ASSISTANCE

Adapted situation awareneSS tools and tallored training curricula for increaSing capabiliTie and enhANcing the proteCtion of first respondErs

European Commission

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Deliverable D9.2

Updated Exploitation and Dissemination Plan

30/04/2020

[1] PU: Public; PP: Restricted to other programme participants (including the EC services); RE: Restricted to a group specified by the Consortium (including the EC services); CO: Confidential, only for members of the Consortium (including the EC services).

ASSISTANCE

Nowadays different first responder (FR) organizations cooperate together to face large and complex disasters that in some cases can be amplified due to new threats such as climate change in case of natural disasters (e.g. larger and more frequent floods and wild fires, etc) or the increase of radicalization in case of man-made disasters (e.g. arsonists that burn European forests, terrorist attacks coordinated across multiple European cities).

The impact of large disasters like these could have disastrous consequences for the European Member States and affect social well-being on a global level. Each type of FR organization (e.g. medical emergency services, fire and rescue services, law enforcement teams, civil protection professionals, etc.) that mitigate these kinds of events are exposed to unexpected dangers and new threats that can severely affect their personal safety.

ASSISTANCE proposes a holistic solution that will adapt a well-tested situation awareness (SA) application as the core of a wider SA platform. The new ASSISTANCE platform is capable of offering different configuration modes for providing the tailored information needed by each FR organization while they work together to mitigate the disaster (e.g. real time video and resources location for firefighters, evacuation route status for emergency health services and so on).

With this solution ASSISTANCE will enhance the SA of the responding organisations during their mitigation activities through the integration of new paradigms, tools and technologies (e.g. drones/robots equipped with a range of sensors, robust communications capabilities, etc.) with the main objective of increasing both their protection and their efficiency.

ASSISTANCE will also improve the skills and capabilities of the FRs through the establishment of a European advanced training network that will provide tailored training based on new learning approaches (e.g. virtual, mixed and/or augmented reality) adapted to each type of FR organizational need and the possibility of sharing virtual training environments, exchanging experiences and actuation procedures.

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Disclaimer

Executive Summary

This deliverable presents the dissemination, communication, and exploitation strategies of the ASSISTANCE project. Further it documents and summarise all the activities related to these matters undertaken during the first year of the project. The communication and dissemination strategy and plans are described. They cover scientific/ technical dissemination such as conference presentations and papers as well as broader communication mechanisms such as branding/logo, website, social media, newsletters, brochures, posters, and videos.

The exploitation strategy and plans are presented and are based on the background and foreground IP owned and being developed respectively by partners. The report presents updated and extended individual partner exploitation plans and an initial system exploitation plan, including a draft system level roadmap and plan for commercialisation and market entry, to take the ASSISTANCE system/ component outputs of the project into the market within 2 years of the project end. This system exploitation plan will be updated as the project progresses and will form the basis of the initial plan for commercialisation and market entry (D9.6) to be produced at Month 36.

This work includes the coordination of all actions and initiatives undertaken by the partners in order to maximise the visibility of ASSISTANCE scientific accomplishments, targeting the scientific community, the general public and the relevant actors involved, FRs organizations (e.g. medical emergency services, firefighters,112, law enforcement, civil protection, etc.).

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Acronyms

ASSISTANCE	Adapted situation awareneSS tools and taIlored training curricula for increaSing capabiliTie and enhANcing the proteCtion of first respondErs
PC	Project Coordinator
D#.#	Deliverable number #.# (D1.1 deliverable 1 of work package 1)
DoA	Description of Action of the project
EC	European Commission
EU	European Union
GA	Grant Agreement
H2020	Horizon 2020 Programme for Research and Innovation
IPR	Intellectual Property Rights
M#	#th month of the project (M1=May 2017)
WP	Work Package
IPR	Intellectual Property Rights
PSC	Project Steering Committee
PIC	Project Implementation Committee
PSB	Project Security Board
AB	Advisory Board
TL	Task Leader
WPL	Work Package Leader
SA	Situational Awareness
SAR	Search And Rescue
DoA	Description of Actions
PCP	Pre-commercial Procurement
PPI	Public Procurement of Innovative
JV	Joint Venture

1. Introduction

1.1. Purpose of the document

The main aim of this deliverable is to provide a strategy and plan for communication and dissemination of the emerging project results and to develop an initial exploitation strategy and plan to maximise the impact of the project in terms of take-up. Key aspects include communication of the project and its achievements so far as a whole and dissemination of the results to the scientific and industrial community, together with targeted dissemination aimed at potential customers to encourage commercial development and deployment of the ASSISTANCE system and associated subsystem. This deliverable is an updated and extended version of the plan stated in the DoA, considering the developments performed since the proposal was submitted.

1.2. Scope of the document

The Dissemination and Exploitation report is a deliverable of the ASSISTANCE project, which sets out the dissemination, communication and exploitation strategy as well as the means that are used to promote the project objectives and results by providing a detailed description of the carried-out dissemination and communication activities during the first year of the project's execution. In this deliverable, the main outputs are (i) a communication and dissemination strategy and plan, and (ii) an exploitation strategy and plans for the exploitation of the individual partners' technologies together with a system exploitation plan.

1.3. Structure of the document

This document is structured in 2 main sections. Section 2 describes the Communication and Dissemination strategy and plans. This covers scientific/technical dissemination such as conference presentations and papers as well as broader communication mechanisms such as Branding/logo, website, social media, brochures and posters. Activities in the first year of the project are covered together with planned forthcoming events, etc.

The exploitation strategy and plans described in section 3 are based on the background and foreground IP owned and being developed respectively by partners. This deliverable includes compilations of the background IP underpinning the ASSISTANCE developments, and expected technology advances and planned IP management, which will be reviewed and updated throughout the project lifetime. This section includes also updated and extended individual partner exploitation plans and an Initial system Exploitation plan, including a draft system level roadmap and plans for commercialisation and market entry, to take the ASSISTANCE system/component outputs into the FRs and adjacent markets within 2 years of the project end.

This system exploitation plan will be updated as the project progresses and will form the basis of the PCP and PPI preparation Plan for Commercialisation and Market Entry (D9.6) to be produced at M36.

2. Communication and Dissemination Plan

2.1. Communication and Dissemination Strategy

ASSISTANCE communication and dissemination strategy are aimed at maximising the expected impacts of the project related to the creation of new knowledge, methodologies and technological advancements, provision of best practices and policy recommendations as well as consideration of societal and ethical implications of its results. For this reason, a focused programme structured around the key objectives and the target groups that have to be convinced to achieve those objectives has been implemented.

Project results are disseminated through different channels outside the consortium, in order to raise the awareness of the project related issues, including its objectives, progress and achieved results, among various audiences. The ASSISTANCE dissemination activities are therefore focused on specific target groups that are directly concerned by the project results. The first and the foremost group to be targeted in the communication and dissemination efforts are the **End-users** whose acknowledgement and acceptance of the project objectives and results is one of the key factors for achieving success in project's effective execution and also opens new channels of positive perception of the project in other environments. The target group of end-users of ASSISTANCE project are various First Responders organisations, i.e. Medical Emergency services, Firefighters, Law Enforcement Agencies, Civil Protection, etc. Moreover, other important stakeholder groups have been identified which need to be kept constantly updated on the project achievements and engaged in different stages of the implementation via targeted communication and dissemination actions:

- **Local authorities & national/regional public bodies,**
- **Public security agencies,**
- **Private security companies,**
- **Policymakers, legislative framework creation,**
- **Standardization bodies.**

Moreover, the activities aimed at the proliferation of research results generated by the project also need to reach **the scientific/technological professional community** – the new knowledge gained in ASSISTANCE should not only benefit the consortium partners but also a wider community of experts.

