

CYbersecurity in the RAILway sector

D7.1 - Communication and Exploitation Plan - first version

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REPORT CONTRIBUTION

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EXECUTIVE SUMMARY

CYRAIL will provide tailored specifications and recommendations for secure modern rail systems design and operation, creating innovation by bringing existing intelligent and secure techniques from other domains into the railway context, while researching improved detection techniques within an operational scenario.

A wide and effective dissemination of results is a strong component of the project and one of the overall goals to be achieved.

The objective of communication and exploitation activities is to make sure that the findings generated during the carrying out of the project will reach, in a timely and effective manner, the stakeholders who may benefit of those results and to maintain the viability of the project results.

CYRail aims at having a significant impact on enhancing the operational security level of the different rail segments and the robustness of the railway information, control and signalling sub-systems. In order to ensure that the project CYRail and its results and outcomes are effectively communicated to relevant stakeholders and used after the end of the project, the current deliverable will describe the dissemination and exploitation strategy whose main aim is allowing reaching a selected group of audiences consisting of:

- Infrastructure managers
- Public transport operators
- Rolling stock manufacturers
- Signalling manufacturers
- ICT integrating companies
- Scientific community
- Standardisation bodies
- Authorities, law enforcement agencies and EU decision-makers
- Passengers

In order to reach in the most effective way the audiences above and to maximise the impact of CYRAIL, several communication and dissemination channels will be described in detail:

- CYRAIL project website
- CYRAIL private workspace

- E-newsletters
- Conferences
- Scientific publications
- Information/ Promotional Products

The purpose of this document is to present the dissemination and exploitation perspectives in detail, listing the planned activities. This is a first approach and some of this information may be updated during the development of the project.

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1. INTRODUCTION

The purpose of the Deliverable 7.1 is to present the dissemination and exploitation plan of the CYRAIL project.

The objective of the dissemination is to raise the awareness of the CYRAIL project as well as its outcome in order to make CYRAIL a successful project with sustainable output.

The communication and dissemination approach is implemented at two different levels:

- internal, and
- external communication.

The purpose of this plan is to describe the dissemination channels to be used and the dissemination material to be produced. The dissemination plan gives an overview of the various activities and enables their coordination. This plan will be developed and supplemented during the course of the project.

Each of the project partners will be actively involved in the dissemination and exploitation activities. This document shall be regularly updated with the report on their activities and with the potential opportunities for publications, workshops, meetings and other types of events.

2. TERMINOLOGY TO BE USED IN THE DOCUMENT

Acronym	Meaning
ANSSI	French Network and Information Security Agency
CEN	European Committee for Standardisation
CENELEC	European Committee for Electrotechnical Standardisation
CER	Community of European Railways
COLPOFER	Collaboration of railway police and security services
DG Move	Directorate-General for Mobility and Transport
EC	European Commission
EIM	European Rail Infrastructure Managers
ERA	European Railway Agency
ETSI	European Telecommunications Standards Institute
EU	European Union
EUROC	EUropean Rail Operating community Consortium
IPR	Intellectual Property Right
IM	Infrastructure Manager
PTFE	Spanish Railway Technology Platform
RAILPOL	European network of Railway Police Forces
UITP	International Association of Public Transport
X2Rail	Start-up activities for Advanced Signalling and Automation Systems

3. OBJECTIVES

CYRail aims to have a significant impact on enhancing the operational security level of the different rail segments and the robustness of the railway information, control and signalling sub-systems. To ensure that the CYRail project and its results and outcomes are effectively communicated to stakeholders, the objective is to implement a set of dissemination, communication and exploitation actions during and after the project, so as to maximise the impact of CYRail.

Dissemination and exploitation activities are key to the success of any project, especially to CYRail, as it aims at engaging multiple railway segments stakeholders, promoting knowledge exchange between interfaces and modes, thus maximising its benefit for the regional, national and international cooperation and collaboration.

Likewise, through the implementation of communication activities dedicated to messages and target audience, it will improve the visibility of the project.

Additionally, the exploitation of the outputs produced by the CYRail project will aim to maximise the commercial benefits resulting from them, contribute to create new market opportunities, and strengthen competitiveness and growth of companies. In a greater perspective, the exploitation of the results intellectual property will result in economic benefits for the railway network and public transportation.

4. INTERNAL COMMUNICATION

In order to ensure a smooth interaction and flow of information from the initial stage so that partners can share information, update activities and relevant documents in a timely manner, there are several communication platforms and project management tools that will be used. The table below addresses such tools that will be used to ascertain effective communication between partners for the efficient implementation of the project activities.

4.1 CYRAIL PRIVATE AREA

The main objective of the CYRAIL private area, so-called “CYRAIL workspace” or “extranet”, is to facilitate communication among the consortium members, with the European Commission representatives but also with the members of the advisory board and the end-users.

The “CYRAIL workspace” is created in the UIC collaborative Tool “OVIDENTIA” which is an open source content management and collaborative platform based on a large community of users.

