-2016	1 May 2017-30 June 2019	7 July 2020	https://cordis.europa.eu/project/id/740322
I-REACT	H2020	H2020-DRS-2015	1 June 2016-31 May 2019	7 July 2020	https://cordis.europa.eu/project/id/700256
DARWIN	H2020	H2020-DRS-2014	1 June 2015-30 September 2018	7 July 2020	https://cordis.europa.eu/project/id/653289
FutureTPM	H2020	H2020-DS-LEIT-2017	Ongoing project: 1 January 2018-31 December 2020	7 July 2020	https://cordis.europa.eu/project/id/779391
AUGGMED	H2020	H2020-FCT-2014	1 June 2015-31 May 2018	7 July 2020	https://cordis.europa.eu/project/id/653590
PROTCTIVE	H2020	H2020-DS-2015-1	1 September 2016-31 August 2019	7 July 2020	https://cordis.europa.eu/project/id/700071
SMESEC	H2020	H2020-DS-SC7-2016	1 June 2017-31 May 2020	7 July 2020	https://cordis.europa.eu/project/id/740787
IPCOM	H2020	H2020-SMEINST-2-2016-2017	1 July 2016-31 January 2019	7 July 2020	https://cordis.europa.eu/project/id/726317

Project	Programme	Call	Project Duration	Consultation Date	Source
ATENA	H2020	H2020-DS-2015-1	1 May 2016-31 May 2019	7 July 2020	https://cordis.europa.eu/project/id/700581
CANVAS	H2020	H2020-DS-2015-1	1 September 2016-31 October 2019	7 July 2020	https://cordis.europa.eu/project/id/700540
FACCESS	H2020	H2020-SMEINST-2-2016-2017	1 December 2016-30 November 2018	7 July 2020	https://cordis.europa.eu/project/id/733711
RANGER	H2020	H2020-BES-2015	1 May 2016-31 December 2019	7 July 2020	https://cordis.europa.eu/project/id/700478
ALFA	H2020	H2020-BES-2015	1 January 2017-3 December 2019	7 July 2020	https://cordis.europa.eu/project/id/700002
ARIES	H2020	H2020-FCT-2015	1 September 2016-28 February 2019	7 July 2020	https://cordis.europa.eu/project/id/700085
CURSOR	H2020	H2020-SU-SEC-2018	Ongoing project: 1 September 2019-31 August 2022	7 July 2020	https://cordis.europa.eu/project/id/832790
SISSDEN	H2020	H2020-DS-2015-1	1 May 2016-30 April 2019	8 July 2020	https://cordis.europa.eu/project/id/700176
COMPACT	H2020	H2020-DS-SC7-2016	1 May 2017-31 October 20119	8 July 2020	https://cordis.europa.eu/project/id/740712
PRIViLEDGE	H2020	H2020-DS-LEIT-2017	1 January 2018-30 June 2021	8 July 2020	https://cordis.europa.eu/project/id/780477
SHIELD	H2020	H2020-DS-2015-1	1 September 2016-28 February 2019	8 July 2020	https://cordis.europa.eu/project/id/700199
BroadWay	H2020	H2020-SEC-2016-2017-2	Ongoing project: 1 May 2018-30 June 2022	8 July 2020	https://cordis.europa.eu/project/id/786912
SaafeShore	H2020	H2020-BES-2015	1 May 2016-31 December 2018	8 July 2020	https://cordis.europa.eu/project/id/700643
CUIDAR	H2020	H2020-DRS-2014	1 July 2015-30 June 2018	8 July 2020	https://cordis.europa.eu/project/id/653753
TYPES	H2020	H2020-DS-2014-1	1 May 2015-31 October 2017	8 July 2020	https://cordis.europa.eu/project/id/653449
COUNTERCRAFT	H2020	H2020-SMEINST-2-2016-2017	1 September 2017-31 August 2019	8 July 2020	https://cordis.europa.eu/project/id/767383

