

**HORIZON 2020** 



# FINAL DISSEMINATION REPORT



ROBORDER 740593

Deliverable Information Work Package: WP7 Deliverable Number: D7.5 Date of Issue: 31/08/2021 Document Reference: 740593-ROBORDER-D7.5\_FinalDisseminationReport\_v0.6 Version Number: 0.6 Nature of Deliverable: Report Dissemination Level of Deliverable: Public Author(s): HMOD (responsible), CPT, CERTH, ORFK, Copting, UoA, CNIT, Everis, SPP, PJ, CENTRIC, VTT Keywords: dissemination, events, publication, plan, strategy, target groups, results

#### Abstract:

Dissemination reports provide an overview of the various dissemination activities that have been completed in the project. It also reports on the activities of the User Group and their input into the direction of the project, as well as an exhaustive list of all the papers, presentations, publications and demonstrations published or performed during the ROBORDER project.







## **Document History**

Date	Version	Remarks
14/06/2021	0.1	TOC creation
20/06/2021	0.2	Template preparation and input requested from all partners
30/07/2021	0.3	Adjustments and Issue of first draft
01/08/2021	0.4	Internal review and comments
12/08/2021	0.5	Corrections according to review comments
25/08/2021	0.6	Quality check and issue of final draft

## **Document Authors**

Entity	Contributors	
HMOD (Responsible)	Anestis Papakotoulas	
CENTRIC	Helen Gibson Andrea Redhead	
CERTH Sofia Kyrampalidou		
CNIT	Paolo Ghelfi	
Copting	Christian Kaiser	
СРТ	Irene Karapistoli	
Everis	Monika Kokstaite	
ORFK	Zoltán Székely	
PJ	Berta Santos Lúcia Lebre	
SPP	Radan Mircea	
UoA	Vassilis Papataxiarhis	
VTT	Helin Kaj	

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





## **Executive Summary**

The Final Dissemination Report presents an overview of the communication and dissemination strategy envisioned for the ROBORDER project, and a list of relevant activities undertaken during the project.

The overview of the dissemination and communication plan summarizes the dissemination strategy, revises the target groups (European Union Officials, Public Entities, Border Security Researchers, Industry and General Public), and mentions the synergies that are happening between ROBORDER and other on-going research projects. The dissemination tools are also reported in this section of the deliverable.

The second part of this document presents a list of the dissemination activities that took place during the ROBORDER project. This list identifies the partner that carried out the activity, identifies the type of activity, the target audience and an explanatory note on why such activity is deemed relevant.





## **Table of Contents**

Document History	2
Document Authors	2
Executive Summary	3
List of Figures	5
List of Tables	5
List of Acronyms	6
1. Introduction	7
2. Dissemination and Communication Plan Overview	8
2.1. Dissemination Strategy	8
2.2. Target Audiences	9
2.3 Expected Outcomes10	0
3. Project Website	3
3.1. Website Overview1	3
3.2. Website Analytics1	3
4. Social Media1	5
4.1. Facebook10	6
4.2. Twitter1	7
4.3. LinkedIn	8
5. Project Materials	9
5.1. Project Identity (logos, templates)19	9
5.2. Flyers, Fact Sheets, Brochures20	0
6. Non-scientific events	2
7. Scientific Dissemination	2
7.1. Scientific Publications	2
7.2. Scientific Events	5
8. Other Dissemination Activities	3
8.1. Open-Access Dissemination4	3
8.2. Synergies	4
8.3 Media and Press4	7
9. ROBORDER Demonstrations	9
9.1. Demonstration in Portugal (Nov 2020)49	9
9.2. Demonstration in Bulgaria (Jun 2021)4	9
9.3. Demonstration in Greece (Jun 2021)50	0
10. Conclusions and Next Steps	1
11. References	2





## List of Figures

Figure 1- Website Landing Page	13
Figure 2 - Number of Visitors to roborder.eu website	14
Figure 3 - Origin of Visitors	14
Figure 4 - Views per page	14
Figure 5 - Screenshot of the Facebook page	15
Figure 6 - Screenshot of the Twitter page	16
Figure 7 - Reach per Facebook post	16
Figure 8 - Statistics of Facebook page reach	17
Figure 9 - Potential reach per tweet	17
Figure 10 - Screenshots of LinkedIn page and posts	18
Figure 11 - ROBORDER logos	19
Figure 12 - ROBORDER Presentation Template	19
Figure 13 - ROBORDER Leaflet (Side 1)	20
Figure 14 - ROBORDER Leaflet (Side 2)	20
Figure 15 - ROBORDER Fact Sheet	21
Figure 16 - Demo in Portugal	49
Figure 17 - Demo in Bulgaria	49
Figure 18 - Demo in Greece	50
Figure 19 - Demo in Greece (2)	50

## **List of Tables**

Table 1 - List of Acronyms	6
Table 2 - Individual dissemination plans	12
Table 3 - Non-scientific dissemination activities	
Table 4 - Scientific dissemination activities	
Table 5 - Open-access dissemination activities	43
Table 6 - Synergies	
Table 7 - Media and press	48





## List of Acronyms

Acronym	Meaning	
AI	Artificial Intelligence	
AR/VR	Augmented Reality/Virtual Reality	
DEFEA	DEFence Exhibition Athens	
DoA	Description of Actions	
EC	European Commission	
EU	European Union	
EUCI	European Union Classified Information	
HQ	Headquarters	
IEEE	Institute of Electrical and Electronics Engineers	
KPI	Key Performance Indicator	
LEA	Law Enforcement Agency	
NUPS	National University of Public Service	
SAB	Security Advisory Board	
SEO	Search Engine Optimization	
SERP	Search Engine Results Page	
SMEs	Small and Medium Enterprises	
ТОС	Table of Contents	
UxV	Unmanned Vehicle	
WG	Working Group	
WP	Work Package	

#### Table 1 - List of Acronyms





## 1. Introduction

The Final Dissemination Report will provide an overview of the various dissemination activities that have been completed during the project (i.e. until M52 – August 2021). This overview will revise the Communication and Dissemination plan delivered in M3 and will present an exhaustive list of the publications and dissemination activities undertaken by the different partners of the ROBORDER project.

It is worth mentioning that the communication and dissemination activities that took place in the fifty-two months of the project were based on the strategic guidance provided by ROBORDER's Description of Action (DoA). This document outlined the objectives of ROBORDER dissemination and communication activities and how these supported the overall goals of the project to ensure a proper impact towards relevant stakeholders and interested parties.





## 2. Dissemination and Communication Plan Overview

The main objective behind ROBORDER's dissemination and communication work package (WP7) is to disseminate ROBORDER's progress and results in such a way that it would raise awareness around target groups like end-users, academia, large industry and SMEs. To fulfill this objective, a comprehensive dissemination strategy was envisioned that would disseminate and promote the project activities, achieve high visibility within the scientific community and would share knowledge and lessons learned with other work groups under the same topic.

## 2.1. Dissemination Strategy

The dissemination strategy of the ROBORDER project is based on a concentrated marketing strategy directed to target groups and possible future markets that can be interested in the outcomes of the project. Furthermore, it is the consortium's understanding that the results of the project are not of interest to a single market and as such, the project achievements should also be disseminated across the general public. By doing so, a mass marketing dissemination action has been anticipated to inform as wide an audience as possible about the results of the project.

This strategy enables the ROBORDER consortium to strongly position the project's results and achievements within the general community.

ROBORDER's dissemination goals, which is based on the EC guidelines on "Making the Most of your H2020 Project" [1], were identified as follow:

- 1. awareness: interested stakeholders and audiences should be aware of the current situation and the challenges LEAs and border control agencies are facing in regard to their operations. Building on the existing awareness levels, the consortium will introduce its solutions and innovations.
- 2. alignment: interested audiences should agree upon the fact that ROBORDER will produce a promising and usable solution to the respective audiences. This alignment will be endorsed by credible institutions and by enabling the sharing of information regarding the developed technologies towards interested stakeholders.
- 3. engagement: interested parties should be encouraged to remain engaged and in close connection with ROBORDER. To achieve this goal, the consortium will make sure to closely monitor the latest updates in the field in order to ensure that their research's outcomes are still relevant and of-use to the operational activities of the interested stakeholders.
- 4. action: audiences need to have a concrete form of motivation in order to take action. This will be achieved by directly focusing on LEAs/border control's operational needs that will help them improve their daily tasks and adopt ROBORDER's technologies.

This strategy has been followed, always bearing in mind the "security" nature of ROBORDER. It is understood that certain dissemination activities cannot take place in great scale and some information will have to be disclosed in order to protect EUCI at both European and National level. Consequently, the consortium has adopted certain security guidelines regarding the dissemination of material (scientific papers, conference proceedings, articles etc.) that require all material to undergo a review by the consortium's Security Advisory Board (SAB) in consultation with the project's coordinator (CERTH) 8 weeks before the submission deadline in order to evaluate and assess the nature of information contained in the document and whether it would be safe to communicate such type of information to the audiences the publication is addressed to. Prior to this review, the





responsible partner (in cooperation with the rest of the consortium) will make sure to investigate and verify the credibility of the publisher in order to ensure that no false advertising or negative reviews are going to be unjustifiably conducted.