This CYRAIL Workspace enables users:

- to share and store documents
- to organise meetings
- to manage directories and contacts
- to discuss special issues online

The key functions of this exchange platform are the following:

- manage users’ rights and profiles
- manage meeting schedules and associated documents
- enable users with the relevant rights to update information, upload and download files in real time
- manage the directories which constitute a contacts database inside and outside the project
- provide e-mail notification of news and events
- search on the various fields

The CYRAIL workspace is accessible at <http://extranet.uic.org>

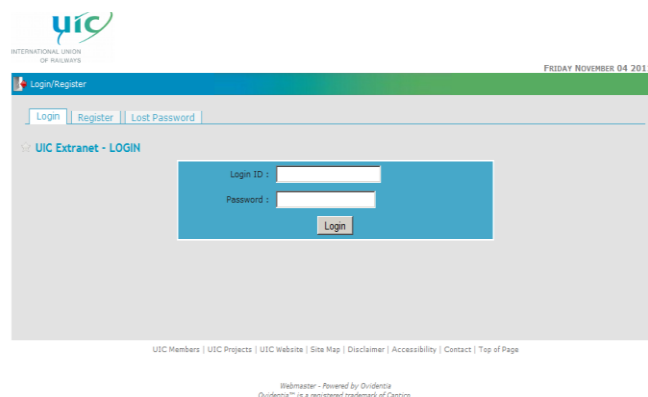


Figure 4-1: CYRAIL private area – Identification page

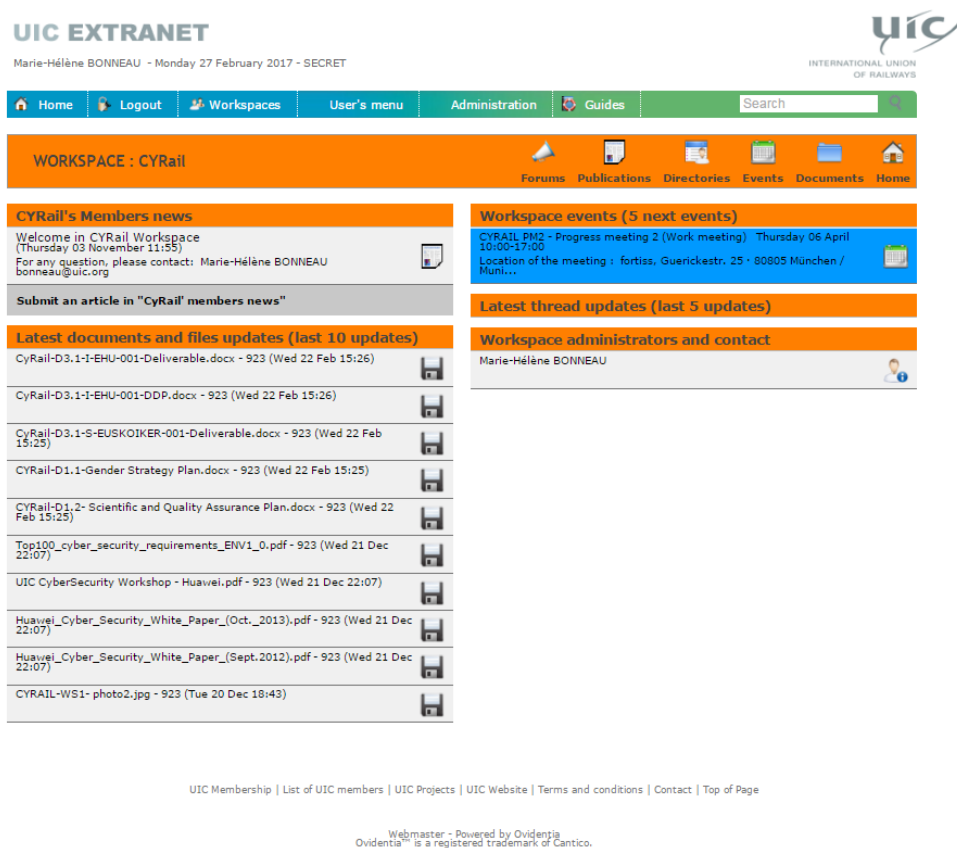


Figure 4-2: CYRAIL private area – Home page

4.2 CYRAIL MAILING LIST

One mailing list for internal communications has been created for all members of the consortium. The name is: cyrail@cyrail.eu

4.3 DOCUMENTS/ PRESENTATION STORING AND SHARING PLATFORM

OneDrive is used to share Documents developed/ presented during the various events (meetings, conferences, workshops, etc.) along with the meeting minutes so that all team members can easily access and update them.

5. EXTERNAL COMMUNICATION

5.1 PROJECT TARGET GROUPS

5.1.1 Identification of the targets groups

Fundamental aspect of an effective dissemination strategy is the definition of the target group(s) to which the dissemination/communication activities have to be tailored.

The CYRAIL consortium has identified the main stakeholders according to seven categories:

- Infrastructure managers and Public transport operators
- Rail manufacturers: Rolling stock and signalling
- ICT integrating companies
- Scientific community
- Standardisation bodies
- Authorities and EU decision-makers
- Public

At this stage, the relevant stakeholders which will be of particular interest to the project have been identified based on the requirements of the work packages. Their involvement will be organised in a bidirectional way: the dissemination of project results as well as the discussion of requirements, boundaries and lessons learned and the exchange of experiences.

Access will also be granted to the potential end-users and decision-makers with different access rights to the information carefully managed, taking account of the confidentiality policy, and on an account-per-user basis.

5.1.2 Advisory board

The CYRAIL Advisory Board brings together security experts from rail sector, rail industry, research centre and national authority.

The main task of the Advisory Board will be to advise CYRAIL project consortium, review and give feedback to the project progress, reflected mainly in the deliverables, in order to ensure their relevance and excellence.

The composition of the advisory board is proposed and under evaluation, being composed by 1 representative of each organisation:

Rail sector organisation (IM and RU)

- EUROOC (represented by IP)
- ADIF
- DBAG
- ÖBB
- SNCF

Rolling stock and signalling manufacturers

- THALES
- ALSTOM

Research centres

- RAILENIUM (represented by IFSTTAR)

National authority

- ANSSI: French Network and Information Security Agency

5.1.3 End-users: infrastructure managers and rail operators

UIC currently gathers 200 members on all 5 continents, among them railways, rail operators, infrastructure managers, etc.

