



PROJECT DELIVERABLE REPORT



Introducing advanced ICT
and Mass Evacuation Vessel design
to ship evacuation and rescue systems

D1.5 FINAL IPR MANAGEMENT

A holistic passenger ship evacuation and rescue ecosystem

MG-2-2-2018

Marine Accident Response

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Abbreviations

AR	Augmented Reality
DSS	Decision Support System
GDPR	General Data Protection Regulation
ICT	Information and Communication Technology
IEC	International Electrotechnical Commission
IPR	Intellectual Property Rights
UAV	Unmanned Aerial Vehicle

1 Summary

The purpose of this deliverable is to describe the management of IPRs (Intellectual Property Rights) during the project and how it depends on system maturity. A clear and concise IPR and knowledge management is a key factor for successful exploitation.

2 Document outline

- Chapter 1 provides the introduction of the current document.
- Chapter 2 describes the sections in the document.
- Chapter 3 summarizes briefly the information necessary to create an exploitation plan, how to identify the exploitable items, and which challenges arise to do so. A list of current candidates for exploitation and IPR management conclude this chapter.
- Chapter 4 compiles general principles and procedures for IPR and Knowledge management.
- Finally, Chapter 5 concludes this document by providing a conclusion.

3 The Consortium overall exploitation plan and related IPR management

3.1 Approach and methodology

To develop the Consortium overall exploitation plan for the PALAEMON system, and the related IPR management, a various number of information items needs to be available. They can be split up in technical (system related) and non-technical information items.

The non-technical information items include:

- An overview of customers, but also stakeholders in general, who are interested in or affected by the operation and deployment of the PALAEMON systems
- Suitable business models which take into account conditions and facts given from a customer's perspective
- The foreground developed in the project
- Roadmaps for industrialisation taking into account the deployed (technical) standards

All these non-technical information items are relevant for the development of a Consortium overall exploitation plan.

On the other hand, the following technical prerequisites need to be considered:

- The technical maturity of all elements of the overall system at project end needs to be known
- The level of integration of the various system elements needs to be sufficiently high
- The added value of the various system capabilities needs to be assessed and confirmed by subject matter experts

On the basis of this information, a Consortium overall exploitation plan was created.

The related IPR management, which assures that exploitation can be implemented efficiently, needs to take into account

- The foreground developed in the project in order to define detailed IPR management procedures
- The exploitable items (The overall system, parts of the overall system, system components)

3.2 Identification of exploitable items

The exploitable items and their owners are identified in D9.5, the final exploitation plan.

3.3 Current candidates for exploitation and IPR management

The following table shows the various components/tools which constitute the overall PALAEMON system and MEV. Once the missing information about technical maturity and efforts for industrialisation is known, the exploitable assets can be identified and a suitable IPR and Knowledge management can be defined. Exploitable assets cannot only be found in the single PALAEMON systems components, but also

in capabilities comprising several systems components, and also the entire system itself. In addition to the technical exploitation items, the new procedures can be subject of exploitation.

Overall PALAEMON system	
Tool deployed	Supported system modules
Navigation Decision support	Linked to the navigation system
Smart Cameras	Crew and passengers monitoring
Smart Bracelets	Passengers (indoor & Outdoor) monitoring, health tracking, fall detection, personal alarm triggering, custom guidance to muster stations, etc.
Augmented Reality for crew members	Crew companion element to support in evacuation (e.g., locate people, follow procedures, check ship status, communication with bridge/other crew members, etc.)
UAV	Structural Damage Assistant, man overboard detection, custom area inspection
Evacuation Decision Support System (DSS)	Set of tools to monitor the evacuation status
Weather Forecast Toolkit	Correlation of weather forecast with past incident analysis to perform potential bindings and anticipate potential climate-related hazards
Incident Management Module	Graphical User Interface in the bridge to display all PALAEMON-related outcomes to support the Master (and crew) take critical decisions
Wireless communication solutions	Set of solutions to warrant the connectivity between persons and tools
MEV	Physical evacuation module that can host the PALAEMON system
Overall PALAEMON System	All PALAEMON operational capabilities
PALAEMON procedures	A Handbook including all procedures related to PALAEMON system utilisation