### 2.2. Target Audiences

In order to effectively disseminate the progress of project ROBORDER, the consortium identified groups of audiences that should be targeted to ensure the maximum impact possible. Since these groups of target audience range from scientific experts to decision makers and from the end-users to the general public, the consortium decided to split the information and content available to each group depending on the technical expertise to ensure that everyone would be able to exploit the information they received.

The selected target groups are identified in the following subsections:

#### 2.2.1 Identified Target Communities

Establishing contact with the relevant communities allows the consortium to gain sensitivity to the challenges and impact that the technologies developed in the ROBORDER project could have. At this point, it should be highlighted that a part of those communities is not specifically related with defence/security or LEAs – including for instance aeronautics, robotics and other fields of application for radar and UxV technologies – and by incorporating them in ROBORDER's dissemination and exploitation process, the achievements of this project reached beyond that specific scope, in alignment with the defined project impacts.

ROBORDER's consortium partners established contact with a wide range of stakeholders in order to engage them at an initial project stage and ensure a closely aligned technical development.

#### 2.2.2 European Union Officials

ROBORDER approaches European Commission officials and experts at the levels of Units and Directorates as well as offices of the relevant Commissioners. Additionally, European parliament members and their offices were informed on the results of the project as well. Exchange with the EU officials assisted to adjust project activities, if required. On top of that, such exchange induced a sustainable interest in continuing project activities, during and after ROBORDER project's completion.

#### 2.2.3 Public Entities - Bodies – Agencies

ROBORDER partners maintained valuable contacts with national agencies in charge of Border Security in their countries. These contacts were used to disseminate ROBORDER knowledge. The project made efforts to reach akin entities in other member states too.

#### 2.2.4 Border Security Researchers

Dissemination within the research community is needed for successful project implementation. Knowledge exchange is crucial for assessing the state-of-the-art, project planning and evaluating project results. This target group was addressed via different ways, individually and within the framework of international organisations in which researchers maintained international exchange and cooperation.

#### 2.2.5 Industry

Innovative technology developers, data and digital experts and many other commercial branches might have a stake in this project. They were interested in learning more about





existing and looming challenges and also contributed to address these challenges. Feedback from the industry was valuable for ROBORDER.

Business is a sensitive stakeholder. Innovations resulting from research induce a creation of new products and generation of profits. As such, informing the industry was an important prerequisite for increasing chances for the implementation of the research results.

#### 2.2.6 Interested Public

The interested public in this context is everyone who is interested in the topic of border security. Those were scientists from related disciplines, private persons and also bloggers. In contrast to the general public this group knew precisely what information it needed and actively sought for this information.

#### 2.2.7 General Public

The ultimate objective of the project is an improved assistance to the security of borders. Hence, the general public was an important recipient of the information that the project disseminated.

People in general had an interest in news concerning how their borders could be more safe and secure. Obviously, border security is not their main issue in their common life, but by a scientific way of communication that they paid attention and attracted to this innovative action. The broadly oriented media (printed and electronic) and bloggers were most likely to be successful in this role.

#### 2.2.8 Synergies with Related Projects and Initiatives

The members of the ROBORDER consortium are aware of the importance of having contact with other EU related programs and organizations. Other European related projects such as CAMELOT, MARISA and others comprised a good base of knowledge and the exchange of information between them were good steps for a better and more accurate final results.

Moreover, the ROBORDER consortium contacted citizens, small groups or even organizations that contributed to the fields of ROBORDER, by participating in initiatives across Europe or through social media, newsletters and open workshops and wrote down their ideas to be exploited inside the project.

### 2.3 Expected Outcomes

A number of dissemination activities took place during the project. Each partner has laid out their own individual dissemination plans that may be found in the table below:

Partner	Dissemination plan	Target audience
CERTH	Publication in scientific journals and conferences; participation in workshops; support online dissemination content.	Research community, academia, industry
FHR	Publication in scientific journals and conferences; participation in workshops; support online dissemination content.	Research community, academia, industry
EASS	Dissemination of results to LEAs and other end-users; participation in conferences and workshops; publications in sectorial journals; support of online dissemination content.	LEAs, national and international authorities, research community, academia
VTT	Publication in scientific journals and conferences; participation in workshops; support online dissemination	Research community,





Partner	Dissemination plan Target audienc		
	content.	academia, industry	
EVERIS	Participation in conferences; publication of results in Europe Defense Matters (European Defense Agency)	Industry, research community, EU institutions	
PSNI	Dissemination of results to LEAs and other end-users (enhance engagement); participation in workshops; support of online dissemination content.	LEAs, border control authorities, local authorities, international authorities	
GNR	Dissemination of results in international forums and local authorities; raising awareness presentations regarding border security issues and ROBORDER's proposed solutions.	LEAs, border control authorities, local authorities, international authorities	
CMRE	Publication in scientific journals and conferences; participation in workshops; support online dissemination content.	Research community, academia, industry, international authorities	
ORFK	Press releases; participation in events addressed to the wider public; participation in conferences, workshops, exhibitions and info-days.	LEAs, border control authorities, local authorities, international authorities, research community	
ROB	Participation in conferences, fairs and exhibitions; integration of produced results in proof of concepts.	Industry, SMEs, research community	
SPP	Dissemination in ENPPF & APPS professional networks; dissemination of results to the Military Technical Academy in Romania; participation in international workshops and conferences.	LEAs, border control authorities, local authorities, international authorities, research community	
ELTM	Presentation of results at the annual MILIPOL exhibition, the GPEC exhibition; support of online dissemination content.	Industry, SMEs, research community	
HMOD	Dissemination of results to its interested directorates; organization of internal seminars regarding the project's outcomes; support of online dissemination content; participation in seminars, workshops, conferences.	Public bodies, government, LEAs, border control authorities, local authorities, international authorities, research community	
CENTRIC	Publication in scientific journals and conferences; participation in workshops; support of online dissemination content; incorporation of results in taught courses; dissemination of results to security and policing events.	Research community, academia	
AdSP MTS	Publications in industrial sector journals and conferences; participation in workshops; support of online dissemination content; organization of training sessions; contribution to best practices and standards.	Research community, local authorities, international authorities	
MST	Participation in fairs, exhibitions and conferences related to marine technologies; publications in conferences and journals; participation in workshops;	Research community, industry, SMEs	





Partner	Dissemination plan	Target audience
	support of online dissemination material.	
BDI	Participation in conferences and workshops; support of online dissemination material.	Government, LEAs, local authorities, international authorities and institutions
Copting	Participation in conferences, fairs and exhibitions; integration of produced results in proof of concepts.	Industry, SMEs
UoA	Publication in scientific peer-reviewed journals, conferences and book chapters; press releases; web publications (pervasive computing (p-comp) research group web page); support of online dissemination content.	Research community, academia
CSEM	Publication in scientific journals and conferences; participation in workshops; support online dissemination content.	Research community, academia
CNIT	Publication in scientific journals and conferences; participation in workshops (e.g. pan European Workshop); support of online dissemination content; organization of training sessions.	Research community, academia
PJ/MJ	Dissemination of results to LEAs and other international institutions; support of online dissemination content.	Government, LEAs, local authorities, international authorities and institutions
CLS	Publication in international journals and conferences; support of online dissemination material (through the company's website and blog); publication of results via a profile in Enterprise Europe Network.	Industry, SMEs
RBP	Dissemination in ENPPF & APPS professional networks; dissemination of results to the Military Technical Academy in Romania; participation in international workshops and conferences.	Government, LEAs, local authorities, international authorities and institutions
EVADS	Participation in conferences and workshops; dissemination of ROBORDER's results via fairs and exhibitions; support of online dissemination content.	Industry, SMEs
SCR	Participation in conferences and workshops; dissemination of ROBORDER's results via fairs and exhibitions; support of online dissemination content.	Industry, SMEs

Table 2 - Individual dissemination plans





## 3. Project Website

In this section we describe and report on the impact of the project website http://roborder.eu

### 3.1. Website Overview

The project website is conceived as a space to have the project's corporate information and hold the public deliverables that are produced, containing static information. However, it has also become the aim of crosslinking for the field trials, in order to be able to precisely find the project's general information, as well as the project partners and the facts.



ROBORDER aims at developing and demonstrating a fully-functional autonomous border surveillance system with unmanned mobile robots including aerial, water surface, underwater and ground vehicles which will incorporate multimodal sensors as part of an interoperable network. Our intention is to implement a heterogenous robot system and enhance it with detection capabilities for early identification of criminal activities at border and coastal areas along with marine pollution events.



Figure 1- Website Landing Page

## 3.2. Website Analytics

Close monitoring based on analytical tools – such as Google Analytics – and on-page and off-page Search Engine Optimization (SEO) will be used to improve the overall website's efficiency. The website is expected rank among the Top 10/Top 3 Search Engine Results Page (SERP) using the following predefined key expressions: ROBORDER project; Horizon 2020.



Final Dissemination Report ROBORDER





Figure 2 - Number of Visitors to roborder.eu website

Monitoring and analyzing geographical and time data using appropriate tools (web analytics, survey) and performance measurements (see Figure 2) allow us to get reports that will help our effort to better organize and meet dissemination and promotion goals, as well as to readjust actions whenever required.