The End-users will be easily accessible through the UIC channel and its specialised Forums, Platforms and Working Groups:

- The UIC Security Platform brings together the railway security experts, is in partnership with police forces and is structured with Steering Committee, working groups, annual session to take stock of work and decide on future direction. COLPOFER (UIC special group), Railpol, CER, EIM and UITP are represented in the UIC steering committee
- The UIC Rail system forum composed of rail infrastructure managers addresses all the decisive issues in railway technology operations and their interfaces as a coherent

whole. Control, Command, Signalling and Operations is one of main areas of activity within the UIC Rail System Department (RSD)

Regarding public transport, UITP (International Union of public transport) will be regularly informed through its Security commission which meets twice a year.

5.1.4 Standardisation bodies

- National standardisation bodies
- CEN/CENELEC*
- ETSI

*A Group focusing on CyberSecurity is interested on knowing better the results of CYRail project, in particular the use of Common Criteria to the Railways.

5.1.5 Authorities and EU decision-makers

- National authorities: They will be addressed by the member of the consortium at national level
- European Commission: DG Move, ERA, ENISA

5.1.6 Industry: Rail providers and ICT integrating companies

- UNIFE
- Alstom
- Thales

5.1.7 Scientific community

Research and academic organisations, scientific journals.

5.1.8 Related EU projects

Interfaces with EU related projects shall be identified and developed with the objective of creating synergies and avoid duplication of work.

X2Rail-1

A Collaboration Agreement has already been signed with X2Rail-1 Start-up activities for

This project has received funding from the European Union's Horizon2020 research and innovation programme under grant agreement No730843

Advanced Signalling and Automation Systems.

SAFERtec, H2020, 2017-2020

SAFERtec proposes a flexible and efficient assurance framework for security and trustworthiness of Connected Vehicles and Vehicle-to-X (V2X) communications aiming at improving the cyber-physical security ecosystem of connected vehicles in Europe. The project aims at delivering innovative techniques, development methods and testing models for efficient assurance of security, safety and data privacy of ICT related Connected Vehicle and V2X systems, with increased connectivity of automotive ICT systems, consumer electronics technologies and telematics applications, services and integration with 3rd party components and applications. The cornerstone of SAFERtec is to make assurance of security, safety and privacy aspects for Connected Vehicles, measurable, visible and controllable by stakeholders and thus enhancing confidence and trust in Connected Vehicles.

5.2 DISSEMINATION STRATEGY FOR EACH TARGET GROUP

For each target group, the following strategy will be developed:

Table 5-1: Dissemination strategy for each target group

Target group	Identified needs	Means of communication
External experts of the advisory Board	<ul style="list-style-type: none"> - Share knowledge - Review of some deliverables - Give feedbacks/inputs 	<ul style="list-style-type: none"> - Promotional material - CYRAIL workspace - Organisation of Workshops - Final conference
End-users: infrastructure managers and rail operators	<ul style="list-style-type: none"> - Be informed on the CYRAIL progress - Give input/feedback - Understand and use the project outcomes to better protect their system 	<ul style="list-style-type: none"> - Promotional material - CYRAIL workspace - Presentation at UIC meetings, UITP meetings and related events - Organisation of workshops - Leaflets with the project recommendations - Final conference
Industry: Rail providers and ICT integrating companies	<ul style="list-style-type: none"> - Be informed on the CYRAIL progress - Give input/feedback - Take into account the recommendations of the project 	<ul style="list-style-type: none"> - Promotional material - Presentation at thematic events, workshops and exhibitions - Leaflets with the project recommendations - Final conference
Authorities and EU decision-makers	Use the project's outcomes: adapt the legal framework if needed	<ul style="list-style-type: none"> - Promotional material - Presentation at thematic events, workshops and exhibitions - Final conference
Standardisation bodies	<ul style="list-style-type: none"> - Maintain a continuous watching brief over relevant standardisation activities and identification of potential areas for CYRAIL - Inform on the technical development of CYRAIL in order to take it in account in the standardisation process 	<ul style="list-style-type: none"> - Promotional material - Presentation at the meetings - Final conference
Scientific community	<ul style="list-style-type: none"> - Exchange knowledge 	<ul style="list-style-type: none"> - Promotional material - Presentation at Scientific thematic events, Workshops, conferences - Publication in Scientific journals
General public	Raise overall awareness on the project and its objectives	<ul style="list-style-type: none"> - Promotional material - Press releases

Table 5-2: Key messages to communicate

WP	Key Message to Communicate	IM and RU	Rolling stock and signalling manufacturer	ICT integrating companies	Scientific community Scientific community	Standardisation body	Authorities, EU decision makers	Passengers
WP1	Operational Context	X	X	X	X			X
WP3	Security Assessment Methodologies	X	X	X	X			
	Vulnerability Lists	X	X					
WP4	Evaluation of Detection and Monitoring Technologies	X	X					
	Alerting and incident management tools	X	X	X	X			
WP5	Mitigation Strategies and countermeasures specification	X	X					
	Resilience Mechanisms	X	X					
	Specification of Protection Profiles	X	X	X	X	X		
WP7	Project Website	X	X	X	X	X	X	X
	Newsletters and Media Info	X	X	X	X	X	X	X
	Project Brochure	X	X	X	X	X	X	X
	Recommendation Brochure	X	X	X	X	X	X	

5.3 MONITORING AND EVALUATION

A monitoring strategy for dissemination and exploitation is vital as the impact of those activities contribute to the successful implementation of the project and to maximising CYRail impact on the consortium members and also on the stakeholders, at national and international levels. It is important that this evaluation is carried out on a continuous basis to ensure an effective impact

assessment or redefinition of dissemination and exploitation activities. In order to measure the impact and thus conduct the most accurate assessment of the dissemination and exploitation activities, a set of key performance indicators have been defined. The table below addresses the key performance indicators, their relevance to the tools / channels used and the estimated target value. A Management and Quality Progress Report will be drafted, in addition to a Scientific Quality Assurance Plan, as described in WP1. A planned measurement would give a time bound understanding so that corrective measures can be employed.