Project	Programme	Call	Project Duration	Consultation Date	Source
PMT4NIIS	H2020	H2020-SMEINST-1-2016-2017	1 January 2018-30 June 2018	9 July 2020	https://cordis.europa.eu/project/id/790798
IMPRINT	H2020	H2020-SMEINST-2-2015	1 December 2015-30 November 2017	9 July 2020	https://cordis.europa.eu/project/id/696945
SMR	H2020	H2020-DRS-2014	1 June 2015-30 June 2018	9 July 2020	https://cordis.europa.eu/project/id/653569
PANDEM	H2020	H2020-DRS-2014	1 September 2015-31 March 2017	9 July 2020	https://cordis.europa.eu/project/id/652868
LAW-TRAIN	H2020	H2020-FCT-2014	1 May 2015-30 April 2018	9 July 2020	https://cordis.europa.eu/project/id/653587
CLOSEYE	FP7-Security	FP7-SEC-2012-1	1 April 2013-28 February 2017	9 July 2020	https://cordis.europa.eu/project/id/313184
SNIFFER	FP7-Security	FP7-SEC-2012-1	1 My 2013-30 April 2016	9 July 2020	https://cordis.europa.eu/project/id/312411
FASTAPASS	FP7-Security	FP7-SEC-2012-1	1 January 2013-31 March 2017	9 July 2020	https://cordis.europa.eu/project/id/312583
PANDHUB	FP7-Security	FP7-SEC-2013-1	1 November 2014-31 October 2017	9 July 2020	https://cordis.europa.eu/project/id/607433
HARMONISE	FP7-Security	FP7-SEC-2012-1	1 June 2013-31 May 2016	9 July 2020	https://cordis.europa.eu/project/id/312013
ICARUS	FP7-Security	FP7-SEC-2011-1	1 February 2012-31January 2016	9 July 2020	https://cordis.europa.eu/project/id/285417
TACTIC	FP7-Security	FP7-SEC-2013-1	1 May 2014-30 April 2016	9 July 2020	https://cordis.europa.eu/project/id/608058
SECCRIT	FP7-Security	FP7-SEC-2012-1	1 January 2013-31 December 2015	9 July 2020	https://cordis.europa.eu/project/id/312758
PRISMS	FP7-Security	FP7-SEC-2011-1	1 February 2012-31 July 2015	9 July 2020	https://cordis.europa.eu/project/id/285399
ATHENA	FP7-Security	FP7-SEC-2012-1	1 December 2013-30 November 2016	9 July 2020	https://cordis.europa.eu/project/id/313220
SAWSOC	FP7-Security	FP7-SEC-2012-1	1 November 2013-30 April 2016	9 July 2020	https://cordis.europa.eu/project/id/313034

Project	Programme	Call	Project Duration	Consultation Date	Source
MOBILEPASS	FP7-Security	FP7-SEC-2013-1	1 May 2014-31 December 2016	9 July 2020	https://cordis.europa.eu/project/id/608016
BRIDGE	FP7-Security	FP7-SEC-2010-1	1 April 2011-30 June 2015	9 July 2020	https://cordis.europa.eu/project/id/261817
CIPRNET	FP7-Security	FP7-SEC-2012-1	1 March 2013-28 February 2017	9 July 2020	https://cordis.europa.eu/project/id/312450
DESTRIERO	FP7-Security	FP7-SEC-2012-1	1 September 2013-31 August 2016	9 July 2020	https://cordis.europa.eu/project/id/312721
L4S – Learning 4 Security	FP7-Security	FP7-ICT-SEC-2007-1	1 July 2009-31 July 2011	10 July 2020	https://cordis.europa.eu/project/id/225634
POP-ALERT	FP7-Security	FP7-SEC-2013-1	1 April 2014-31 March 2016	10 July 2020	https://cordis.europa.eu/project/id/608030
AIRBEAM	FP7-Security	FP7-SEC-2010-1	1 January 2012-31 December 2015	10 July 2020	https://cordis.europa.eu/project/id/261769
P-REACT	FP7-Security	FP7-SEC-2013-1	1 April 2014-31 Ma 2016	10 July 2020	https://cordis.europa.eu/project/id/607881
SMARTPREVENT	FP7-Security	FP7-SEC-2013-1	1 March 2014-30 April 2016	10 July 2020	https://cordis.europa.eu/project/id/606952
FESTOS	FP7-Security	FP7-SEC-2007-1	1 March 2009-31 December 2011	10 July 2020	https://cordis.europa.eu/project/id/217993
TRACE	FP7-Security	FP7-SEC-2013-1	1 May 2014-30 April 2016	10 July 2020	https://cordis.europa.eu/project/id/607669
MOSAIC	FP7-Security	FP7-SEC-2010-1	1 April 2011-31 July 2014	10 July 2020	https://cordis.europa.eu/project/id/261776