Country		Users	% Users	
1.	1	Greece	36	39.56%
2.	C	Spain	18	19.78%
3.	-	Bulgaria	10	10.99%
4.	-	Germany	10	10.99%
5.		Belgium	3	3.30%
6.		United Kingdom	3	3.30%
7.		Switzerland	1	1.10%
8.		Denmark	1	1.10%
9.		Estonia	1	1.10%
10	). 🚍	Hungary	1	1.10%



Page Views	% Page Views 25.66%	
68		
38	14.34%	
32	12.08%	
15	5.66%	
13	4.91%	
12	4.53%	
12	4.53%	
11	4.15%	
9	3.40%	
9	3.40%	
	Page Views           68           38           32           15           12           12           13           9           9	

#### Figure 4 - Views per page

At the end of the project, the impact of this website has proved to be low due to the guidelines of the EC.





## 4. Social Media

To facilitate this dissemination, the ROBORDER consortium has its presence over the most used social media platforms, like Facebook, Twitter and LinkedIn. From these, the audience should be able to be up to date regarding the developments and progresses made so far within the project. The list of these dissemination tools and the respective links are provided below:

- Facebook: <u>https://www.facebook.com/robordereu/</u>
- Twitter: https://twitter.com/roborder\_eu
- LinkedIn: https://www.linkedin.com/in/roborder/

Communication on social media can build trust and community by inviting and contributing to conversations online. Facebook and Twitter, the project's two main social media accounts, share project information, reports and upcoming events, information about partners' activities, and related news and readings.



Figure 5 - Screenshot of the Facebook page



Figure 6 - Screenshot of the Twitter page

Following the guidelines of the EC in the second review concerning negative press coverage, a low profile in the project's website and social media was kept. Communication was decided to focus only on the highlights of the project resulting in a niche audience and a slightly increased bounce rate that does not necessarily reflect the user's unwillingness to spend more time on the website, but rather the limited amount of information that could be disseminated through the website/social media.

### 4.1. Facebook

The ROBORDER Facebook page was launched in June 2017 to build an online community around the project. The Facebook posts share project updates with more context than Twitter, and almost the same frequency with the website. The page currently has 53 "likes".

Recent content ↑↓	Туре	↓ Reach
@iProcureNet_EU organi 28 May 01:31	0	22
#ProjectCaseStudies: # 22 April 07:12	0	16
We are happy to announ 18 June 03:05	0	15
<b>Swj</b> Learn more about EUCIS 7 May 01:01	Ø	15
<b>*************************************</b>	0	9

Figure 7 - Reach per Facebook post





Facebook Page reach 🕕



Figure 8 - Statistics of Facebook page reach

Based on the Facebook insights, the page reach indicated an increase of 53,8% during the last year, which can be translated on an average of 40 unique people who saw each post. This number affects positively every other metric we track, such as engagement, likes, comments, and feedback.

### 4.2. Twitter

The ROBORDER Twitter account was launched in June 2017 to share project updates and contribute to the online presence of the project. The Twitter posts have exactly the same frequency with the Facebook page. The page currently has 65 followers.

Roborder Project @roborder_eu - Jun 18       65       4       6.2%         We are happy to announce our collaboration with the European @BorderUas project. An opportunity to brainstorm between the concepts and operations, exchange ideas and transfer knowledge. Stay tuned!       65       4       6.2%         We are happy to announce our collaborations, exchange ideas and transfer knowledge. Stay tuned!       #securitysolutions #sisterprojects #H2020 roborder.eu/2021/06/03/new pic.twitter.com/GE1TA6E3np       168       8       4.8%         Image: Stay tuned!       #socordre.eu/2021/06/03/new pic.twitter.com/GE1TA6E3np       168       8       4.8%         Image: Stay tuned!       #socordre.eu/2021/05/26/ile pic.twitter.com/GEZeawXB8I       168       8       4.8%         Image: Stay tuned:       #Roborder Project @roborder.eu/2021/05/26/ile pic.twitter.com/GEZeawXB8I       348       3       0.9%         Image: Stay tuned:       #martinemonitoring #EUCISE2020 #datamodel, #Ortology       348       3       0.9%	Tweet	s Top Tweets Tweets and replies Promoted	Impressions	Engagements	Engagement rate
Roborder Project @roborder_eu · Jun 2       168       8       4.8%         #Roborder will participate to the Public Workshop on Standardisation in security research, organised by @ILEAnet_project sister project. Learn more here: roborder.eu/2021/05/26/ile pic.twitter.com/GEZeawXB8I       168       8       4.8%         View Tweet activity       View Tweet activity       348       3       0.9%         Roborder Project @roborder_eu · May 7       348       3       0.9%         Imaritimemonitoring #EUCISE-OWL ontology witch takes #CISE one step further by delivering richer semantics, enhanced semantic interoperabilities. #maritimemonitoring #EUCISE2020 #datamodel, #Ontology       348       3       0.9%         Wew Tweet activity       View Tweet activity       348       3       0.9%	©	Roborder Project @roborder_eu · Jun 18 We are happy to announce our collaboration with the European @BorderUas project. An opportunity to brainstorm between the concepts and operations, exchange ideas and transfer knowledge. Stay tuned! #securitysolutions #sisterprojects #H2020 roborder.eu/2021/06/03/new pic.twitter.com/GE1TA6E3np View Tweet activity	65	4	6.2%
Roborder Project @roborder_eu · May 7       348       3       0.9%         Learn more about EUCISE-OWL ontology witch takes       #CISE one step further by delivering richer semantics, enhanced semantic interoperability and semantic reasoning capabilities.       #maritimemonitoring #EUCISE2020 #datamodel, #Ontology       #Ontology       ************************************	C	Roborder Project @roborder_eu · Jun 2 #Roborder will participate to the Public Workshop on Standardisation in security research, organised by @ILEAnet_project sister project. Learn more here: roborder.eu/2021/05/26/ile pic.twitter.com/GEZeawXB8I View Tweet activity	168	8	4.8%
View Tweet activity	¢	Roborder Project @roborder_eu · May 7 Learn more about EUCISE-OWL ontology witch takes #CISE one step further by delivering richer semantics, enhanced semantic interoperability and semantic reasoning capabilities. #maritimemonitoring #EUCISE2020 #datamodel, #Ontology roborder.eu/2021/05/06/don pic.twitter.com/u2VgXiHTJz	348	3	0.9%
		View Tweet activity			

Figure 9 - Potential reach per tweet

Our Twitter's page engagement rate recorded an increase of 12,3%, which can be translated to an average of 241 impressions per post. The Engagement Rate is calculated by dividing the number of engagements by the number of impressions. Engagement includes any way someone interacts with a Tweet, including but not limited to, Retweets, clicks and Likes. The potential reach of the last three tweets is presented on the figure above.



Final Dissemination Report ROBORDER



4.3. LinkedIn



**ROBORDER Project** Non-Profit Project at Roborder Project Lisboa, Lisbon, Portugal · Contact info

94 connections

#### Activity 98 followers



We are happy to announce our collaboration with the European... ROBORDER shared this 8 Reactions



@iProcureNet\_EU organised a joint workshop to present the #ROBORDE... ROBORDER shared this 14 Reactions

**ROBORDER** Project



Learn more about EUCISE-OWL ontology witch takes #CISE one step further by... ROBORDER shared this

5 Reactions

#### Figure 10 - Screenshots of LinkedIn page and posts

The ROBORDER LinkedIn account was launched in May 2017 in order to maintain connections with sister projects and share the highlights and feeds of the project's website. Currently, the account has 94 connections and 98 followers, with a mean estimation of 20 profile views and 110 post views per week. The pages followed and the activity of the account involves the European Commission official page and the pages of H2020 projects, related to law enforcement and border management.





## **5. Project Materials**

In the following, we give a brief overview on project materials that have been created for dissemination purposes.

### 5.1. Project Identity (logos, templates)





Figure 11 - ROBORDER logos

The ROBORDER consortium also prepared the following template for the presentations that took/will take place in dissemination events.



Figure 12 - ROBORDER Presentation Template





#### 5.2. Flyers, Fact Sheets, Brochures

Furthermore, the consortium prepared a leaflet with basic information on the project and printed in the languages of the consortium members (English, Greek, Romanian, Hungarian and Portuguese) and a fact sheet to distribute in all the meetings, conferences and workshops that the members of ROBORDER attended. The two sides of the leaflet are presented in Figures 13 and 14, while the factsheet is presented in Figure 15.





## ROBORDER

#### **Final Dissemination Report** ROBORDER



## ROBORDER

PROJECT COORDINATOR Information Technologies Institute -Centre of Research & Technology

Dr. Stefanos Vrochidis (project coordinator) T: +30 2311 257754 E-mail: stefanos@iti.gr

Prof. Elias Kosmatopoulos (scientific manager) T:+30 2310 464160 E-mail: kosmatop@iti.gr

Website: https://roborder.eu Duration: 05/2017-08/2021 Total cost: € 8.997.781



#### Autonomous Swarm of Heterogeneous Robots for Border Surveillance

#### DESCRIPTION

Description Border authorities and Law Enforcement Agencies (LEAs) across Europe face important challenges in how they patrol and protect the borders. Their work becomes more problematic considering the heterogeneity of threats, the wideness of the surveyed area, the adverse weather conditions and the wide range of terrains. The vision of ROBORDER is to develop and demonstrate a fully functional autonomous border surveillance system with unmanned mobile robust equipmed with multimodal sensors. Our mobile robots equipped with multimodal sensors. Our intention is to implement a heterogeneous robot system and enhance it with detection capabilities for early identification of criminal activities at border and coastal areas along with marine pollution events.