Table 5-3: Estimation of Dissemination Key Performance Indicators

Tools/Channels	Key Performance Indicators	Target value
Project Website	Total visits to Project's website	5000 per year
UIC weekly newsletter	Number of Subscribers	5500 per newsletter
Press Release	Number of media contacts at UIC (all UIC press releases are issued in 3 languages: English, French, German)	3500 media contacts per release
Events	Number of Non-project scientific events in which the project is disseminated	4 per year
	Number of Non-project non-scientific events in which the project is disseminated	6 per year
Mailing	Number of targeted emails	200 per year
Brochures / leaflets	Number of brochures printed and distributed	500 per year

5.4 COMMUNICATION ACTIVITIES

Tools/ activities to promote the project and the outcomes of the project will be identified and adopted from the beginning of the project. These activities include the internal (within the consortium) and external (with the stakeholders) communication. To ensure that the flow of communication within the project and with external parties is implemented smoothly, a set of communication tools will be adapted. The Communication and Dissemination Plan will be continually updated, setting intermediate and long-term goals and objectives of the communication actions, as well as their expected impact; including a detailed action plan matching activities / channels or tools of communication (those of project and relevant external ones) with the target audience (varying content for different stakeholder groups as appropriate), associated resources required (both human and financial resources) as well as the timing for

each; as well as defining effective monitoring and evaluation activities using key performance indicators.

As highlighted in the target group section of the Plan, a number of external stakeholders are targeted in CYRAIL. Consistently with the channels and tools identified previously for the dissemination and exploitation of the project results, the following tools and channels are foreseen for the communication of the project to the relevant stakeholders.

5.4.1 Website

UIC created a dedicated website at www.cyrail.eu at the very beginning of the project. The website gives the visitor a comprehensive overview of the project.

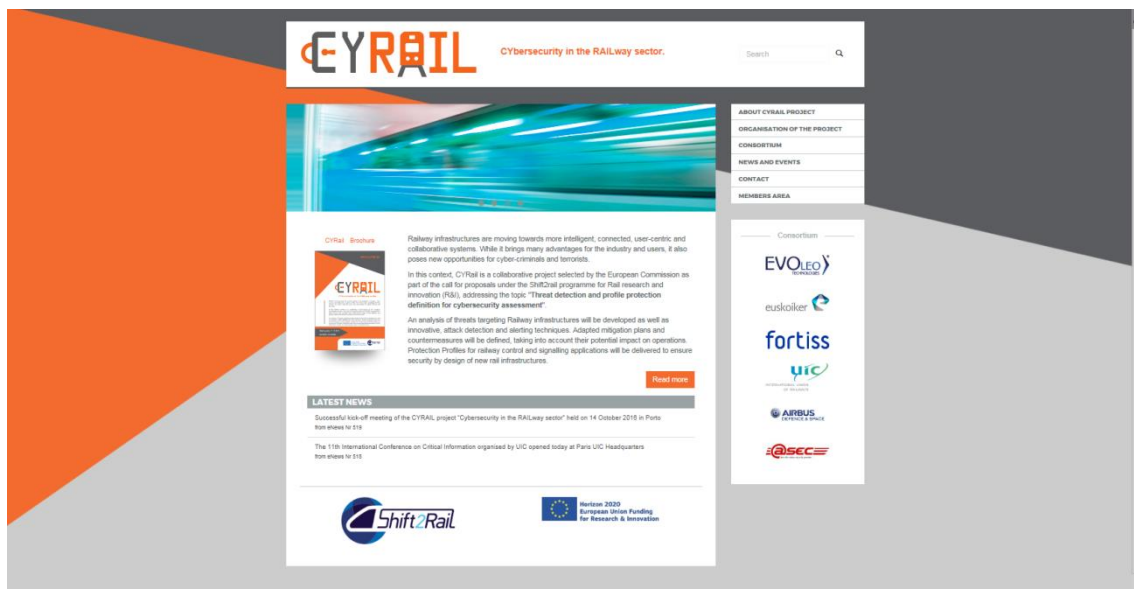


Figure 5-1: CYRAIL Website – Home page

The CYRAIL website will be regularly updated and maintained in order to reflect the project developments. All the news will be published on the web page as well as the public outcomes. The website will remain online after the end of the project.

5.4.2 Brochure

The CYRAIL brochure (A5 size) introduces the key objectives and the partners of the project. The brochure has been released in October 2016. It will be distributed by all the partners in the conferences, events and meeting that they are attending.

An electronic version is available on the CYRAIL website



Figure 5-2: CYRAIL Brochure

5.4.3 Press Releases

Press releases are short stories written in a journalistic style that are sent to members of the media. Press releases are expected to be written and released by the partnership at the beginning of the project, to announce the initiative, provide information about the motives and concept for its establishment as well as the partner organisations. It is expected that the CYRAIL conference and the major deliverables and outcome of CYRAIL will also be announced through press releases. Partners have a good working relation with the media in their region and hence extensive local media along with other regional, national and international platforms to send press releases will be approached. For instance, UIC disseminates their activities to approximately 250 different media channels in the world which can be approached depending upon the need and requirement of the audience to be catered to.