Such exchanges with other researchers and engineers working on related R&D domains is of a mutual benefit for all and helps to avoid duplication of efforts, therefore the open access to the scientific publications will be ensured and the majority of the deliverables will be developed as public to be made available through the project website, once approved by the EC services.

Finally, one of the very important project stakeholders is the **general public** who should be informed about ongoing research, project concepts and objectives and their benefits to society, in order to overcome the misperception and reluctance towards the technology advancements in security and to build a better understanding and acceptance for investments in security R&D. It is a responsibility of the researchers, as practitioners, to ensure that the EU community is engaged as widely as possible, informed about the technology under development and shares the decisions about how this technology should fit into European societal and political roadmaps. Therefore, the project will engage in effective public dissemination activities through media outreach and participation in major events involving the non-professional audience.

2.2. Communication Mechanisms and Plan

According to the needs and interests of the different target groups, including the general public, different communication and dissemination tools are used or planned in ASSISTANCE. Specifically, the communication and dissemination mechanisms include:

- **Creation of the ASSISTANCE User Community** to establish a broad dialogue, collect input on expectations and existing practices on a wide basis and communicating back to this user community to create large awareness, which is paramount to preparing the future acceptance and uptake of project results. This is fostered by strong representation of the end-users organisations in the ASSISTANCE consortium and further expanded by implementation of **Task 1.3 End Users Group Coordination** as well as active participation or liaison of the project partners with external initiatives, such as e.g. Community of Users (CoU), International Forum to Advance First Responder Innovation (IFAFRI), ISO/TC92 Fire Safety: Subcommittees SC3 Fire threat to people and environment and SC4 Fire Safety Engineering, EUROCAE WG-105 on Unmanned Aircraft Systems;
- **Creation of the professional visual identity** for the project, covering the project logo, templates for presentations other dissemination materials (Figure 1);

Figure 1 ASSISTANCE logo and external presentation template (opening slide)

- **Establishment of the project public website** which includes general information about the project, its partners, and the crucial project results and achievements, including all the public deliverables once they were approved by the EC, project-related publications, brochures, presentations and any other material, which may be generally distributed. See Figure 2;

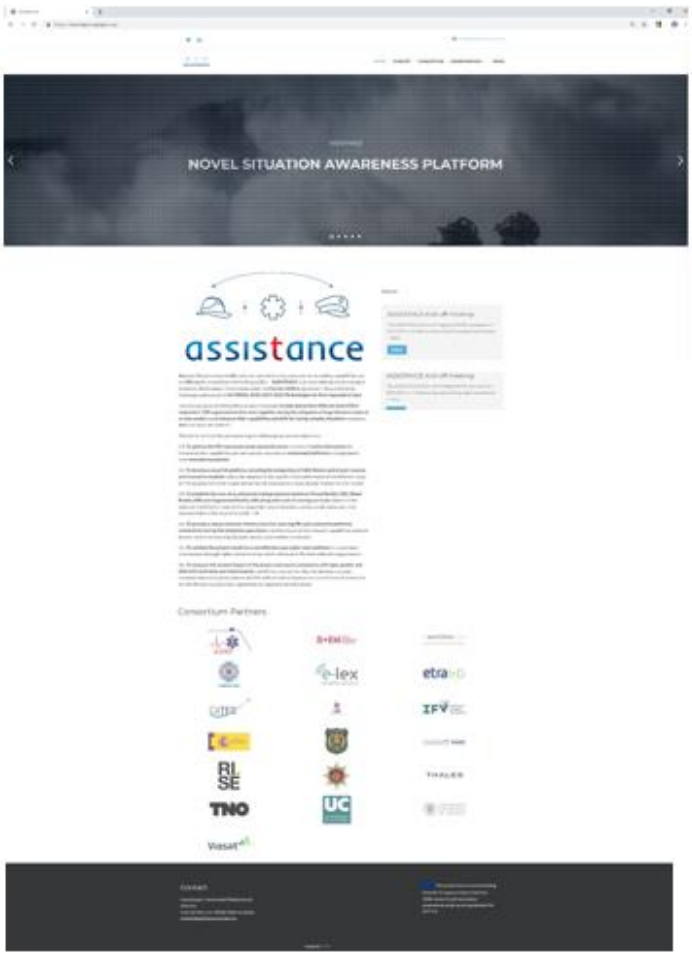

Figure 2 ASSISTANCE public website (home page)

- **Establishment of the project social media accounts** (Twitter, LinkedIn) that include updates about the most important news and events related to the project (Figure 3);

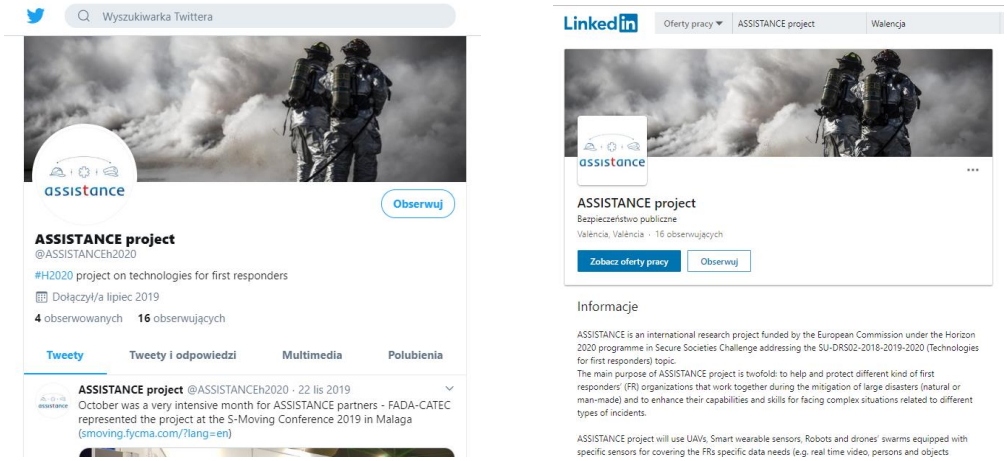

Figure 3 ASSISTANCE social media profiles

- **Preparation of the dissemination/advertising materials** of high quality and in a standardised format, i.e. project leaflet, poster, roll-up (including versions for self-print) to be distributed at meetings and events (Figure 4);

Figure 4 ASSISTANCE leaflet and poster

- **An annual publication of the project newsletter** is envisaged, to present and make the information about the project progress, in particular its results and achievements, widely available;
- **Dissemination video** explaining project objectives and goals is being prepared, to illustrate the scientific and practical benefits resulting straight from the outcomes of the project;
- **Media-related actions (press releases, interviews)** will be undertaken when appropriate, to strengthen the impact of the project dissemination and communication activities and to reach the widest possible audience within the end-user community and the general public;
- **Liaison with related research initiatives** will be established, including the on-going and newly launched H2020 projects as well as national research programmes; ASSISTANCE is participating along with all projects funded in the DRS02 2018 call in a clustering initiative for informing all consortiums and especially the end-users on the main research objectives in order to maximize the impacts and explore potential synergies.