#### OBJECTIVES

ROBORDER addresses the following objectives · Autonomous border suriveillance system with unmanned mobile robots. Incorporate multimodal sensors as part of an

interoperable network. • Enahanced static networked sensors

 Early identification of criminal activities.
 Accurate operations in a wide range of operational and environmental settings.

#### **PILOT USE CASES - DEMONSTRATORS**

· Unauthorized sea border crossing. Unauthorized land border crossing

Detecting pollution accidents.

#### IMPACT

The ROBORDER system is expected to: · Enhance the protection of human lives exposed at land and sea.

 Improve identification and tracking of illegal acivities.
 Accurately detect marine pollution incidents.
 Support governmental agencies with improving environmental protection

#### OUTCOMES

The main results of the deployed system can be summarised as: Provision of an overall border security solution.
Effective operation of a heterogeneous multi-asset system by a single operator. • Improved payloads and contributions to UxV cybersecurity. • Photonic radar network and passive radar onboard UAV.

#### Figure 15 - ROBORDER Fact Sheet

The leaflet and the fact sheet can be found in the project's website: https://roborder.eu/resources/





## 6. Non-scientific events

In the following table, the non-scientific events, where partners of the ROBORDER consortium participated and presented ROBORDER for dissemination purposes or dissemination reports that ROBORDER partners have already performed during the project, will be presented:

No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
1	CapriTech Limited (CPT)	Website		30/4/2017	CPT's Website Portal	General public	Public Information about participation of CPT in the ROBORDER project.
2	CapriTech Limited (CPT)	Social media		30/4/2017	CPT`s LinkedIn page	Social media	Information about the initiation of CPT in the ROBORDER project.
3	CapriTech Limited (CPT)	Social media		30/4/2017	CPT`s Twitters page	Social media	Information about the participation of CPT in the ROBORDER project
4	CapriTech Limited (CPT)	Intranet		4/5/2017	CPT's Intranet	Members of CPT only	Information about the participation of CPT in the ROBORDER project along with an invitation (link) to visit and explore the ROBORDER website.
5	CapriTech Limited (CPT)	Mailing		16/9/2017	Mail dissemination	Industry, stakeholders, investors, eventual customers	Information about the participation of CPT in the ROBORDER project along with an invitation (link) to visit and explore the ROBORDER website.





No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
6	CapriTech Limited (CPT)	Mailing		12/2/2018	Mail dissemination	Industry, stakeholders, investors, eventual customers	Invitation to visit the ROBORDER <sup>´</sup> s website and check its factsheet and leaflet.
7	CERTH-ITI	Participation in a summit	Innovation meets the defence industry	3/8/2018	Greek Ministry of Defence, General Directorate for Defence Investments & Armaments	Stakeholders, eventual customers	Disseminate the project objectives
8	HNP	Presentation		13/6/2017	HNP High Commissioners		ROBORDER was presented to the HNP High Commissioners (heads of national and regional level units) on their annual compulsory training session.
9	HNP	Presentation		9/10/2017	ROBORDER workshop held at NUPS		ROBORDER was presented to the registered participants of the ROBORDER workshop held at NUPS, only registration from consortium partners and people with appropriate level of security clearance (HNP and NUPS officials) was accepted, a short press release on the project was presented on the NUPS website.





No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
10	HNP	Presentation		10/10/2017	Beregsurány Border Outpost		ROBORDER was presented to local border guard officers at the Beregsurány Border Outpost
11	HNP	Presentation		10/5/2018	Advisory Board for Border Police Education		ROBORDER was presented at the quarterly meeting of the Advisory Board for Border Police Education for Heads of Border Police Services of HNP and directors of education and training institutions at NUPS. All participants were HNP officers.
12	HNP	Presentation		16/1/2018	HNP HQ		ROBORDER progress was presented at the HNP HQ during the regular yearly scientific progress report of the HNP Scientific Council, only HNP officials, NSA agents and RPAS experts with appropriate security clearance were present
13	Copting	Presentation			Client presentation		Integration of ROBORDER into client presentation, when presenting the portfolio of Copting





No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
14	Copting	Exhibition			UTSec 2017-2018		ROBORDER during exhibitions, Copting participated as exhibitor
15	Copting	Information			Social media		Copting shared project information, as publicly available via social media
16	HMOD	Presentation		5/6/2018	Hellenic Naval Academy		Presentation of ROBORDER project to the upcoming Navy officers
17	HMOD	Presentation		18/6/2018	POSIDONIA ANCHORS MARITIME WORLD		Presentation and exhibition of ROBORDER project to the Members of Greek and International Shipping Community
18	HMOD	Presentation		10/5/2018	Communications & Electronics Military Signal Officers School		Disseminations activities at the Communications & Electronics Military Signal Officers School.
19	HMOD	Presentation		9/3/2018	Kapodestrian University of Athens		Presentation of ROBORDER Project to PHD Candidates
20	UoA	Reference and short presentation			Website of the Pervasive Computing Research Group of UoA (http://p- comp.di.uoa.gr/)		





No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
21	TEKEVER	Presentation		8/6/2017			Presentation of ROBORDER project (objectives, concept, approach and expected results) at the Workshop on EU funded border security research projects organized by and held at FRONTEX. Feedback was very positive and several representatives of member states demonstrated interest in following the project and its results.
22	TEKEVER	Presentation		7/2/2018			Presentation of ROBORDER project with emphasis on the dialogues between industry/academia and end-users and challenge of requirements definition at the EUROSUR industry workshop organized by and held at the European Commission. Feedback from the audience was positive.
23	TEKEVER	Presentation		5/6/2018			Presentation of ROBORDER project with special emphasis on the issues of interoperability at the 11TH MEETING OF THE COMMUNITY OF





No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
							USERS ON SECURE, SAFE AND RESILIENT SOCIETIES THEME 8 – INFORMATION EXCHANGE AND INTEROPERABILITY organized by the Commission and held in Brussels.
24	PJ	Mailing		20/11/2017		Portugese LEAS. stakeholders, eventual customers	Information about participating of PJ in Project ROBORDER and invitation, with link to LEAS to visit and explore ROBORDER website
25	PJ	Mailing		17/7/18		Portugese LEAS. stakeholders, eventual customers	Invitation to visit ROBORDER site and check the ROBORDER's factsheets and leaflets website
26	PJ	Intranet		4/9/2017	PJ's Intranet	Members of PJ only	Information about participating of PJ in Project ROBORDER and invitation, with link to LEAS to visit and explore ROBORDER website
27	PJ	Social media		4/9/2017	PJ's twitter page		Information about participating of PJ in Project ROBORDER and invitation, with link to LEAS to visit and explore ROBORDER website





No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
28	CENTRIC	Website		28/03/2017	CENTRIC's Website	General public	Information about ROBORDER project
29	CENTRIC	Social media		16/05/2017	CENTRIC's Twitter page	Social media	Information about the participation of CENTRIC in ROBORDER
30	CENTRIC	Social media		13/07/2017	CENTRIC's Twitter page	Social media	Information about the participation of CENTRIC in ROBORDER
31	CENTRIC	Social media		13/02/2018	CENTRIC's Twitter page	Social media	Information about the participation of CENTRIC in ROBORDER
32	Copting	Fair		2019	Fair Intergeo, Stuttgart, Germany		
33	Copting	Fair		2019	Fair Sicherheitsexpo 2019, Munich Germany		
34	EASS	Presentation		24/09/2019		EASS personnel	EASS internal seminar/ information day
35	EASS	Social media		10/2019		Social media	mention on personal wall on LinkedIn
36	EASS	Seminar		24/01/2020	Ministry of the Interior.		Vision seminar on artificial intelligence (AI) in the area of internal security
37	EASS	Website			https://www.sisekaitse. ee/en/projects		Descriptive overview on the EASS website
38	EASS	Website		12/2019	https://www.google.co m/		Mention in the vision document "APPLIED





No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
					url?sa=t&rct=j&q=&esr C= s&source=web&cd=& cad=rja&uact=8&ved =2ahUKEwis2Pfsourp AhUJr4sK HY9KCfEQFjAAegQIA RAB&url= https%3A%2F%2Fww w.hm. ee%2Fsites%2Fdefault % 2Ffiles%2Frkrn_visioo nid okument_2035.pdf&us g= AOvVaw390A5QRros7 Gf9xXCyAy7B; p35		HIGHER EDUCATION IN 2035" in Estonia
39	EVADS	Website		2019	https://scrdrones.com/ en/scr- and-everis-ads- participate-in-roborder- project-for- autonomous-border- surveillance/		Press release on the successful Demonstration of ROBORDER in Portugal
40	EVADS	Website		2019	https://www.linkedin.co m/feed/ update/urn:li:activity:66 65900645125619712/		Press release on the successful Demonstration of ROBORDER in Portugal
41	GNR	Website		2019	https://www.gnr.pt/fich eiros/ projCofinanciados/hori zonte/ Autonomousswarmhet		