5.4.4 e-Newsletters

Electronic newsletters will be used as ideal medium to keep the targeted community informed about the project.

UIC electronic newsletter (UIC e-News), focused on projects and activities, is sent weekly to its stakeholders (railway undertakings, rail industry, standardisation bodies, international bodies; more than 5500 addressees). Two articles have already been issued (cf. UIC e-News n° 519 and n°531)

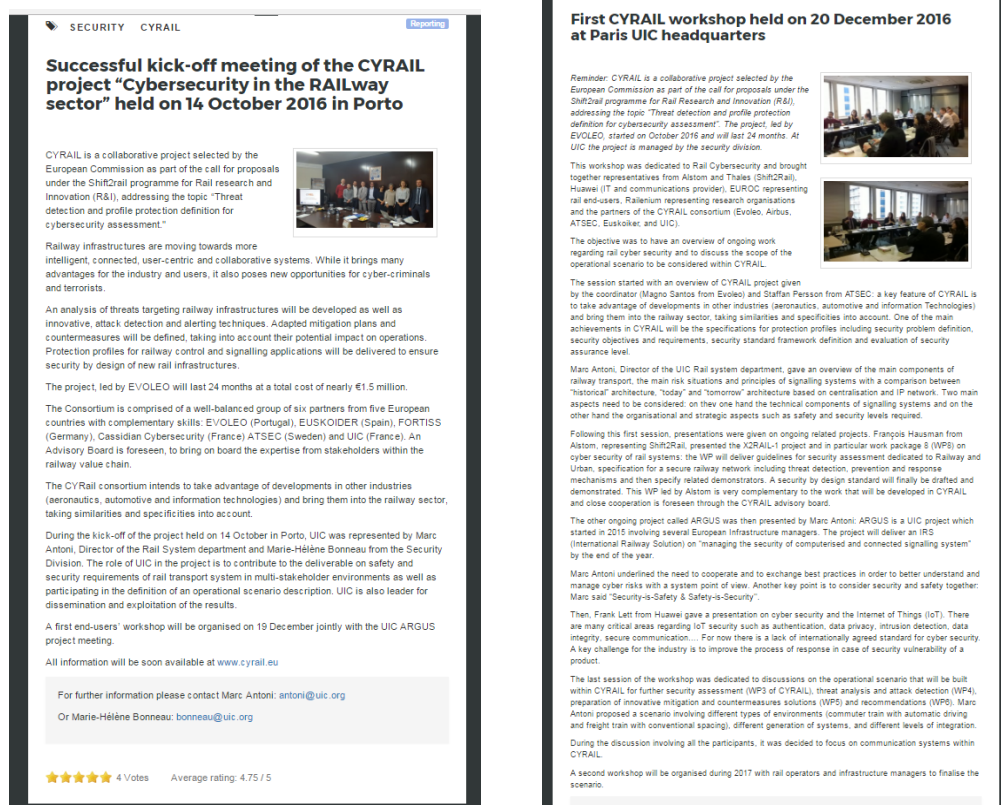


Figure 5-3: CYRAIL articles in UIC enews

Regular articles will be published in UIC enews. These articles will be published at the same time in the project website. For each article, a contact point will be defined to allow the interested persons to receive additional information and thus update the database of dissemination contacts.

5.4.5 Scientific Events

The project will be presented at approximately six scientific events organised in fields related to railways and public transport, to provide channels towards relevant international scientific communities. Since partner organisations frequently participate in such events to present their scientific and technological achievements, these will be good opportunities to briefly present information about the project and its outcomes. Partners plan to participate in the scientific events identified in the table below (this list is not exhaustive).

Table 5-4: Scientific events relevant for CYRail

Scientific event	Location	Date
CRITIS 2017 (every year) - The 12th International Conference on Critical Information Infrastructures Security http://www.critis2017.org/	Luca, Italy	9 - 13 October 2017
24th ITS World Congress 2017 - http://itsworldcongress2017.com/	Montreal, Canada	29 October - 2 November 2017
TRA 2018 - 7th European Transport Research Conference http://www.traconference.eu/	Vienna, Austria	16 - 19 April 2018
25th ITS World Congress 2018 - http://itsworldcongress.com/	Montreal, Canada	17 - 21 September 2018
Jornadas Nacionales de Investigación en Ciberseguridad 2017 - http://2017.jnic.es/	Madrid, Spain	31 May - 2 June 2017
IEEE International Conference on Intelligent Transportation Systems (ITSC) 2017- http://www.itsc2017.org/	Yokohama, Japan	16 - 19 October 2017
Computer & Electronics Security Applications Rendez-Vous (C&ESAR) https://www.cesar-conference.fr/	Rennes, France	27 - 29 November 2017

5.4.6 Non-project Non-scientific Events

Effective communication of results is of paramount importance, as it is also a pre-condition of successful dissemination and exploitation of results. To maximise the impact of CYRail, the consortium will showcase the developed technologies, informing stakeholders, decision makers, end user groups and key forums in relevant non-scientific events in the international railways and public transport sector. UIC is organising several of these events.

In particular, the Communication and Exploitation strategy of CYRail will foresee the participation in non-scientific events as a platform to reach non-scientific communities in a more direct way. It will allow rail experts to follow the work and progress of the project and to get their inputs and feedbacks.

Partners plan to participate in some selected events from the non-scientific events identified in the table below (list is not exhaustive).