- **Dialogue with policymakers, stakeholders, citizen's associations** will be sought to demonstrate benefits for the society, industry and user community;
- **Research papers (including Open Access)** will be published in dedicated journals in the field of security, FRs specific topics, etc.;
- Various partners will be involved in the **development of training material** (e.g. user manuals) and the set-up of training workshops for end-users who will participate in the system demonstration;
- Organisation of **congresses, workshops, symposia, conferences and exhibition fairs** - specific national workshops will be organised at the pilot sites, all of them hosted by local communities of the project and at least one international conference will be organised in Brussels (BE), with two other international workshops planned at each of the pilot communities.

In order to coordinate the various communication and dissemination efforts of different partners a common reporting sheet – Communication & Dissemination list – has been proposed, where the information both on the activities performed and planned, as well as the potential dissemination opportunities (e.g. events of possible importance to ASSISTANCE, that could be performed jointly or by another project partner) are collected. These Communication & Dissemination activities collector sheet is available at the project repository for continuous reporting by partners as well as circulated by the Task 9.2 leader for regular updates every 6 months.

The list covers collection of the following categories of information:

- Partner submitting
- Presentation/publication/activity title/scope
- Archive (if the activity results in a format, which can be archived (eg. publication in a newspaper).
- Event's or medium name
- Type of event/ medium (Internet, Conference/fair/trade show, Workshop/seminar, Professional/scientific journal, F2F meeting, Newspaper/magazine, Interview, Media/social media/public inquiry, Newsletter, Catalogue, TV, Radio, Patent application)
- Location (country, city etc., if applicable)
- Event's/ medium territorial scope (Individual, Local, National, International, Global (internet))
- Event's/medium/activity target audience (End-users, High-level stakeholders, Research/scientific community, General public)
- Date of the event/ publication/ activity
- Status (Planned or performed)
- Event/ medium website or contact data
- Short description of the event/medium character or additional info

The summary of communication and dissemination activities reported by ASSISTANCE consortium in the first year of project execution is provided in the next subchapters.

2.3. Scientific/technical Dissemination

2.3.1. Activities performed in the first year of project implementation

In the period from May 2019 to March 2020, the ASSISTANCE consortium has performed different types of communication and dissemination activities that are summarised in Table 1 below and illustrated on the next figures.

Type of activity	Number	Examples
Papers publication	1	Proceedings of the 17th ISCRAM Conference (paper accepted for publication in 2020, the conference is postponed to 2021 due to COVID-19 situation)
Posters at conferences	2	ITEC 2019 conference & MSB Seminar; Skadeplats 2019
Presentations at events and meetings (with distribution of leaflets)	10	Milipol 2019; 12. National Trauma Congress Turkey; 6. International Earthquake Symposium Turkey; Vision Zero Summit 2019; 3. International-21. National Public Health Congress; 6th IPRED International Conference on Preparedness & Response to Emergencies&Disasters;
Internet/social media activities	33	Tweets, posts or news items (on project website and partners websites/social media accounts)
Trade fairs/industry shows attendance (stand, leaflet distribution etc.)	4	Global Robot Expo 2019; DroneTech WorldMeeting 2019; Droniada 2019; S-moving 2019
Workshops organisation/ participation	11	International Workshop on Data Protection and Security in Emergency Situations, International Medical Congress; 4th Next Generation Technologies in Emergency Services, workshops with end-users during Droniada 2019; local workshops with firefighters; participation in an exchange of experts meeting for firefighters tactic
Liason with other initiatives	3	Meeting with other DRS-02 projects during the Mediterranean Security Event 2019; Meeting with technical coordinator and project director of Driver+ project; Project presentation during the INGENIOUS project KoM September 2019, Porto Heli

Interviews	1	University of Cantabria Youtube Channel (https://www.youtube.com/watch?v=4THXgd9CvCA)

Table 1 Summary of the communication and dissemination activities in the first year

Figure 5 DroneTech WorldMeeting 2019 (CNBOP-BIP's stand and workshop with end-users)

Figure 6 ASSISTANCE project presentation during the Mediterranean Security Event (MSE2019)

Figure 7 S-moving 2019 event (FADA-CATEC's stand)

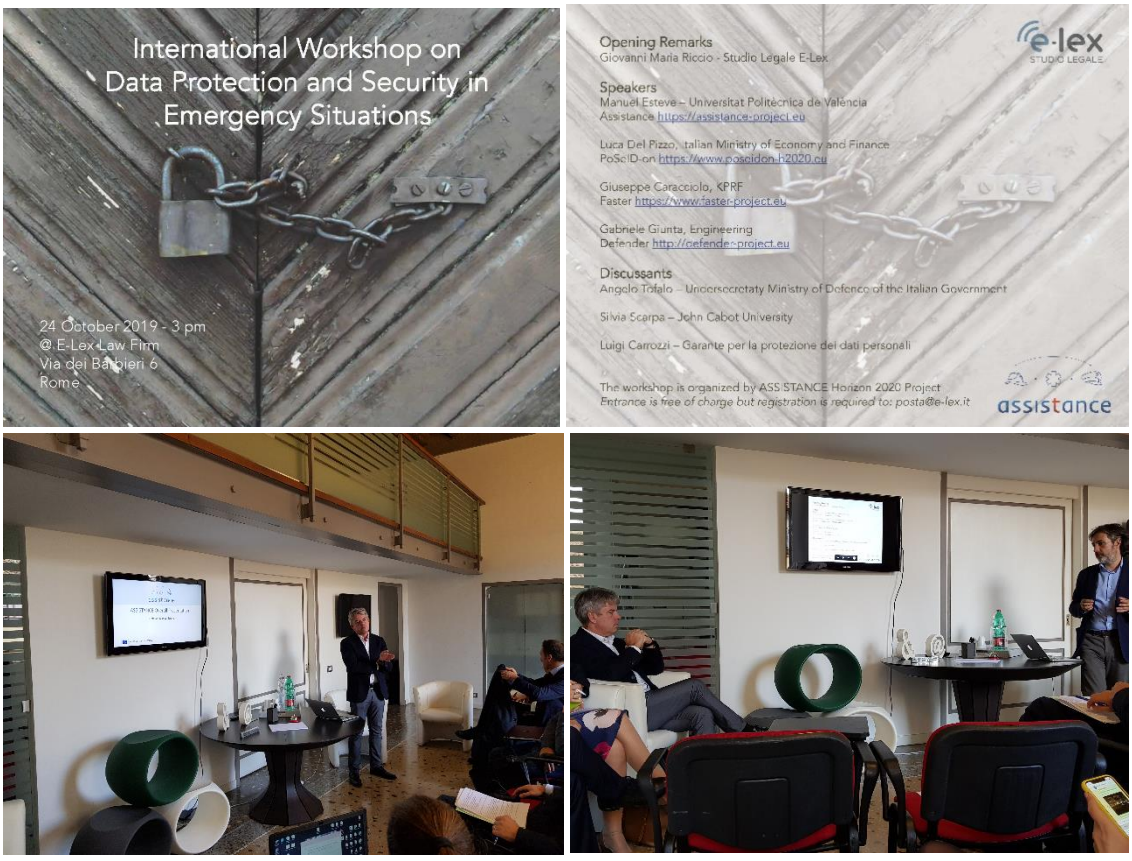

Figure 8 International Workshop on Data Protection and Security in Emergency Situations (digital invitation and presentations at the workshop)