No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
					erogeneou sRobotsBORDERsurv eillance.pdf		
42	VVT	Demo				100 persons	Several Demos of AR / VR Based Novel User Interface for Drone Swarms Mission Control at VTT's Mixed Reality labs
43	UoA	Reference and short presentation			Website of the Pervasive Computing Research Group of UoA (http://p- comp.di.uoa.gr/)		
44	BDI	First Conference Of The Third Phase Of The Consultation Forum For Sustainable Energy In The Defence And Security Sector (CF SEDSS III)		27/10/2020	EDA	WG 3: Protection of Critical Energy Infrastructures	
45	BDI	Exhibition		30/09/2020	International defence equipment and services exhibition "HEMUS 2020", Plovdiv, Bulgaria	Scientific community, industry, stakeholders, investors	
46	HMOD	Exhibition		15/07/2021	DEFence Exhibition Athens	Scientific community, industry, stakeholders, investors	HMOD participated at DEFEA Exhibition presenting the ROBORDER Project





No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
47	HMOD	Website		26/07/2021	DIDEAP's Website Portal	General public	Public Information about Greek Demonstration of ROBORDER project
48	Copting	Website		2021	Copting's Website	General public	Copting participation in Bulgarian Demonstration of ROBORDER project
49	Copting	Social media		2021	Copting's Social Media	Social media	Copting participation in Bulgarian Demonstration of ROBORDER project

Table 3 - Non-scientific dissemination activities





## 7. Scientific Dissemination

In the following, scientific papers that have been published through ROBORDER and other scientific activities are listed.

### 7.1. Scientific Publications

The following scientific publications have been published under the acknowledgement of ROBORDER:

2017

- D. Onori et al., "A Photonically Enabled Compact 0.5–28.5 GHz RF Scanning Receiver," in Journal of Lightwave Technology, vol. 36, no. 10, pp. 1831-1839, 15 May15, 2018, doi: 10.1109/JLT.2018.2792304.
- S. Melo et al., "Photonics-Based Dual-Band Radar for Landslides Monitoring in Presence of Multiple Scatterers," in Journal of Lightwave Technology, vol. 36, no. 12, pp. 2337-2343, 15 June15, 2018, doi: 10.1109/JLT.2018.2814638.
- B. Hussain et al., "Performance analysis of auto-regressive UWB synthesis algorithm for coherent sparse multi-band radars," International Conference on Radar Systems (Radar 2017), 2017, pp. 1-6, doi: 10.1049/cp.2017.0433.
- D. Onori, F. Scotti, F. Laghezza, A. Bogoni and P. Ghelfi, "A software-defined and filter-free 0–26.5 GHz ultra-wideband RF transmitter enabled by photonics," 2017 47th European Microwave Conference (EuMC), 2017, pp. 1377-1380, doi: 10.23919/EuMC.2017.8231109.
- S. Melo et al., "High precision displacement measurements in presence of multiple scatterers using a photonics-based dual-band radar," International Conference on Radar Systems (Radar 2017), 2017, pp. 1-6, doi: 10.1049/cp.2017.0413.
- G. Serafino et al., "Design and characterization of a photonic integrated circuit for beam forming in 5G wireless networks," 2017 International Topical Meeting on Microwave Photonics (MWP), 2017, pp. 1-4, doi: 10.1109/MWP.2017.8168634.
- D. Onori, A. Bogoni and P. Ghelfi, "A photonics-based RF scanning receiver exploiting digital feed-forward lasers noise cancellation," 2017 International Topical Meeting on Microwave Photonics (MWP), 2017, pp. 1-4, doi: 10.1109/MWP.2017.8168653.
- Kapoutsis, A. C., Malliou, C. M., Chatzichristofis, S. A., & Kosmatopoulos, E. B. (2017). Continuously informed heuristic A\*-optimal path retrieval inside an unknown environment. 2017 IEEE International Symposium on Safety, Security and Rescue Robotics (SSRR), 216-222. doi: 10.1109/ssrr.2017.8088166
- Onori, D., Scotti, F., Laghezza, F., Bartocci, M., Zaccaron, A., Tafuto, A., Ghelfi, P. (2017). 0.5 40 GHz range extension of a compact Electronic Support Measures scanning receiver based on photonics. 2017 18th International Radar Symposium (IRS). doi: 10.23919/irs.2017.8008193

2018

- F. Scotti, D. Onori, A. Bogoni and P. Ghelfi, "Frequency-Agile and Filter-Free Wireless Communication Transceiver based on Photonics," 2018 Optical Fiber Communications Conference and Exposition (OFC), 2018, pp. 1-3.
- A. Bogoni, "Intelligent Remote Sensing Systems Based on Microwave Photonic Technologies," 2018 Optical Fiber Communications Conference and Exposition (OFC), 2018, pp. 1-3.
- B. Hussain, A. Malacarne, S. Maresca, F. Scotti, P. Ghelfi and A. Bogoni, "Auto-regressive spectral gap filling algorithms for photonics-based highly sparse coherent multi-band radars in complex scenarios," 2018 IEEE Radar Conference (RadarConf18), 2018, pp. 0993-0998, doi: 10.1109/RADAR.2018.8378696.





- D. Onori, F. Scotti, G. Serafino, P. Ghelfi and A. Bogoni, "Ultra-short optical pulses for coherent ultra-wide band RF signal sampling," 2018 Conference on Lasers and Electro-Optics (CLEO), 2018, pp. 1-2.
- G. Serafino et al., "Photonics for High-Frequency Ultra-Wideband and Frequency-Agile RF Transmitters," 2018 2nd URSI Atlantic Radio Science Meeting (AT-RASC), 2018, pp. 1-2, doi: 10.23919/URSI-AT-RASC.2018.8471448.
- A. Bogoni, G. Serafino and P. Ghelfi, "Remote Sensing Systems Based on Photonics," 2018 23rd Opto-Electronics and Communications Conference (OECC), 2018, pp. 1-2, doi: 10.1109/OECC.2018.8729992.
- S. Pan and Y. Zhang, "Microwave Photonic Radars," in Journal of Lightwave Technology, vol. 38, no. 19, pp. 5450-5484, 1 Oct.1, 2020, doi: 10.1109/JLT.2020.2993166.
- Scotti, F .; Bogoni, A .; Ghelfi, P., "Compact 0.5-40GHz RF Scanning Receiver based on photonics", Progress In Electromagnetics Research Symposium (PIERS), 2018, http://hdl.handle.net/11382/525694
- L. Lembo, P. Ghelfi and A. Bogoni, "Analysis of a Coherent Distributed MIMO Photonics-Based Radar Network," 2018 15th European Radar Conference (EuRAD), 2018, pp. 170-173, doi: 10.23919/EuRAD.2018.8546607.
- G. Serafino et al., "Photonics for mmW signal generation," 2018 19th International Radar Symposium (IRS), 2018, pp. 1-8, doi: 10.23919/IRS.2018.8448171.
- V. Papataxiarhis and S. Hadjiefthymiades, "Event correlation and forecasting over high-dimensional streaming sensor data," 2018 14th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2018, pp. 1-8, doi: 10.1109/WiMOB.2018.8589118.
- Salavasidis, G., Kapoutsis, A. C., Chatzichristofis, S. A., Michailidis, P., & Kosmatopoulos, E. B. (2018). Autonomous Trajectory Design System for Mapping of Unknown Sea-floors using a team of AUVs. 2018 European Control Conference (ECC). doi: 10.23919/ecc.2018.8550174
- Orfanidis, G., Ioannidis, K., Avgerinakis, K., Vrochidis, S., & Kompatsiaris, I. (2018). A Deep Neural Network for Oil Spill Semantic Segmentation in Sar Images. 2018 25th IEEE International Conference on Image Processing (ICIP), 3773-3777. doi: 10.1109/ICIP.2018.8451113
- Krestenitis, M., Orfanidis, G., Ioannidis, K., Avgerinakis, K., Vrochidis, S., & Kompatsiaris, I. (2018). Early Identification of Oil Spills in Satellite Images
  Using Deep CNNs. MultiMedia Modeling Lecture Notes in Computer Science, 424–435. doi: 10.1007/978-3-030-05710-7\_35
- Giannakeris, P., Kaltsa, V., Avgerinakis, K., Briassouli, A., Vrochidis, S., & Kompatsiaris, I. (2018). Speed Estimation and Abnormality Detection from Surveillance Cameras. 2018 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW). doi: 10.1109/cvprw.2018.00020
- Baldi, S., Rosa, M. R., Frasca, P., & Kosmatopoulos, E. B. (2018). Platooning merging maneuvers in the presence of parametric uncertainty. IFAC-PapersOnLine, 51(23), 148–153. doi: 10.1016/j.ifacol.2018.12.026