Table 5-5: Non-scientific events relevant for CYRail

Non-scientific event	Location	Date
Third World Conference on Rail Telecoms - link	Paris UIC Headquarters, France	17 - 18 May 2017
UIC World Security Congress (every year)	Potsdam, Germany	30 November - 1 st December 2017
UIC Rail System Forum (twice a year)	Paris UIC Headquarters, France	21 - 22 April 2017
UITP Security Commission (twice a year)	Prague, Czech Republic	25 - 27 October 2017
Colpofer General Assembly (twice a year) – Colpofer is a special group of UIC with rail police representatives.	Vienna, Austria	16 - 17 November 2017
ITF forum (every year) – International transport forum in 2018 will focus on safety and security	Leipzig, Germany	May 2018
ENISA Workshops	As per announcement	As per announcement
ERTMS Conference	As per announcement	As per announcement
Smart Rail Europe 2018	As per announcement	As per announcement

5.4.7 Final conference

The Final conference will be organised at the end of the project at UIC Headquarters in Paris. It will include a large audience, with representatives from all stakeholders. This will be unique opportunities to:

- Stimulate interest in CYRAIL and the results
- Reach wide and varied audiences
- Stimulate discussion and feedback

5.4.8 Recommendation Brochure

A Recommendation Brochure will be issued with the lessons learned from the project. In addition to having the general information about CYRail, it will provide more detailed information about the project's results acting as a means of exploitation. This brochure will be produced close to the project end and will be disseminated through targeted mailing as well as relevant workshops, conferences and other face-to-face interactions with the target group members.

5.4.9 Scientific Publications and Patent

CYRail research partners will deliver articles and papers with results for publication in scientific e.g. in peer-reviewed papers in Open Access Journals. However, due to the innovation and application perspective of CYRail, an emphasis will be put on publication media with target groups more towards technical, business-oriented professionals, or decision makers in the railways and public transport sector. Patent filing, if found relevant, will be one step forward towards commercialisation of new technologies. This type of activity is expected to occur only in a later stage of the project.

Some target journals are summarised in the next table:

Journals			
Journal	Publisher	Impact Factor	Website
Risk Analysis	Wiley	Q1 (IF: 2.225)	http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1539-6924
Journal of infrastructure systems	ASCE Library	Q2 (IF: 1.234)	http://ascelibrary.org/journal/jitse4
Reliability, Engineering& System Safety	Elsevier	Q1 (IF: 2.498)	https://www.journals.elsevier.com/reliability-engineering-and-system-safety
International Journal of Information Security	Springer	Q2 (IF: 1.279)	http://www.springer.com/journal/10207
Vehicular Technology Magazine	IEEE	Q1 (IF: 2.783)	http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=10209
Transactions on Vehicular Technology	IEEE	Q1 (IF: 2.243)	http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=25

6. ORGANISATION

The leader of the dissemination and exploitation work package is UIC.

The Dissemination Manager is responsible for:

- Producing dissemination material
- Organising the final conference
- Keeping track and reporting back to the coordinator on the project dissemination activities
- Ensuring proper use of public dissemination materials with respect to partners' IPRs
- Ensuring consistency of project image and published contents
- Making sure of optimum use of the project dissemination resources

Partners are expected to contribute by:

- Identifying and informing the consortium about dissemination opportunities (e.g. events, publications, etc.)
- Promoting the project results in their own organisation with press releases and web pages
- Submitting technical papers and presenting the project results at relevant external conferences according with the project quality plan
- Ensuring liaison with appropriated standardisation bodies
- Suggesting stakeholders to be invited to the related conferences helping to promote the project

Each dissemination action need to be reported to the dissemination manager (UIC).

7. DISSEMINATION RULES

The disclaimer below should be added to every technical document:

"No part of this document may be copied, reproduced, disclosed or distributed by any means whatsoever, including electronic without the express permission of EVOLEO, Coordinator of the EU CYRAIL Project. The same applies for translation, adaptation or transformation, arrangement or reproduction by any method or procedure whatsoever.

© CYRAIL Consortium Member – 2017"

For all publications mentioning the CYRAIL project, the sentence below must be added

"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730843"

The logos below should also be included



Horizon 2020
European Union Funding
for Research & Innovation



8. EXPLOITATION OF THE RESULTS AFTER THE END OF THE PROJECT

Each beneficiary will take measures aiming to ensure ‘exploitation’ of its results after the end of CYRAIL by:

- using them in further research activities (outside the action)
- developing, creating or marketing a product or process
- creating and providing a service, or
- using them in standardisation activities

8.1 SURVEY AMONG PARTNERS

For the exploitation report, an internal survey will be conducted among the partners. The objective is twofold:

- To get a clearer picture of the exploitation activities planned by the partners after the end of the project
- To raise awareness among the partners for the need for future exploitation

All the partners must answer the survey.

The questionnaire contained four questions, relating to

- Knowledge sharing within the partner organisation:
 - How the knowledge gained during the CYRAIL project will be shared within your organisation? (i.e. Do you share it with the commercial department, your security services, the signalling department, ... if you are a research organisation do you share it with students/the wider academic community? how do you intend to share it: training, workshops, newsletters....")
- Dissemination outside the partner organisation
 - How do you plan to disseminate outside your organisation: publications, conferences (which one), press releases...?
- Commercial exploitation of the results:

- How are you going to exploit the results commercially: will you adapt your products according the results?
- Exploitation of the results in the standardisation framework
 - In which standardisation framework, could the findings be feed in and how?

8.2 UIC EXPLOITATION ACTIVITIES

How the knowledge gained during the CYRAIL project will be shared within your organisation? (i.e. Do you share it with the commercial department, your security services, the signalling department, ... if you are a research organisation do you share it with students/the wider academic community? how do you intend to share it: training, workshops, newsletters...?)