4G/5G Network Deployment	Dedicated Cellular network infrastructure
PALAEMON Academy	Crew and Passenger training ecosystem based on Virtual Reality
VHF Data Exchange System (VDES)	Evolution of the legacy AIS systems with much more communication capacities (e.g., channels, bandwidth, etc.)
Passengers Mustering and Evacuation Process Automation System (PAMEAS)	Crew and passenger indoor location systems based on smartphones and bracelets (4G/5G interfaces), real-time individual guidance to safest muster stations
Ship Evacuation Manager	Software module responsible for the control and monitoring of the ship evacuation status, translating the master's commands onto the digital world
Ship Stability Toolkit & Smart Safety System	(JU to complete)
Ship Structural Monitoring System	Accurate monitoring of local and global deformations and stability of the ship (quasistatic and highly dynamic conditions)
Data Fusion Bus (DFB)	PALAEMON platform backbone, meaning data aggregation, filtering, storage and serving
Smart Risk Assessment Platform	Current situation on board and support crew and other components during the evacuation process.
PALAEMON Integrated Platform	"System-as-a-whole" solution that drastically enhances the whole evacuation process

4 IPR and Knowledge Management

General principles: The general principles for handling Knowledge and Intellectual Property Rights within PALAEMON are stated hereunder and have been settled in a consortium agreement that was signed by the PALAEMON consortium at the project start and the version in force. These principles are in line with H2020 Intellectual Property Rights recommendations. Foreground/ Background: All results of the project (inventions, software, databases, etc.) and attached rights are called foreground. Background is the information and attached rights which are held by participants prior to their accession to the grant agreement (no side ground) and which are needed for carrying out the project or for using its results.

Background will be clearly identified within the consortium agreement and when applicable, granting of access rights will be clearly specified.

Ownership: each participant will own the foreground it generates.

Joint ownership: when the foreground is generated jointly and it is impossible to determine the respective share of the work, participants will have to reach an agreement. Rules to do so will be defined in the consortium agreement.

Notifications/Objections: prior notification of transfer only to the other participants who may object if it would adversely affect their access rights or who may waive their rights to be notified in advance regarding specific third parties (e.g. mother companies). The Commission may object to transfers to third parties established in non-associated third countries for ethical, competitiveness or security reasons (where appropriate: requirements to notify the Commission).

Protection, use and dissemination: Foreground capable of industrial or commercial application must be protected taking into account legitimate interests. Prior notice of dissemination must be given to other participants (not to Commission, unless no protection, in which case the latter may request to protect on its own behalf). Any dissemination such as publications and patent applications must indicate the Community financial assistance.

Access right: Access rights to background and foreground is regulated by section 9 Consortium Agreement

Management of knowledge in PALAEMON: Regarding the development of technological projects, different types of behaviours are observed.

The cooperative behaviour will be fostered through an adequate knowledge management process. In any collaborative project, information moves in great measure and has to be managed. People from different countries and different cultures will work together and have to communicate regularly. An excellent communication is required between all the participants of the project.

In order to optimise the development of the PALAEMON project, a process of knowledge management was implemented, whereas by voluntary participating in the Pilot for Open Research Data, it developed a DMP that was constantly updated, fully addressing the lifecycle and public availability of research data generated by the project. This process provided the consolidation of the knowledge spiral, enabled co-operation and will allow for the creation of new knowledge. All the participants of the project have to co-operate in order to reach the most efficient process of knowledge management. This process is divided in different steps: First of all, the information is gathered and shaped. After that, it is indexed in order to be correctly disseminated. This was followed by an appropriation period, which provides the creation of new knowledge.

Some tools dedicated to knowledge management were set up to support social interactions, knowledge processing (files organised thanks to semantic links, to facilitate future searches) and intelligent distribution of knowledge (push and pull actions to optimise the distribution of knowledge). The management of the knowledge generated in the PALAEMON project is seen as an important objective.