#### 2019

- M. Krestenitis, G. Orfanidis, K. Ioannidis, K. Avgerinakis, S. Vrochidis and I. Kompatsiaris, "Early Identification of Oil Spills in Satellite Images Using Deep CNNs", In International Conference on Multimedia Modeling (pp. 424-435), Springer, Cham, January 2019.
- K. Gkountakos, K. Ioannidis, S. Vrochidis, I. Kompatsiaris, "ITI-CERTH participation in TRECVID 2019", Proc. TRECVID 2019 Workshop, Gaithersburg, MD, USA, Nov. 2019
- G. Orfanidis, S. Apostolidis, G. Prountzos, M. Riga, A. Kapoutsis, K. Ioannidis, E. Kosmatopoulos, S. Vrochidis, I. Kompatsiaris, "Border surveillance using computer vision enabled robotic swarms for semantically enriched situational awareness" Mediterranean Security Event 2019 (MSE2019) 29th and the 31st of October 2019 Heraklion, Greece.
- S. Maresca et al., "Photonics for Coherent MIMO Radar: an Experimental Multi-Target Surveillance Scenario," 2019 20th International Radar Symposium (IRS), Ulm, Germany, 2019, pp. 1-6, doi: 10.23919/IRS.2019.8768096.
- Orfanidis, G., Apostolidis, S., Kapoutsis, A., Ioannidis, K., Kosmatopoulos, E., Vrochidis, S., & Kompatsiaris, I. (2019). Autonomous Swarm of Heterogeneous Robots for Surveillance Operations. Lecture Notes in Computer Science Computer Vision Systems, 787–796. doi: 10.1007/978-3-030-34995-0\_72





- Orfanidis G. et al. (2019) Autonomous Swarm of Heterogeneous Robots for Surveillance Operations. In: Tzovaras D., Giakoumis D., Vincze M., Argyros A. (eds) Computer Vision Systems. ICVS 2019. Lecture Notes in Computer Science, vol 11754. Springer, Cham. <u>https://doi.org/10.1007/978-3-030-34995-0\_72</u>
- Loukas, G., Karapistoli, E., Panaousis, E., Sarigiannidis, P., Bezemskij, A., & Vuong, T. (2019). A taxonomy and survey of cyber-physical intrusion detection approaches for vehicles. Ad Hoc Networks, 84, 124–147. doi: 10.1016/j.adhoc.2018.10.002
- L. Lembo, S. Maresca, G. Serafino, F. Scotti, A. Malacarne, P. Ghelfi, and A. Bogoni, "Microwave Photonics for a Radar Network," in OSA Advanced Photonics Congress (AP) 2019 (IPR, Networks, NOMA, SPPCom, PVLED), OSA Technical Digest (Optical Society of America, 2019), paper NeTh2D.2.
- L. Lembo, P. Ghelfi and A. Bogoni, "Antenna Position Optimization in a MIMO Distributed Radar Network through Genetic Algorithms," 2019 20th International Radar Symposium (IRS), Ulm, Germany, 2019, pp. 1-6, doi: 10.23919/IRS.2019.8768101.
- L. Lembo et al., "In-Field Demonstration of a Photonic Coherent MIMO Distributed Radar Network," 2019 IEEE Radar Conference (RadarConf), Boston, MA, USA, 2019, pp. 1-6, doi: 10.1109/RADAR.2019.8835849.
- Krestenitis, M., Orfanidis, G., Ioannidis, K., Avgerinakis, K., Vrochidis, S., & Kompatsiaris, I. (2019). Oil Spill Identification from Satellite Images Using Deep Neural Networks. Remote Sensing, 11(15), 1762. doi: 10.3390/rs11151762
- Helin, J. Perret, & V. Kuts (Eds.) (2019). The application track, posters and demos of EuroVR: Proceedings of the 16th Annual EuroVR Conference 2019. VTT Technical Research Centre of Finland. VTT Technology, No. 357 <a href="https://doi.org/10.32040/2242-122X.2019.T357">https://doi.org/10.32040/2242-122X.2019.T357</a>
- G. Serafino et al., "Toward a New Generation of Radar Systems Based on Microwave Photonic Technologies," in Journal of Lightwave Technology, vol. 37, no. 2, pp. 643-650, 15 Jan.15, 2019, doi: 10.1109/JLT.2019.2894224.
- B. Antonella, "Photonics for Microwave Systems," 2019 International Topical Meeting on Microwave Photonics (MWP), Ottawa, ON, Canada, 2019, pp. 1-4, doi: 10.1109/MWP.2019.8892249.
- A. Kapoutsis, S. Chatzichristofis and E. Kosmatopoulos, "A distributed, plug-n-play algorithm for multi-robot applications with a priori non-computable objective functions", The International Journal of Robotics Research, vol. 38, no. 7, pp. 813-832, 2019. Available: 10.1177/0278364919845054.

#### 2020

- G. Orfanidis, K. Ioannidis, A. Tefas S. Vrochidis, Y. Kompatsiaris, "A modified Single-Shot multibox Detector for beyond Real-Time Object Detection" 25th International Conference on Pattern Recognition, (ICPR 2020), 10 & 15 January 2021, Milan, Italy
- G.L. Maglione, L. Berretta, S. B. Godfrey, S. Apostolidis, A. Kapoutsis, E. Kosmatopoulos and A. Tremori, M&S based testbed to support V&V of Autonomous Resources Task Coordinator, Modelling & Simulation for Autonomous Systems conference (2020).
- M. Riga, E. Kontopoulos, K. Ioannidis, S. Kintzios, S. Vrochidis, I. Kompatsiaris (2020), "EUCISE-OWL: An Ontology-based Representation of the Common Information Sharing Environment (CISE) for the Maritime Domain", Semantic Web-Interoperability, Usability, Applicability Journal, Accepted for Publication, <u>http://www.semantic-web-journal.net/content/eucise-owl-ontology-based-representation-common-information-sharing-environmentcise</u>
- A. Väätäinen, J. Laarni, & M. Höyhtyä (2020). Development of a Concept of Operations for Autonomous Systems. In J. Chen (Ed.), Advances in Human Factors in Robots and Unmanned Systems (pp. 208-216). Springer. Advances in Intelligent Systems and Computing, Vol.. 962 https://doi.org/10.1007/978-3-030-20467-9\_19

#### 2021

• G. Orfanidis, K. Ioannidis, A. Tefas S. Vrochidis, Y. Kompatsiaris, "A modified Single-Shot multibox Detector for beyond Real-Time Object Detection" 25th International Conference on Pattern Recognition, (ICPR 2020), 10 & 15 January 2021, Milan, Italy





### 7.2. Scientific Events

The following conferences and other scientific events have been attended by or have been organized by members of the consortium:

No	Partner	Type of disseminatio n activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
1	CERTH-ITI	Conference	A deep neural network for oil spill semantic segmentation in SAR images	10/10/2018	IEEE Int. Conf. on Image Processing	Research community	Present the initial results of the oil spill detector based on SAR representations
2	CERTH-ITI	Conference	Early identification of oil spills in Satellite Images using Deep CNNs	1/8/2019	25th Int. Conf. on Multimedia Modeling	Research community	Accepted for presentation. Major changes of the previous oil spill detector will be presented
3	CERTH-ITI	Conference, Challenge	VisDrone Challenge			Research community	Participate in a contest with the developed module of Object detection
4	CERTH-ITI	Workshop	Speed estimation and abnormality detection from surveillance cameras	18/06/2018	Int. Conf. on Computer Vision and Pattern Recognition Workshop on the Al City Challenge	Research community	Present the results of the object and activity identification module
5	CERTH-ITI	Conference	Continuously Informed Heuristic A* – Optimal Path Retrieval Inside an Unknown Environment	13/10/2017	IEEE - Symposium on Safety, Security and Rescue Robotics (SSRR)	Research community	Present an algorithm for dealing with the problem of physically retrieving the optimal path between two points inside an unknown environment





No	Partner	Type of disseminatio n activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
6	CERTH-ITI	Conference	Autonomous Trajectory Design System for Mapping of Unknown Sea- Floors Using a Team of AUVs	14/6/2018	European Control Conference, International Federation of Automation and Control (IFAC)	Research community	Present a new on-line trajectory planning algorithm for a team of Autonomous Underwater Vehicles (AUVs)
7	UoA	Post Graduate Thesis	Implementation of STANAG 4586 standard using OWL2 ontologies and semantics for automated interoperable communication of UAVs				
8	UoA	Post Graduate Thesis	Swarm intelligence for unmanned robotic devices				
9	EVERIS	Conference		17/07/2017			Conference on Free Movement of Data
10	EVERIS	Event					High Level Event "Digital Day 2018"
11	EVERIS	Conference	Maximizing use of public data whilst safeguarding privacy and security	10/10/2018			E-governance and Cyber Security
12	SPP	Conference/		15/06/2018			COMM 2018 International





No	Partner	Type of disseminatio n activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
		workshop					Conference/ International Workshop on Research & Innovation for Secure Societies - RISS 2018
13	CENTRIC	Conference		14/11/2017	SRIEE, Talinn	Security experts, academics	Information about ROBORDER project
14	VTT	Conference		23/10/2018	EuroVR2018 15 th Annual EuroVR	Research community	VTT had a poster in EuroVR2018 15 th Annual EuroVR Conference, London, UK
15	VTT	Seminar		01/06/2017	VTT	Specialists	Finnish defense force research council seminar
16	VTT	Face-To-Face meeting		21/12/2017	Finnish border guard	Specialists	
17	CERTH-ITI	Workshop	Autonomous swarm of heterogeneous robots for surveillance operations.	2019	Workshop on Vision- enabled UAV and counter-UAV technologies for surveillance and security of critical infrastructures (UAV4S), Thessaloniki, Greece	Research community	Orfanidis G., Apostolidis S., Kapoutsis A., Ioannidis K., Kosmatopoulos E., Vrochidis S., & Kompatsiaris I.
18	CERTH-ITI	Conference	EUCISE-OWL: An Ontology-based Representation of the Common Information Sharing Environment	2020	Semantic Web- Interoperability, Usability, Applicability Journal, Accepted for Publication	Research community	M. Riga, E. Kontopoulos, K. Ioannidis, S. Kintzios, S. Vrochidis, I. Kompatsiaris