CYRAIL knowledge will be integrated in the overall activities of the UIC Security Platform, UIC Rail System Forum (Technical Working Groups Rail Infrastructure, Rolling Stock and Signalling) as well in the UIC Standardisation Platform (International Railway Solution). That knowledge integration will allow that the project findings, results and recommendations are observed and taken into account in the design systems criteria (Infrastructure, Rolling Stock and Signalling) creating best practices to the future rail system development.

The dissemination practices will include the presentation of the project findings, results and recommendations in the meetings of those Working Groups, incorporation of the most relevant findings into code of practice, facilitate the training of railway experts in cooperation with the other project partners, and promoting dedicated workshops on the transportation system protection against EM attacks.

The UIC project ARGUS (Availability and Security Challenges of Open Networks aiming of their use in signalling of railways) which aims to identify cyber-vulnerabilities of the signalling systems and to develop adapted responses will integrate the results of CYRAIL in the recommendations of the project.

How do you plan to disseminate outside your organisation: publications, conferences (which ones), press releases...?

The CYRAIL project website will be kept for future memory and base for having available the findings, results and recommendations. All the information there will also feed the topics of future workshops, conferences and congresses where UIC will participate and or promote.

The raising of awareness needed on the topic is part of the UIC Security division objectives. Therefore, all the UIC dissemination capabilities will be used, namely, the UIC E-Newsletter that reach globally +/-6000 railway people, the UIC Security dedicated website and the UIC Security experts participating in overall cyber security activities such as ENISA cooperation in Cybercrime strategy development.

How are you going to exploit the results commercially: will you adapt your products according to the results?

UIC, as the worldwide professional association representing the railway sector and promoting rail transport, has no commercial purposes.

In which standardisation framework, could the findings be fed in and how?

UIC as an SSO (*Standards Setting Organisation*) will consider the results concerning the operational aspects for drafting an International Railway Solution.

Since 2012 issues have been managing by the Standardisation Platform which implements the guidelines and the strategies decided by the UIC General Assembly.

The objectives of the standardisation Platform are the following:

1. Definition of detailed strategies on standardisation implementing the guidelines given from UIC members
2. Increase the value of the UIC Leaflets defining their evolution: International Railway Solutions
3. Coordination of standardisation activities to be developed by the different UIC Forums
4. Establishment of proper agreements with the other Standardisation Institutions

An IRS consists of a common Part that contains all the elements agreed by everybody and several optional specific parts: each of them is mandatory only for a specific service or geographic application.



International Railway Solution (IRS)®: a structured framework of documents prepared and published by UIC for use within the railway sector. They blend together **a range of voluntary solutions** to support the design, construction, operation and maintenance of the railway system and the services that the sector provides.

So that, in short, explains the IRSs. They are the **outcome of independent work conducted by the railway operators in order to harmonise the railways in an efficient and realistic way**. Though the IRSs are progressively replacing the UIC Leaflets, they have kept their universal and global objective but also incorporate regional variations. **They help the railway companies in their aim to serve society and the economy.**

For every relevant subject, **volunteer experts develop guidelines for good practice**. They produce recommendations which then serve as professional standard, and which are used to ensure harmonisation and economic efficiency in the railways.

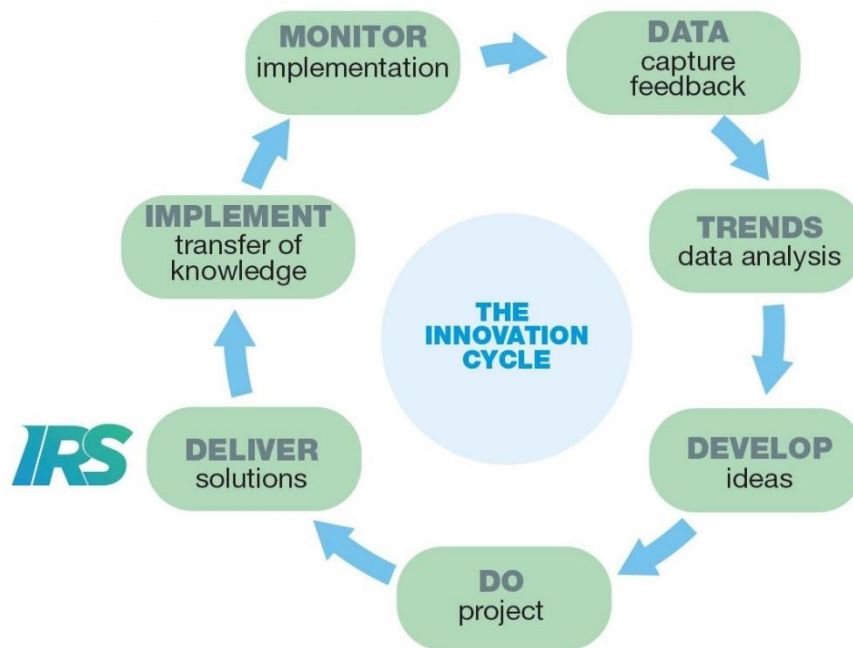


Figure 8-1: IRS: one of the links in the innovation cycle for rail development

The draft programme for IRS is the following:

1. IRS on High Speed subject
2. IRSs on “Overhead Contact line”
3. IRSs on Rolling Stock and Fixed Installations
4. IRSs considering the 1520 Components
5. **IRS on security of Railways**
6. IRS on Infrastructure Asset Management
7. UIC Leaflets updated in 2014/15

The results of CYRAIL will be submitted to “IRS on security of Railways”

There is a cooperation Agreement of UIC standardisation platform with IEC (signed on the 11th June 2014 in Genève) and ISO. Many relations are ongoing with CEN-CENELEC in order to start an active cooperation on a number of items of common interest.