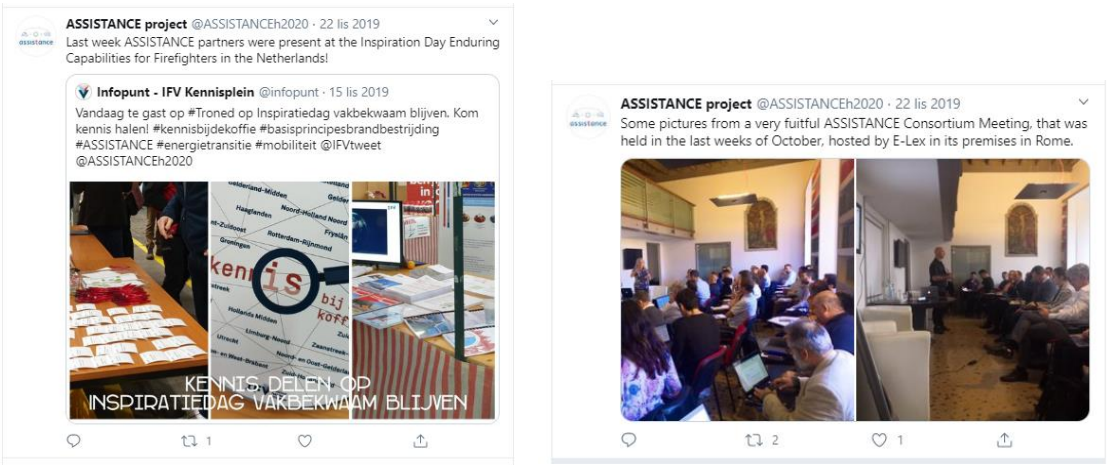

Figure 9 ASSISTANCE Twitter account (example updates/Twitts)

2.3.2. Future plans

It is important to underline that the current COVID-19 outbreak situation and the uncertainty of the situation in the next months and years have heavily affected some of the already planned activities (cancelled or postponed, like eg. INTERSCHUTZ event or ISCRAM 2020 conference) as well as any potential future planning. Therefore, the below outline of planned activities should be treated as only an initial plan for further actions that will be updated in the course of project implementation and adjusted to the evolving situation.

The project partners have reported a number of events and initiatives they intend to participate in or undertake once these will be available. The initial list of planned activities (as reported by partners until the end of March 2020) with indication on their territorial scope and targeted audience is included in table 2 below.

In addition, the project website and social media accounts will be continuously updated with all the up-to-date project-related information, including publication of the Newsletters and other publishable materials.

Partner	Event's or medium name and type of activity	Type of event/ medium	Location (country, city etc., if applicable)	Event's/ medium territorial scope	Event's/medium/activity target audience	Date of the event/ publication/ activity
CEL	DECON Conference 2020	Conference/fair/trade show	L'Aquila, Italy	International	Research/scienitific community	2020
THALES	JPAL (journées de palaiseau)	Workshop/seminar	France	Local	End-users	2020
CNBOP-PIB	Droniada 2020	Workshop/seminar	Poland	National	Research/scienitific community	2020
CNBOP-PIB	DroneTech WorldMeeting 2020	Workshop/seminar	Poland	International	Research/scienitific community	2020
Ł-PIAP	Newsletter 1	Newsletter	N/A	International	End-users/general public	April 2020
IFV	Article in Brand & Brandweer (professional journal for firefighters)	Professional/ scientific journal	The Netherlands	National	End-users	April 2020
IFV	Website and social media (Twitter IFV and LInkedIn), Newsitem on website ifv.nl and in newsletter	Internet	N/A	National	General public	May 2020
ETRA	Publication: Paper at VI CONGRESO CIUDADES INTELIGENTES	Conference/fair/trade show	Madrid, Spain	National	General public	September 2020
e-Lex	On-Line Seminar with the Participation of Italian Data Protection Authority and other international	Internet	N/A	International	General public/End users	June 2020

	stakeholders on the privacy issues of Assistance Project.					
e-Lex	Publication of interviews or reports on the seminar on professional journals	Publication on professional journal	Italy	National	General Public	June 2020
FADA-CATEC	Stand at Expodronica or UNVEX 2020	Conference/fair/trade show	Spain	National	End-users	2020/2021
FADA-CATEC	Paper in scientific conference with main technological results of ASISTANCE (related to drones) - ICUAS, IROS, ICRA or similar conference	Conference/fair/trade show		International	Research/scienitific community	2020/2021
IFV	eRIC	Conference/fair/trade show	The Netherlands	National	End-users	March 2021
e-Lex	Publication of a scientific article on a peer-reviewed law journal on the data protection issues of the Assistance Project	Scientific Journal	N/A	International	Scientific Community	April 2021
e-Lex	Distribution of an abstract of the scientific article (see previous box) through the newsletter and social media managed by e-Lex law firm	Publication	N/A	International	General Public	April 2021
UC/RISE	Poster at 13th International symposium on fire safecty science (IAFSS)	Conference/fair/trade show	Waterloo, Canada	International	Research/scienitific community	April 2021

Ł-PIAP	Newsletter 2	Newsletter	N/A	International	End-users/general public	April 2021
e-Lex	Organization of a workshop with stakeholders coming from the industry sector	Conference	Italy	International	Scientific community/General Public	May-June 2021
UPVLC/ETRA/UC/IFV	Presentation and leaflet/ Presentation and video (maybe demo) at INTERSCHUTZ 2021	Conference/fair/trade show	Hannover, Germany	International	End-users	11-21 June 2021
CEL	DECON Conference 2020 textbook editing	Professional/ scientific journal	N/A	International	Research/scienitific community	2021
UPVLC	ISCRAM conference (paper presentation)	Conference/fair/trade show	USA	International	Research/scienitific community	2021
THALES	GSI (geometric science of information)	Workshop/seminar	France	National	Research/scienitific community	2021
THALES	PGMO (programme Gaspard Monge)	Workshop/seminar	France	National	Research/scienitific community	2021
CNBOP-PIB	Droniada 2021	Workshop/seminar	Poland	National	Research/scienitific community	2021
CNBOP-PIB	DroneTech WorldMeeting 2021	Workshop/seminar	Poland	International	Research/scienitific community	2021
CEL	Paper on ethics and societal aspects in DRS research in one of the journals: Journal of Information Technology & Politics, Journal of	Professional/ scientific journal	N/A	International	Research/scienitific community	2021

	Information Technology, Ethics and Information Technology, Philosophy & Technology, International Journal of Technoethics					
Ł-PIAP	Newsletter 3	Newsletter	N/A	International	End-users/general public	April 2022
CNBOP-PIB	Droniada 2022	Workshop/seminar	Poland	National	Research/scienitific community	2022
CNBOP-PIB	DroneTech WorldMeeting 2022	Workshop/seminar	Poland	National	Research/scienitific community	2022

Table 2 Initial plan of the communication and dissemination activities for the next years

3. Exploitation Plan

ASSISTANCE is designed to respond to the urgent need of European first responders (FRs) for effective facing natural/man-made disasters providing them with different set of tools. Achieving high impact requires an exploitation strategy that maximises the opportunities available and helps to achieve a sustainable business model. Firefighters are the primary customers for the ASSISTANCE project, but there are potential adaptations, extensions and so on that could be made which would make the results marketable to other emergency services and search and rescue (SAR) units. The overall project exploitation strategy is therefore to create and exploit routes to market for the project outputs using the following mechanisms:

1. **Firefighters customers**
    a. Targeted dissemination of emerging ASSISTANCE project results to firefighter customers and other relevant stakeholders (including government/ other public bodies). This will include one-to-one meetings, exhibitions, and conferences.
    b. Demonstration of the ASSISTANCE system functionality and performance to key firefighters customers and other stakeholders in three pilots: earthquake in urban environment (Turkey), industrial accident (The Netherlands), terrorist attack (Spain).
2. **Other emergency services and SAR units**
    a. Dissemination to the wider FRs community (Law Enforcement Agencies, medical emergency services, civil protection professionals, etc.) to attract interest in the ASSISTANCE approach, where possible identify potential adaptations of the ASSISTANCE outputs to other markets that might be considered after the project.