The PALAEMON Intellectual Property Rights (IPR) strategy: The IPR strategy and the exploitation management were handled in the Consortium Agreement, as well as in the WP1 and WP9. The IPR strategy of the project is an important part of the project exploitation plan. During the project meetings the internal results were reviewed with the goal of identifying important ideas and defining an individual strategy for the positioning of these ideas in the standardisation and commercialisation processes.

Data management and IPR: Two kinds of data were collected within PALAEMON project: Scientific/ Technology data from the development programme and personal data gathered by proposal partners and derived from human participation. Both kinds were secured with protection measures undertaken by the whole consortium.

Scientific/ Technology data: The proposal partners signed where necessary a Joint Ownership Agreement in compliance to the Article 26.2 of the Grant Agreement, deciding on the protection measures and the division of related costs regarding the proposal generated results, which will be exploitable by all joint owners.

Even though the PALAEMON developments were mainly be open-source, the consortium examined the possibility of protecting the proposal results according to Article 27.1 of the Grant Agreement. Also, according to Articles 25.2 and 25.3 of the Grant Agreement, any background IPR were clearly identified and agreed by proposal partners within the Consortium Agreement.

Personal data: As specified by Article 39.2 of the Grant Agreement, proposal partners processed personal data (private and professional information) in compliance with applicable EU and national law on data protection (in particular, Directive 95/46/EC of the European Parliament and the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data to be replaced in May 2018 by Regulation 679/2016 of the European Parliament and of the Council of 27 April 2016 (the General Data Protection Regulation)). Since the participation to the pilots is on a voluntary base, minor ethics issues derived from the personal data processing are identified at the proposal writing stage. To address these, an informed consent procedure will be implemented by the consortium, as described in Section 5 “Ethics and Security” of the Technical Annex.

Within the context of PALAEMON the following definitions will apply:

Knowledge is defined as meaning ‘the results, including information, arising from the project, as well as copyright or other rights attaching to the results following applications for, or the issue of registration of, patents, designs and models, plant varieties, additional certificates or other similar protection’.

Pre-existing know-how (background) is defined as meaning ‘information other than knowledge, held by the consortium partners prior to the conclusion of the Project or acquired in parallel with it and necessary for carrying out the Project, as well as copyright rights attaching to such information following applications for, or the issue or registration of, patents, design and models, plant varieties, additional certificates or other similar forms of protection’.

Background and individual knowledge were the property of the collaborator who carried out the work leading to the knowledge.

For the Foreground which is the result of the collaborative effort within the Project, allocation and exercise of the IPRs were determined between the collaborators in the agreement amongst partners in the group that will be produced by PALAEMON.

The Table below presents an outline of the framework for the treatment of IPR amongst the consortium partners.

Principal Contractors		
Access rights	Foreground and Knowledge	Background
<i>Access Rights</i> (licenses and user rights in respect of Knowledge and Pre-existing know-how) – <i>needed for carrying out the Project</i> and granted for the duration of the project (to which the recipient contributes)	Royalty-free basis	Favourable conditions
<i>Access Rights for “use”</i> (direct or indirect use) of knowledge for research activities or exploitation purposes	Favourable conditions (including in order to use the Knowledge they themselves have generated)	Favourable conditions (only Knowledge needed to “use” the Knowledge resulting from project)
<i>Access Rights to knowledge other than that generated under the Project</i> , to extent necessary to use knowledge resulting from the project	Favourable conditions	Favourable conditions
<i>Access Rights granted on exclusive basis for exploitation purposes only</i>	Only permitted if (i) It is compatible with the requirements for the implementation of the project (ii) comply with competition policy	Favourable conditions

	(iii) economically indispensable and (iv) market conditions	
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Table 1 IPR treatment amongst consortium partners

5 Conclusion

The present document shows how the definition of IPRs and Knowledge management is depending on the identification of exploitable items, which in turn is depending on system maturity and operational added value.

However, it is also obvious that the field exercises in Perama, Vienna and Florence provided the missing information elements to substantiate the identification of exploitable items and thereby the definition of a precise IPR and Knowledge management.