No	Partner	Type of disseminatio n activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
			(CISE) for the Maritime Domain				
19	CERTH-ITI	Conference	A distributed, plug-n-play algorithm for multi- robot applications with a priori non- computable objective functions.	2019	The International Journal of Robotics Research, 38(7), 813- 832.	Research community	Kapoutsis, A. C., Chatzichristofis, S. A., & Kosmatopoulos, E. B.
20	CNIT	Journal	In-Field Demonstration of a Photonic Coherent MIMO Distributed Radar Network	2019	IEEE Radar Conference (RadarConf), Boston, MA, USA, 2019, pp. 1- 6, doi: 10.1109/RADAR.2019. 8835849.	Research community	L. Lembo, S. Maresca, G. Serafino, F. Scotti, F. Amato, P. Ghelfi, and A. Bogoni
21	CNIT	Conference	Microwave Photonics for a Radar Network	2019	OSA Advanced Photonics Congress (AP) 2019 (IPR, Networks, NOMA, SPPCom, PVLED), OSA Technical Digest (Optical Society of America, 2019), paper NeTh2D.2.	Research community	L. Lembo, S. Maresca, G. Serafino, F. Scotti, A. Malacarne, P. Ghelfi, and A. Bogoni
22	CNIT	Conference	Photonics for Microwave Systems	2019	International Topical Meeting on Microwave Photonics (MWP), Ottawa, ON, Canada, 2019, pp. 1-4, doi: 10.1109/MWP.2019.88	Research community	A. Bogoni





No	Partner	Type of disseminatio n activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
					92249		
23	CNIT	Conference	Photonics for Coherent MIMO Radar: an Experimental Multi-Target Surveillance Scenario	2019	20th International Radar Symposium (IRS), Ulm, Germany, 2019, pp. 1-6, doi: 10.23919/IRS.2019.87 68096	Research community	S. Maresca, G. Serafino, F. Scotti, F. Amato, L. Lembo, A. Bogoni, and P. Ghelfi
24	CNIT	Conference	Antenna Position Optimization in a MIMO Distributed Radar Network through Genetic Algorithms	2019	20th International Radar Symposium (IRS), Ulm, Germany, 2019, pp. 1-6, doi: 10.23919/IRS.2019.87 68101	Research community	L. Lembo, P. Ghelfi, and A. Bogoni
25	CNIT	Journal	Toward a New Generation of Radar Systems Based on Microwave Photonic Technologies	2019	Journal of Lightwave Technology, vol. 37, no. 2, pp. 643-650, 15 Jan.15, 2019, doi: 10.1109/JLT.2019.289 4224.	Research community	G. Serafino, F. Scotti, L. Lembo, B. Hussain, C. Porzi, A. Malacarne, S. Maresca, D. Onori, P. Ghelfi, and A. Bogoni, in
26	EVERIS	Workshop		2018	ICT2018	Research community	
27	VVT	Conference		2019	VTT Technical Research Centre of Finland. VTT Technology, No. 357 https://doi.org/10.3204 0/2242- 122X.2019.T357	Research community	Helin, K., Kuula, T., Karjalainen, J., & Kemppi, P. (2019). Laboratory Evaluation of AR / VR Based User Interface for Drones Control. In The application track, posters and demos of EuroVR: Proceedings of the 16th Annual EuroVR





No	Partner	Type of disseminatio n activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
							Conference - 2019 (pp. 13- 15).
28	VVT	Conference		2020	Advances in Intelligent Systems and Computing, Vol 962 https://doi.org/10.1007/ 978-3-030-20467-9_19	Research community	Väätäinen, A., Laarni, J., & Höyhtyä, M. (2020). Development of a Concept of Operations for Autonomous Systems. In J. Chen (Ed.), Advances in Human Factors in Robots and Unmanned Systems (pp. 208-216). Springer.
29	UoA	Post Graduate Thesis	Implementation of STANAG 4586 standard using OWL2 ontologies and semantics for automated interoperable communication of UAVs				
30	UoA	Undergraduate Study	Event correlation over IoT data				
31	UoA	Article	Stepwise correlation of multivariate IoT event data based on first-order Markov chains		Computer Communications Journal, Elsevier, Special Issue "Machine Learning over IoT"		V. Papataxiarhis, T. Vassilopoulou, S. Kostakonti, S. Hadjiefthymiades
32	CERTH-ITI	Conference	5 th CISE Stakeholder Group meeting	06- 07/10/2020	EMSA- European Maritime Safety Agency	Research community, industry, solution providers	Discussion with ongoing projects that are relevant to CISE (Common Information





No	Partner	Type of disseminatio n activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
							Sharing Environment) in order to explore common issues and possible synergies. ROBORDER presentation.
33	CERTH-ITI	Conference	International Conference on Intelligent Technologies and Applications	28/09/2020	INTAP 2020	Research community	Keynote speech - presentation of ROBORDER.
34	CERTH-ITI	Conference	Webinar on KPIs	16/11/2020 & 19/11/2020	COMPASS2020	End-users, solution providers, industry	Webinar on identifying the key KPIs for your project - participation and discussion.
35	CERTH-ITI	Conference	ILEAnet Project Uptake Webinar	30/03/2021	ILEAnet	Border guard authorities, decision makers, organizations that use/deploy border technologies	Presentation on how users can use ROBORDER's produced solutions
36	CERTH-ITI	Event	Round table discussion	17/06/2021	CERIS	End users, solution providers, research community	Round table discussion about collaboration between EU- funded projects
37	CERTH-ITI	Workshop	1st Andromeda Workshop	28- 29/09/2020	Andromeda EU project	Stakeholders, partners of related projects	1st Andromeda workshop to share technical and user experiences on maritime and land border control. Presentation of ROBORDER.
38	CERTH-ITI	Workshop	iLEAnet Border Management Workshop	03- 05/10/2020	ILEAnet	European border and coast guard agencies, end users (LEAs), research community	Border Management workshops that attempts to bring together end users and technology providers.





No	Partner	Type of disseminatio n activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
							Presentation of ROBORDER to its network of users.
39	CERTH-ITI	Workshop	EDA's ARTENET Project Workshop	17/12/2020	ARTENET	Research community, European agencies, governmental experts, industry	Workshop focusing on AI for Energy and Environmental Performance in Defence - ROBORDER presentation (oil spill detector)
40	CERTH-ITI	Workshop	Joint workshop with iProcureNet	11/05/2021	iProcureNet	Research community, industry, end users, Bulgarian iPOCs	Presentation of ROBORDER system to iProcureNet Partners, National iPOCs and other invited iProcureNet partners.
41	CNIT	Journal	A Photonics- Assisted Multi- Band MIMO Radar Network for the Port of the Future	2021	IEEE Journal of Selected Topics in Quantum Electronics	Research community	Giovanni Serafino, Salvatore Maresca, Luca Di Mauro, Alexandr Tardo, Antonio Cuillo, Filippo Scotti, Paolo Ghelfi, Paolo Pagano, Antonella Bogoni
42	BDI	Conference		01/10/2020	X International Scientific Conference HEMUS 2020. Research and investment in technology innovation - a crucial factor for defence and security. Plovdiv, Bulgaria	Scientific community, industry, stakeholders, investors	

Table 4 - Scientific dissemination activities





## 8. Other Dissemination Activities

### 8.1. Open-Access Dissemination

Open access can be defined as the practice of providing on-line access to scientific information that is free of charge to the reader [2]. The following scientific information has been published by members of the consortium:

No	Partner	Type of disseminatio n	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
1	VVT	Video	ROBORDER - Proof-of-concept of Drone control with Hololens	11/05/2017	Youtube	General Public	https://www.youtube.com/wat ch?v=wcCZUW2-K3Y
2	VVT	Video	H2020- ROBORDER: Drone control with Mixed Reality - User tests	04/12/2018	Youtube	General Public	https://www.youtube.com/wat ch?v=p60zgnG2eos

Table 5 - Open-access dissemination activities





## 8.2. Synergies

The ROBORDER project has synergies with other H2020 projects and individual projects at the area of border surveillance and security. The following table describes the related projects.