The consortium addresses this challenge by:

1. Working with the European first responder's community to define a list of common, high priority capability gaps.
2. Providing a platform for international collaboration on innovative R&D initiatives and solutions.
3. Characterizing global first responders' markets, to inform and guide industry and academia about market opportunities and to incentivize them to develop and produce innovative technology solutions to capability gaps.
4. Providing information about relevant and available first responder technologies to the first responder community, while not endorsing any specific technology, product or manufacturer.

3.1. Exploitation plans at component and sub-system level

3.1.1. IP management

As discussed above in the exploitation strategy, commercialization of the project results may include licensing of the developments to system integrators and other exploitation partners. It is therefore vital that key technical advances and resulting intellectual properties (IP) produced by the project partners are protected.

Premature disclosure of details of the technology through presentations at conferences and publications can prohibit patent applications, limiting the attractiveness and usefulness of the know-how generated. Even verbal discussions without non-disclosure agreements signed between participants can constitute putting information in the public domain.

Thus, a balance has to be achieved between the scientific dissemination of the results through the publication of papers and presentations at scientific conferences, which is important to the researches from universities and research institutes, and the commercial needs of the industry partners. A screening process has therefore been developed and agreed by all partners, as shown below:

1. All proposed dissemination and communication items or actions should be brought to the attention of the Dissemination Manager (PIAP) as soon as possible. The Dissemination Manager will log all items for reporting to the EC. Non-technical publicity material, e.g. press releases, web news, etc. should be vetted by the person producing the item to ensure they do not need to follow the process below.
2. A draft abstract or summary of the proposed content should be submitted to all partners (through the mailing list) at least 14 days before submission. This should give enough information for partners to understand if their IP rights might be affected.
3. All partners will check the proposed item for any potential conflict with the IP and security clearance requirements. If potential issues are identified, all partners will be informed.
4. Any objections should be made by email to the Project Coordinator (UPVLC), Dissemination Manager (PIAP), the Innovation Manager (ETRA) and the applicant within 7 days. If no objection is made this time limit, it will be assumed that partners have no objections.
5. If issues are identified and cannot be resolved, the Project Coordinator, Dissemination Manager and the Innovation Manager will discuss the issues within the Steering Committee or with affected partners (virtually or physically) to reach a decision before the deadline.
6. The above process will be repeated for any published material following abstract acceptance, e.g. paper, presentation slides.

IP and Innovation Management is performed in Task 1.5 and includes the monitoring of technology advances by using an IPR template on the ASSISTANCE repository. This system will also be used to track plans for protection or publication of the foreground developed during the project. This will be reviewed regularly by the Innovation Manager.

The rules for the protection of IP and access rights to relevant background and results will follow the provisions of the Grant Agreement and have been agreed in the Consortium Agreement. The key point on IP ownership are:

1. Ownership of the background is unaffected by participation in the project.
2. The project results are owned by the participant generating it.
3. Joint ownership should be avoided where possible to avoid problems. However, where this is not possible, joint owners must agree among themselves on the allocation and the terms of exercising the ownership of the foreground.
4. Background and results are made available royalty-free for other partners (solely for use in the project) if they cannot perform their part of the project without it.
5. Background and results are made available on fair and reasonable terms if needed for other partners to exploit their foreground outside the project.

3.1.2. Baseline background IP

In order to clarify the IP baseline at the commencement of the project related to the technologies that partners are contributing to ASSISTANCE, an audit of the existing relevant background was performed and included in the proposal. This includes existing patents and products as well as unprotected know-how and software which are kept as proprietary knowledge by some partners. In some cases, publications are included but key details are normally not revealed in these. Details of relevant background, which has been reviewed by partners, are shown below in Table 3

Partner	Description of relevant background	Type of protection (Patent, know-how, etc.)
UPVLC	GESTOP system	Patent
UC	PSD tool is a software designed to help LEAs to know the level of security hazard of the mass gathering (e.g. fan-zone, stadium, venue of the celebration) and recommend the general security instructions and precautions in place.	Know how
UC	RTE Tool allows to know the evacuation times of a mass gathering event (e.g. fan-zone, stadium, venue of the celebration) within a few seconds by taking into account changing conditions of the emergency (escape routes availability, applied evacuation strategy).	Know how
CATEC	Intelligent navigation module for UAS	Know-how
CATEC	Autopilot system for UAS, including model-based development framework	Know-how
CATEC	Ground control station software for UAS	Know-how
CATEC	Algorithms for cooperation and coordination among UAS	Know-how
RISE	RISE has no background IP invested in the ASSISTANCE project.	Not applicable.
TNO	RESPONSE webserver	know-how
TNO	SA model and SA display developed under FP7 project TRADR	know-how
TNO	Work Load model	know-how
TNO	Work agreement model	know-how
TNO	Socio-cognitive engineering method and tool	know-how
THALES	PATHOPTIM is a path planing framework containing libraries of trajectory computation algorithms	know-how

Table 3 – Baseline background IP for ASSISTANCE

3.1.3. Expected Foreground IP

Expected foreground IP from the project is shown in Table 4 below.

Ref.	Owner	Type of Exploitable Foreground[1]	Description of Exploitable Foreground[2]	Background needed to use Foreground[3]	Exploitable product(s)[4]	Sectors of application	Status and schedule for exploitation	Planned IP protection strategy [5]	Other Beneficiaries involved
1	UPVLC	SOFTWARE	Evolution and adaptation of GESTOP to the port or similar CI environment physical protection	GESTOP System	GESTOP or GESTOP modules stand alone	FRs protection, SA application, Emergency management	NA	Patent	No
2	UPVLC	SOFTWARE	Video fusion module	GESTOP System	Video fusion module	FRs protection, SA application, Emergency management	NA	License	No
3	UPVLC	SOFTWARE	FRs Wearable Sensors	GESTOP System	FRs Wearable Sensors	FRs protection, SA application, Emergency management	NA	License	No
4	UPVLC	SOFTWARE	Portable SA platform	GESTOP System	Portable SA platform	FRs protection, SA application, Emergency management	NA	License	No
5	UC	Software	Evacuation and intervention times and rotes will be provided based on appropriate optimization and decision algorithms and real-time computer simulation models (for those areas or facilities where relevant information is available). These models will be essentially stochastic, with a high degree of sophistication and with the capabilities of generating and processing results of thousand simulations, providing additional information to make timely decisions	N/A	DARL (Evacuation Module)	First responders, LEAs, Authorities	Ready at end of project for research purposes, seeking further research to commercially exploit the software	TBD	ETRA, UPVLC

Ref.	Owner	Type of Exploitable Foreground[1]	Description of Exploitable Foreground[2]	Background needed to use Foreground[3]	Exploitable product(s)[4]	Sectors of application	Status and schedule for exploitation	Planned IP protection strategy [5]	Other Beneficiaries involved
6	UC	Methodology	GELS Toolkit for self-assesment, monitoring and analysis of gender, ethical, legal and societal aspects	N/A	GELS Methodology	Industry and public sector interested in assesing societal impact of activities and or product developments.	Ready at the end of the project	TBD	CEL, ELEX
7	CATEC	SW	Autonomous UAV to neutralize in a fast and efficient way malicious drones while minimizing colateral damages	elligent navigation module from CAT	Potential product	Counter drone, Security	Current technology in TRL4, expected to be TRL5-6 by the end of the project. It will require extra investment after the project to reach TRL 7 and become ready for transfering it to the industry	Trade secrets	
8	CATEC	SW	Network coverage through the use of swarms of drones	Algorithms for cooperation and coordination among UAS	System	Communications, Emergencies	Current technology in TRL4, expected to be TRL5-6 by the end of the project. It will require extra investment after the project to reach TRL 7 and become ready for transfering it to the industry	Trade secrests	
9	RISE	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
10	ETRA	Documentation (specification)	Specification of SAS to be implemented in FR's methods	No Background needed	SAS	Local authorities, public service entities and system & infrastructure technologies	TBD	Not applicable	Not applicable

Ref.	Owner	Type of Exploitable Foreground[1]	Description of Exploitable Foreground[2]	Background needed to use Foreground[3]	Exploitable product(s)[4]	Sectors of application	Status and schedule for exploitation	Planned IP protection strategy [5]	Other Beneficiaries involved
11	ETRA	Software	Software system highly interoperable with each FRs organization to assess risks during the mitigation of a big disaster	No Background needed	Interoperability gateway for FR's	FR's, security practitioners	Current research, it is planned to have a final product two years after finalization of the project	Propietary license	Not applicable
12	IFV	Software	Virtual Reality platform ADMS	ADMS is produced by USA based company called Environmental Tectonics Cooporation ETC	Virtual Reality platform for First REsponders	First Responders	Ready for exploitation		
13	TNO	software	Hazard module	N/A	Hazard module	FRs	Ready at end of project for research purposes, seeking further research to commercially exploit the software	TBD	No
14	Ł-PIAP	Software	Software system that operates on mobile robots and specific payloads for disaster response scenarios that is interoperable with modules and toolkits developed in Assistance	Ł-PIAP robotic systems	Interoperable robots	FR's, security practitioners	Ready at the end of the project	Propietary license	All modules providers

Notes

1 Hardware, software, know-how,,etc.
2 Description of the expected advance,
3 Examples of Background IP required to use foreground might include existing patents, tolls etc.
4 Potential product, sub-system or system,
5 Planned IP protection strategy (e.g. proposed patent filing, licenses, etc,.)

Table 4 – Expected Foreground IP

3.1.4. Individual Partner Exploitation Plans

End users and system integrators

ETRA

ETRA's customers are typically public authorities and large companies who use ETRA's large-scale real-time control systems and information management services to run mission-critical and sometimes life-critical operations.

The results coming out of the ASSISTANCE project are expected to be a key driver to introduce an application as a core of a wider platform in the products of ETRA's portfolio. ETRA main interest focuses on the exploitation of the Risk Management Techniques and tools investigated in the project. The final purpose would be to offer our large-scale control systems, as well as other software systems (like e.g. SCADA systems management), for public bodies, FRs and security practitioners as a Secure Software as a Service.

ETRA is not a security provider and do not want to commercialise directly any of the RTD outputs the project is producing, however it is considered of great value the understanding of the risks and vulnerabilities introduced when offering Software as a Service in an FRs environment when they work in the mitigation of disaster.

The strategy is to integrate the long-term new functionalities in ETRA solutions, enabling to secure, virtualize, optimize, and manage utility networks by using innovative SA capabilities developed in ASSISTANCE.

ETRA will incorporate ASSISTANCE results in its business strategy by constantly linking its current portfolio of solutions to ASSISTANCE outcomes. Because ETRA is located within the triangle of government and local authorities, public service entities and system & infrastructure technologies, it will have numerous opportunities to bring ASSISTANCE project to the attention of stakeholders.

TNO

The TNO exploitation strategy for the knowledge acquired during the participation in ASSISTANCE is twofold. On the one hand, TNO as research partner will improve its skills and knowledge in the systematic development and evaluation of design knowledge for creating human-centred systems, as well as the development of the hazard module, to leverage existing and future projects. It is anticipated that developing this module for hazard calculations of dynamic an uncertain data will provide additional competence for TNO; second, TNO, as a research institute, does not commercialize any solution or system itself, but, once the technology is on a relatively high TRL level and has been successfully demonstrated in prototypes, TNO seeks cooperation with industry for commercialization. TNO will use the networking opportunities provided by the ASSISTANCE consortium to find new projects and form new consortia.

CEL

CEL will advance its methodology for assessing relevant projects in the future from the ethical standpoint, particularly with reference to the ethics models to assess R&D in the field of DRS technologies. More in detail, in WP8 CEL has designed and created an ethics checklist to be used during the pilot's deployment with two scopes: (1) a self-assessment tool for the leaders of pilots to control the compliance with EU ethics frameworks, and (2) a tool for social researchers to measure the trustworthy, transparent, suitable progress of pilots. This methodology will enrich CEL offering in the social research field as well as in the consultancy for its clients and will create new opportunities for enlarging market segments and customer targets for its consultancy services.

THALES

THALES, as the main research centre of Thales aims at transferring the ASSISTANCE results inside the Business Units (BU) that could industrialize and exploit the results. Thales BU has a local and international portfolio with CI operators (airports, energy and critical sites like the health facilities), transport operators (subways, tramways, buses), security forces and medium or large towns and is a major player in CI protection like for Mexico City. Thales expects an increase of 2% of the market share on C4I (Computerized Command Control Communications & Information) systems in the security domain. The global C4I market of $38 billion forecast infrastructure security spending by governments between 2010 and 2020 with 6.2% predicted annual growth in government infrastructure security spending to 2020 (CAGR 2008-2015). The increase is expected few years after the end of the project thanks to innovations from the ASSISTANCE results integrated into Thales products serving as key differentiators in front of our competitors.

VIASAT

Viasat customers among others are public authorities, large system provider companies and UAV operators who use communication services to run mission-critical and sometimes life-critical operations. Viasat expect to integrate some of the ASSISTANCE building blocks inside its system portfolio once industrialized. It will be commercialized within its European business units selling services to public authorities and first responders.

The results coming out of the ASSISTANCE project are expected to be a key driver to develop a vehicular mission kit for emergency vehicles. Before ASSISTANCE, VAS already started to develop communication solutions for land vehicles by integrating its connectivity solutions on ambulances (ESA Satcare project) and on Border Patrol vehicles (BES 2016 Camelot project). Through ASSISTANCE, VAS is intending to build partnership with Vehicle manufacturers willing to enable their vehicles to ensure more efficient missions in the emergency mitigation domain. The ASSISTANCE project is also a good opportunity to validate end to end communication system within demonstration with ASSISTANCE end user community.