No	Name	Description
1	ANDROMEDA (H2020-SECURITY)	The project aims to unlock the full capabilities of the Common Information Sharing Environment (CISE) by enhancing the Maritime CISE Model and by extending its scope to the Land Surveillance domain.
2	ARESIBO (H2020- SECURITY)	The project aims at improving the efficiency of the border surveillance systems by providing the operational teams and the tactical command and control level with accurate and comprehensive information.
3	BORDERUAS (H2020-SECURITY)	The project aims to facilitate effective border surveillance and prevent cross-border criminal activities by supporting search & rescue applications, specifically rough terrain detection, improving the protection of European societies.
4	CAMELOT (H2020- SECURITY)	The project aims at addressing the challenges and fill this gap by carrying out a number of activities to prototype, test and demonstrate different advanced command and control service modules for multiple platform domains based on a state-of-the- art architecture
5	COMPASS (H2020- SECURITY)	The project aims to demonstrate the combined use and seamless coordination of manned and unmanned assets to achieve greater coverage, better quality of information and shorter response times in maritime surveillance operations.
6	CONNEXIONs (H2020-SECURITY)	The project aims to develop and demonstrate next-generation detection, prediction, prevention, and investigation services. These services will be based on multidimensional integration and correlation of heterogeneous multimodal data, and delivery of pertinent information to various stakeholders in an interactive manner tailored to their needs, through augmented and virtual reality environments.
7	CREST (H2020- SECURITY)	The project aims to improve the effectiveness and efficiency of LEAs intelligence, operation, and investigation capabilities, through the automated detection, identification, assessment, fusion, and correlation of evidence acquired from heterogeneous multimodal data streams.
8	ILEAnet (H2020- SECURITY)	The project aims to build a sustainable organisational Law Enforcement Agency (LEA) practitioners network focused on research & innovation addressing LEA challenges, together with a community of individuals interested to exchange and collaborate in this area.
9	iProcureNet (H2020- SECURITY)	The project aims to create an ecosystem of procurers, prescribers, legal advisors and other key stakeholders of security procurement, to share procurement trends and needs, and open pathways for joint procurement.
10	RANGER (H2020- BES)	The project aims to re-enforcing EU by combining innovative Radar technologies with novel technological solutions for early warning, in view of delivering a surveillance platform offering detection, recognition, identification and tracking of suspicious





No	Name	Description
		vessels, capabilities exceeding current radar systems.
11	AUTOPILOT (H2020)	The CapTech RF Sensors Technologies (RADAR) deals with Radar and Electronic Warfare (EW) systems applying RF, magnetic and electronic technologies. It includes the related subjects of signal processing, propagation and signature control and reduction. Governmental representatives, through a dialogue with research and industry experts, meet in order to generate collaborative RF Sensors projects from a system level perspective. It also supports pMS in preparing wider programmes and common initiatives.
12	COREALIS (H2020)	COREALIS proposes a strategic, innovative framework, supported by disruptive technologies, including Internet of Things (IoT), data analytics, next generation traffic management and emerging 5G networks, for cargo ports to handle upcoming and future capacity, traffic, efficiency and environmental challenges. The proposed beyond state of the art innovations, target to increase efficiency and optimize land use, while being financially viable, respecting circular economy principles and being of service to the urban environment.
13	OCEAN 2020	OCEAN2020 (Open Cooperation for European mAritime awareNess), funded by the European Union's Preparatory Action on Defence Research and implemented by the European Defence Agency, represents the ambition and vision of a European maritime initiative, highlighting the strategic approach shared and undertaken by all partners. The project has the main objective to demonstrate enhanced situational awareness in a maritime environment through the integration of legacy and new technologies for unmanned systems, ISTAR payloads and effectors, by pulling together the technical specialists in the maritime domain covering the "observing, orienting, deciding and acting" operational tasks.
14	RAWFIE (H2020)	The project aims at delivering a unique, mixed experimentation environment across the space and technology dimensions. RAWFIE will integrate numerous testbeds for experimenting in vehicular (road), aerial and maritime environments. A Vehicular Testbed (VT) will deal with Unmanned Ground Vehicles (UGVs) while an Aerial Testbed (AT) and a Maritime Testbed (MT) will deal with Unmanned Aerial Vehicles (UAVs) and Unmanned Surface Vehicles (USVs) respectively.
15	LuFo VI	<ul> <li>The project is dedicated to deliver answers to the challenges as defined in SRA II.</li> <li>traffic growth and environmental protection</li> <li>safety and passenger friendliness</li> <li>economic efficiency and market share</li> <li>The implementation is realised through cooperative and integrated projects carried out by industry, universities and research institutions.</li> </ul>
16	Novel concept of relocatable aerial surveillance for border security	This action aims at strengthening Moldova's aerial border surveillance capability to counter irregular border crossings and its associated risks. In this regard, the Moldovan Border Police will benefit from the Lithuanian and Estonian experience by means of study visits, capacity building and sharing of good practices.
17	GAUSS	The project aims at developing a high performance positioning





No	Name	Description		
	(H2020)	system for drones within the U-Space framework focusing on VLL (Very Low Level) and UAS (Unmanned Aircraft System) operations.		
18	ALADDIN (H2020)	<ul> <li>The project plans to introduce to the market an innovative product with significantly improved characteristics in terms of:</li> <li>detection, recognition and identification capabilities, through the integration of many different and complementary sensors,</li> <li>advanced operational support designed by the endusers for the end-users (investigations, training, user experience),</li> <li>designed with operations constraints in mind (efficiency, deployment time, system cost, usability, resources required)</li> <li>many neutralization options to facilitate its adaptation to all regulatory frameworks, laws and scenarios.</li> </ul>		
19	iNGENIOUS (H2020)	The project aims to assist First Responders be more effective and save more lives during natural and manmade disasters and crises by exploiting novel technologies. INGENIOUS is developing, integrating, testing and validating a Next Generation Integrated Toolkit (NGIT) for Collaborative Response, which ensures a high level of Protection and Augmented Operational Capacity to respond to the disaster scene.		
20	SENSORS (European Space Agency)	5G Smart Edge Node and Smart Objects enabling Reliable Services Extended all over the seas		

Table 6 - Synergies





### 8.3 Media and Press

No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
1	CERTH-ITI	Press Article	"Robotsmade in Greece will patrol the Aegean"	19/11/2017	Greek National NewsPaper "Ethnos"	General public	Public information about the most significant aspects of the ROBORDER project
2	CERTH-ITI	Press Article	Participation of ROBORDER to iProcureNet Request for Information on Products and Suppliers,	13/04/2021	iProcureNet	General public	Market analysis survey aiming in gathering information about products and suppliers within identified segments for possible joint cross border public procurement.
3	FHR	Article	Coastlines: Well Protected	05/2021	Fraunhofer FHR company report	Fraunhofer FHR stakeholders	High-level description of the activities conducted by Fraunhofer FHR within RODORDER in its yearly company report. Openly available online in German and English
4	CERTH-ITI	Interview	Developments of security at the EU's external borders	12/07/2021	Deutsche Welle	General public	Interview in DW for a televised news report, providing information about ROBORDER, including goals of the system, advantages, concept of operation and future applicability in border management
5	EVADS	Website		2019	http://www.infodron .es/id/2020/05/13 /noticia-everis- roborder-proyecto- europeo-		Press release on the successful Demonstration of ROBORDER in Portugal





No	Partner	Type of dissemination activity	Project Title	Date	Host	Audience	Explanatory note of the dissemination item
					vigilancia- autonoma- fronteras.html		

Table 7 - Media and press





## 9. ROBORDER Demonstrations

### 9.1. Demonstration in Portugal (Nov 2020)

ROBORDER successfully conducted its first on-the-field demonstration of the system in Portugal on 16-19/11/2020. The team tested the system's operability in a simulated crisis that involved the detection of an oil spill in the Atlantic Ocean.

Due to specific circumstances, the demonstration was safely conducted with limited participation of key partners while the rest of the consortium joined their efforts via the live stream session that was initiated at the beginning of each day.



Figure 16 - Demo in Portugal

## 9.2. Demonstration in Bulgaria (Jun 2021)

The second demonstration of ROBORDER in Bulgaria, concerning the identification of specific illegal activities occurred at remote border territories. The demonstration and operational tests were executed on 21/06-25/06/2021, where the main system was validated in different scenarios under real operational scenarios.



Figure 17 - Demo in Bulgaria





### 9.3. Demonstration in Greece (Jun 2021)

The third demonstration of ROBORDER in Greece was executed successfully on 28/06-01/07/2021. The scope of the demonstration was to validate in different scenarios under real conditions for maritime operations, the main system's readiness towards the early detection of unauthorized sea border crossing, the immediate briefing and dispatch of the directlyinvolved units and the surveillance of specific areas in order to detect and analyze incidents of illegal vessel movements.



Figure 18 - Demo in Greece

Several UxVs of ROBORDER's partners have participated to accomplish the corresponding missions.





Figure 19 - Demo in Greece (2)





## **10. Conclusions and Next Steps**

In this document, an analysis of the target groups, the dissemination and communication strategy and the activities report, is presented. It is noted that different types of target groups can give multiple and useful information, contributions and ideas for the ROBORDER platform, involving various stakeholders and interested organizations of different types and backgrounds, offering them at the same time different levels of involvement.

Finally, this document reports the dissemination and communication actions undertaken by the members of ROBORDER consortium during the project. It is clear that the coordinated and supported actions from all members of the consortium contributed to the execution of the dissemination and communication strategy by providing a unified report and complete picture of activities made so that any weak points identified and corrective actions are taken.

Summarizing, the sophisticated and methodological dissemination strategy, correctly explored in all the potential areas of interest, led to an effective dissemination throughout the project.





## 11. References

[1] <u>https://www.iprhelpdesk.eu/sites/default/files/EU-IPR-Brochure-Boosting-Impact-C-D-E\_0.pdf</u>

[2] <u>https://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-dissemination\_en.htm</u>