Once the technology is on a relatively high TRL level and has been successfully demonstrated in prototypes, Viasat seeks cooperation with industry for commercialization. Viasat will use the networking opportunities provided by the ASSISTANCE consortium to find new projects and form new consortia.

e-LEX

e-LEX core business is based on providing legal consultancy services to international private and public companies. Within ASSISTANCE, e-LEX will advance its knowledge on the application of the data protection and privacy framework to the first responder's field that will be reused in order to enhance its own current offering. Moreover, e-LEX will analyse the EU and national legislative framework on light GDPR, producing policy-relevant results of interest to political decision-makers and the academic community. Within an academic and industrial framework, e-Lex has planned the organization or its participation to a series of events that will be focused on the diffusion of the intermediate outcomes of the project. These events will involve stakeholders, both from the private and public sector, having an interest in understanding and potentially contributing to, or feeding back to, the work of the project and its outcomes. Also there will be two large scale dissemination events that will present the major results, in order to collect feedbacks from a broader audience of interested parties.

A part from the public dissemination through these events, the outcomes of the project will be disseminated with the publication of at least two articles on peer-reviewed reviews. Furthermore, all these events and publications will be communicated to the press agencies, in order to cover a wider public and to reach newspapers and sectorial press, and also through the structured use of social media belonging to e-Lex law firm.

Universities and Research Centres

University Polytechnic of Valencia (UPVLC)

UPVLC as academic partner will use the knowledge gained during ASSISTANCE project for improving and updated some of the subjects and masters that the distributed real time systems lab (DRTSL) members teach at UPVLC telecommunications school (real time video draping on GIS, integration of IP sensors using advanced network capabilities, etc.) In addition, DRTSL will stablish collaboration agreements with local and national FRs organizations and public bodies for tailoring some of their modules developed during ASSISTANCE to their specific needs.

Finally, DRTSL will try to include some of their project results in the current portfolio of Tiempo Real Sistemas (TRS) Company. TRS is a small technological company (spin off) lead by the DRTSL members that needs to offer really competitive product to its customers in order to make them more competitive in the security market lead by large companies.

The DRTSL participation in ASSISTANCE will improve the innovative solutions proposed for TRS products portfolio, especially to evolve the current solution offered on SA applications for FRs.

University of Cantabria (UC)

Being an academic institution University of Cantabria will focus its effort in a twofold exploitation strategy:

- Reinforcing the **Scientific presence** through papers, posters, publications in JCR journals, lectures, etc., and the **communication to the public** by other means like social media channels. Fostering the UC's research at scientific and social level will contribute to a better positioning for achieving available funds.
- **Integrating the results into further research** with the intention of using the results into publications and contributions to the scientific community and eventually into new research proposals, projects and activities involving domains as critical infrastructures, policy making, etc.

Nevertheless, a regular commercial strategy will not be diminished by searching further ways of reaching society as for example:

- **IPR licensing**. The UC's exploitable results will be included at the university portfolio of outcomes to be devoted to transfer of scientific knowledge to society. Furthermore, and taking into consideration the evident commercial constraints that universities have to make a direct commercial exploitation, they can be profited as part of ASSISTANCE or other project results as DALR, to maximize the market uptake and taking advantages of the synergies between consortium partners.

CATEC

For **CATEC**, the project is a great opportunity to develop new technologies related to security applications taking into consideration the use of UAS. This will increase our positioning in security applications with UAS applying new technologies that are not yet in the market.

CATEC expects that this increase of positioning will have a first exploitation result for us, which is to increase our participation in further R&D projects (both national and European) related to security. CATEC research centre is committed to the increase of the technology level of new developments. However, CATEC as a research centre, does not industrialize or commercialize any solution or system directly by itself. Our approach is to increase the TRL of technologies internally, maintaining IP rights, and once the technology is close to TRL 6 and has been successfully demonstrated in relevant scenarios, CATEC will start looking for a company to industrialize and commercialize a solution based on the new technology.

Then, the final objective, once the technology is mature enough, is to get an agreement where the transfer of technology is performed in return of licence fees or royalties. However, there is no standard procedure since it is studied case by case.

In ASSITANCE since the new technologies to be developed (autonomous neutralization drone and network coverage using swarm of drones) do not have yet a high TRL, the idea is to increase the TRL of these technologies during the project, and also increase the awareness of the existence of these technologies (through demonstration and the project dissemination activities) among potential industries that can exploit them commercially.

Then, the first step of the exploitation plan for CATEC is to attract the attention of potential industries for the commercialization of the technology. Once this happens, next steps are: sign an exploitation agreement, start a new project where a pre-commercial version of the system is validated in an operational scenario (TRL 7), and support the company in the and adaptation of the technology to the different identified business cases.

RISE

The RISE Safety and Fire Research exploitation strategy is to use the knowledge gained from the ASSISTANCE project, particularly in the form of new measurement/evaluation methodologies and in human factor influences for technological development, to leverage existing and future projects. RISE has already begun work on a future technology evaluation platform designed to link rescue services, researchers, and industry to find the best possible solutions for fire-based incident response challenges. The ASSISTANCE project will provide complementary technological depth to this platform. It is anticipated that new measurement techniques for validating AR/VR simulations of aerosols and particulates will provide additional competence for RISE Fire Research.

RISE will use the networking opportunities provided by the ASSISTANCE consortium to find new projects and form new consortia. In the first 10 months of the project there have been three invitations from ASSISTANCE partners to respond to EU calls for proposals.

IFV

The Institute for Safety (IFV) exploitation strategy is to use the knowledge gained from the ASSISTANCE project, particularly in the form of what the effects are for the FR's when using these new SA capabilities.

The Dutch FR's are willing to use new aids like drones, sensors and robots but have a real need for a suitable SAP. The ASSISTANCE project will provide complementary technological possibilities with regards to the developed SAP.

Secondly IFV would like to offer her Virtual Reality platform to First Responders within Europe and, in return, would like to use other VR platforms available in Europe for the Dutch FR's.

IFV will use the networking opportunities provided by the ASSISTANCE consortium to find new projects and form new consortia.

ŁUKASIEWICZ-PIAP

ŁUKASIEWICZ-PIAP is operating in the research area and is active as an industry player with its own services and products. In result, the Institute is planning to exploit the ASSISTANCE results twofold. First by implementation into further R&D works in the area of robotics for security and defence. Updated robotic design and solutions will be explored to attract new business, research and end-users partners for emerging applications of autonomous solutions in the security domain. Second by the introduction of the project outcomes in the portfolio of the commercial products offered by ŁUKASIEWICZ-PIAP: mobile robots and accessories for special forces. Institute main customers are public authorities and LEAs in Poland, European Union and worldwide and its products are showcased regularly at the biggest trade events in Europe (e.g. EUROPOLTECH, MSPO, MILIPOL,) and beyond (e.g. Asia, Middle East). ŁUKASIEWICZ-PIAP is also very active in establishing bilateral contacts with end-user organisations and closely monitors all the procurement opportunities, successfully delivering its mobile robots and special equipment to security end-users for over 10 years.

System components developed and updated by ŁUKASIEWICZ-PIAP within ASSISTANCE project to be interoperable with ASSISTANCE payload platform will be presented to end-users and will be offered commercially as upgrades to existing tools used by different entities or as a new toolset for new customers. That includes mobile robots and its specific payloads tested within ASSISTANCE and adopted for disaster response scenarios and verified by the end-user operators. Moreover, the interoperability of the robots and payloads with other ASSISTANCE components and control system architecture will enhance market uptake of all solutions developed within or compatible with the project

3.2. Initial System Exploitation Plan

The ASSISTANCE project involves partners from different areas of the spectrum of emergency management. ASSISTANCE consortium consists of large European service and solution providers with access to end-users (THALES, ETRA, VAS) and also end-users for ASSISTANCE tools assessment (AVSRE, MIR-PN, GB, AAHD CNBOP, SBFF and OSPOM) during the project and infrastructure provider (CATEC). All these industrial partners have direct access to their markets and a large user basis all over Europe. The collaboration of the main players in the European industry will help to lead the development of trustworthy services for European industry and to strengthen the position in the global first responder market, to advance FRs innovation.

Moreover, academic partners (UPV, UC) and research centres (RISE, TNO, PIAP, IFV) are in the project to generate new ideas and transfer the technology from academia to industry. The exploitation of the results of the project will be done in each institution.

At this early stage, there are not yet any products singled out yet. Some initial products that were foreseen to benefit from ASSISTANCE results have already been named on individual project partner's exploitation plans in the DoA. The current system exploitation plan and roadmap for commercialisation, to take the ASSISTANCE system outputs into the market within 2 years of project end, can be divided into four phases as described below.

Phase 1 covers ASSISTANCE project activities that enable post-project industrialisation for FRs applications to commence (in Phase 2) once the ASSISTANCE project has completed, leading to first responder market entry (Medical Emergency services, Firefighters, Law Enforcement Agencies, Civil Protection, etc.) from 2023 onwards, as long as the business case remains strong. Before starting commercialization, the results of the project will conclude with the preparation of Pre-commercial Procurement (PCP) and a Public Procurement of Innovative (PPI) since the project had not considered in the initial analysis to offer final products at the end (ASSISTANCE project it is a Research and Innovation Action).

These procurements will facilitate the industrialization phase of the solutions and its ulterior market penetration. Besides, other important stakeholders groups market opportunities (e.g. Local authorities & national/regional public bodies, Public security agencies, Private security companies, Policymakers, legislative framework creation, Standardization bodies and so on) will be investigated (Phase 3), and if the results are promising there will be an industrialisation phase for on -emergency applications leading to other stakeholders groups market entry from 2024 onwards (Phase 4).

Phase 1 – Design, develop and test ASSISTANCE prototype solution- Years 2 and 3 (May 2020 to April 2022 – within ASSISTANCE project)

Year 2

- Investigate the market and stimulate customer interest
- Produce business case (from the supplier perspective) to justify post-project industrialisation

Year 3

- Develop and test a prototype solution in three different practical demonstrations
- Ensure system design/ performance traceability to user requirements
- Produce cost-benefit analyses to justify future customer investment by FRs and other emergency teams.
- Perform risk analysis (technical, commercial e.g. competition and cost risks, management e.g. timescales) to describe barriers to market entry and the associated risk mitigation plan
- Agree IP strategy and licensing arrangements/ terms and conditions post-project
- Agree commercial collaboration arrangements post-project

Phase 2 – Industrialisation of ASSISTANCE for FRs applications – Year 4 (May 2022 to April 2023- after ASSISTANCE project)

Year 4

- PCP will facilitate scaling ASSISTANCE products to more mature solutions to facilitate the interoperability and integrating, allowing the implementation ASSISTANCE prototype system at FR partner premises following approach tailored to their needs
- Develop marketing strategy for FRs applications
    - Review market needs
    - Review customer cost-benefit trade-offs
    - Review risks and plans to overcome market barriers
    - Review standards/ certification/ qualification/ compliance requirements for ASSISTANCE and plan how to ensure they are met
    - Review business case for industry investment in ASSISTANCE development and market entry and confirm it remains strong (Go/ no Go decision)
    - Update customer engagement plan
    - Develop and test pre-production/ installation hardware and software system at pilot demos
    - Market ASSISTANCE to customer end users and local authorities using test version demonstrations at pilot demos
    - Develop production plan (hardware and software) for market entry in year 5(2023 onwards)

Phase 3 – Investigate other stakeholders' groups– Year 4 (May 2023 to April 2024- after ASSISTANCE project)

Year 4

- Investigate markets and stimulate customer interest using pilot demos and/or specific fairs attendance
- Identify new lead customers for ASSISTANCE solution and their user requirements
- Produce business case (from the supplier perspective) to justify investment in industrialisation for other markets
- Stimulate customer interest using the test version
- If the business case for supplier investment is strong:
    - Develop and demonstrate a prototype solution tailored to the lead customer requirements
    - Produce cost/benefit analyses to target these customers
    - Develop industrialisation plan for other communities -non-FRs for implementation in Year 5 and market entry in Year 6 (2025 onwards)

Phase 4 – Industrialisation of ASSISTANCE for other stakeholders' groups – Year 5 (May 2024 to April 2025 – after ASSISTANCE project)

- Plan for industrialisation will be defined in Phase 3 and lead to market entry in Year 6 (2022 onwards)

The roadmap showing when these developments could occur, providing there is enough progress of the ASSISTANCE project and the business case justifies the appropriate private investment, will be shown in the D9.6 PCP and PPI preparation Plan for Commercialisation and Market Entry. The ASSISTANCE framework will be commercially exploited by a Joint Venture (JV) of the key consortium partners that are necessary for the successful continuous development and commercialization of the system. The preliminary business model is to jointly commercialize the different solutions as an all-in-one holistic security platform for FRs but has to be noted that, obviously, it is feasible that in certain cases individual results may be commercialized independently one another. Fort this reason, the JV will be established with clear roles and responsibilities for the successful commercialization of ASSISTANCE by taking advantage of the innovation potential from the consortium as a whole. This roadmap and the associated ASSISTANCE services plans will be updated in Deliverable D9.6, Plan for Commercialisation and Market Entry (Month 36).

4. Conclusions and Future Activities

The purpose of this document was to present the communication, dissemination, and exploitation strategy of the ASSISTANCE project as well as to report all the communication, dissemination and exploitation activities have been accomplished during the first year of the project. At the closing of the first year, partners have showed a good understanding on how to disseminate and exploit project's results. At the time being more dissemination and exploitation activities were examined. ASSISTANCE also produced a first newsletter containing summaries of the project's achievements.

The exploitation strategy and plans described are based on the background and foreground IP owned and being developed respectively by the partners. This deliverable includes compilations of the background IP underpinning the ASSISTANCE developments, and expected technology advances and planned IP management, which will be reviewed and updated throughout the project lifetime.

During project's lifetime revision to the strategy and possible updated will be done, which will be reported in the following deliverables, alongside with the progress made in future:

- D9.3: Mid-term Dissemination Report
- D9.5: Final Dissemination Report
- D9.6: PCP and PPI preparation Plan for Commercialisation and Market Entry

Additionally, future standardisation actions will be assessed and the plans in that respect and the progress made in the remaining lifetime of the project will be reported in the deliverable D9.6.

Finally, a large number of publications in conferences and scientific magazines are expected to be generated during the next reporting period (if the current COVID-19 outbreak does not affect them), as well as participation in workshops and European Commission's events, and further cooperation with other EC projects.