8.3 EVOLEO EXPLOITATION ACTIVITIES

How the knowledge gained during the CYRAIL project will be shared within your organisation? (i.e. Do you share it with the commercial department, your security services, the signalling department, ... if you are a research organisation do you share it with students/the wider academic community? how do you intend to share it: training, workshops, newsletters...?)

EVOLEO Technologies, Lda. (EVOLEO) is an SME, investing in skills related to the design of critical and complex electronic systems. EVOLEO embraces five areas of activity: Space, Transportation, Energy, Health and Industry. In almost all of these areas, Cybersecurity is an issue that needs to be considered on all development chain. EVOLEO being a small company (around 25 people) with only one office, allows a simple way of disseminating projects results and achievements. EVOLEO send internal emails with these subjects, and is it also very common to gather everyone in a meeting room, where the project manager makes a brief presentation of each project. The technical management department also participates on these presentations, where specific scientific knowledge or developed technologies are presented with application guidelines to future projects.

How do you plan to disseminate outside your organisation: publications, conferences (which ones), press releases...?

EVOLEO is also a founding member of the PFP - Portuguese Railway Platform, which is an organisation created to manage the rail cluster in Portugal, bringing together Operators and Managers, Academia and R&D, Industry and SMEs, focusing on Research and Development and Innovation projects in areas such as Rolling Stock, Command, Control and Communications, Interoperability, Infrastructure and Knowledge Management, amongst others. PFP, will be a

dissemination channel of CYRail results, not only within national organisations, but also international clusters and stakeholders.

EVOLEO will also publish on their website the results of the project, and present it at conferences and fairs on the railway sector.

How are you going to exploit the results commercially: will you adapt your products according to the results?

EVOLEO has three business areas. First related to Quality Support System targeting Railways maintenance shops, including ATE – Automated Test Equipment or Portable Test Units to ease the process of fault detection, reduce time of operation and minimise human error, among others. Second, on the Technology Business area the focus is to create new products that can be used for third parties for their own applications. Lastly, EVOLEO is also investing heavily on the Tangible Assets Management area in order to have systems and solutions to Monitor different kind of assets, and provide the management tools to the End User. In this TangiA (Tangible Assets Management) area, EVOLEO intends to release monitoring solutions and software platform for the railway area, which are very ICT focused. The CYRail outcome will be incorporated into these Solutions and Platforms, allowing EVOLEO to be compete with other suppliers.

In which standardisation framework, could the findings be fed in and how?

N/A

8.4 EUSKOIKER EXPLOITATION ACTIVITIES

How the knowledge gained during the CYRAIL project will be shared within your organisation? (i.e. Do you share it with the commercial department, your security services, the signalling department, ... if you are a research organisation do you share it with students/the wider academic community? how do you intend to share it: training, workshops, newsletters...?)

Euskoiker is a non-profit research foundation which has as its objective the development of relations between the University of the Basque Country (UPV/EHU) and the society. Thus, the internal dissemination of the knowledge acquired by Euskoiker within this project will be extended to this university. As part of this dissemination we plan to integrate the procedures and knowledge within the courses given by the Department of Communications Engineering at the Bilbao Faculty of Engineering. The Department is in charge of courses belonging to Signal Processing, Communications, Computer Networks and Telematics. This Department provides the core of courses associated to the Telecommunications Engineering Master Degree. The Department also leads the PhD program in "Information Technologies and Communications in Mobile Networks - TICRM". This PhD training program is a joint initiative of five Spanish Universities and has been awarded continuously since 2003 with different Quality Labels by the Ministry of Education.

Additionally, Euskoiker plans to give specific seminars about Security Assessment Methodologies open to any researcher, professor and student of the Bilbao Faculty of Engineering.

How do you plan to disseminate outside your organisation: publications, conferences (which ones), press releases...?

The dissemination will be split in two main domains or audiences: academic audience and industrial audience.

For the academic audience, on the one hand we plan to participate in national and international conferences in order to explain the CyRail project as well as the results that the consortium considers to be publishable. On the other hand, we plan to submit research papers to

international academic journals, prioritising the ones in the first and second quartile of Journal Citation Reports (JCR). Some target journals and conferences are summarised in the next table:

Journals			
Journal	Publisher	Impact Factor	Website
Risk Analysis	Wiley	Q1 (IF: 2.225)	http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1539-6924
Journal of infrastructure systems	ASCE Library	Q2 (IF: 1.234)	http://ascelibrary.org/journal/jitse4
Reliability, Engineering & System Safety	Elsevier	Q1 (IF: 2.498)	https://www.journals.elsevier.com/reliability-engineering-and-system-safety
Conferences			
Conference	Proceedings	City	Date
Jornadas Nacionales de Investigación en Ciberseguridad 2019	Yes (compatible with submission to international journals)	As per announcement	As per announcement
IEEE International Conference on Intelligent Transportation Systems (ITSC) 2019	Yes	As per announcement	As per announcement

For the industrial audience we will try to attend the Smart Rail Conference in 2019 which it usually takes place in Amsterdam in April-May.

Conference	Proceedings	City	
Smart Rail Europe 2019	No	As per announcement	https://www.smartraileurope.com/

How are you going to exploit the results commercially: will you adapt your products according to the results?

Euskoiker is a non-profit organisation; therefore it has no commercial purposes.

In which standardisation framework, could the findings be fed in and how?

Most of researchers from Euskoiker involved in the CyRail project are at the same time members of the University of the Basque Country (UPV/EHU), which is member of the European Telecommunications Standards Institute (ETSI) [1]. Within the ETSI, there are several technical committees which standardise technical aspects of different areas (see Figure 8-2). Euskoiker will evaluate the suitability of contributing to the TC CYBER, TC SAFETY and/or TC ITS with the project results.

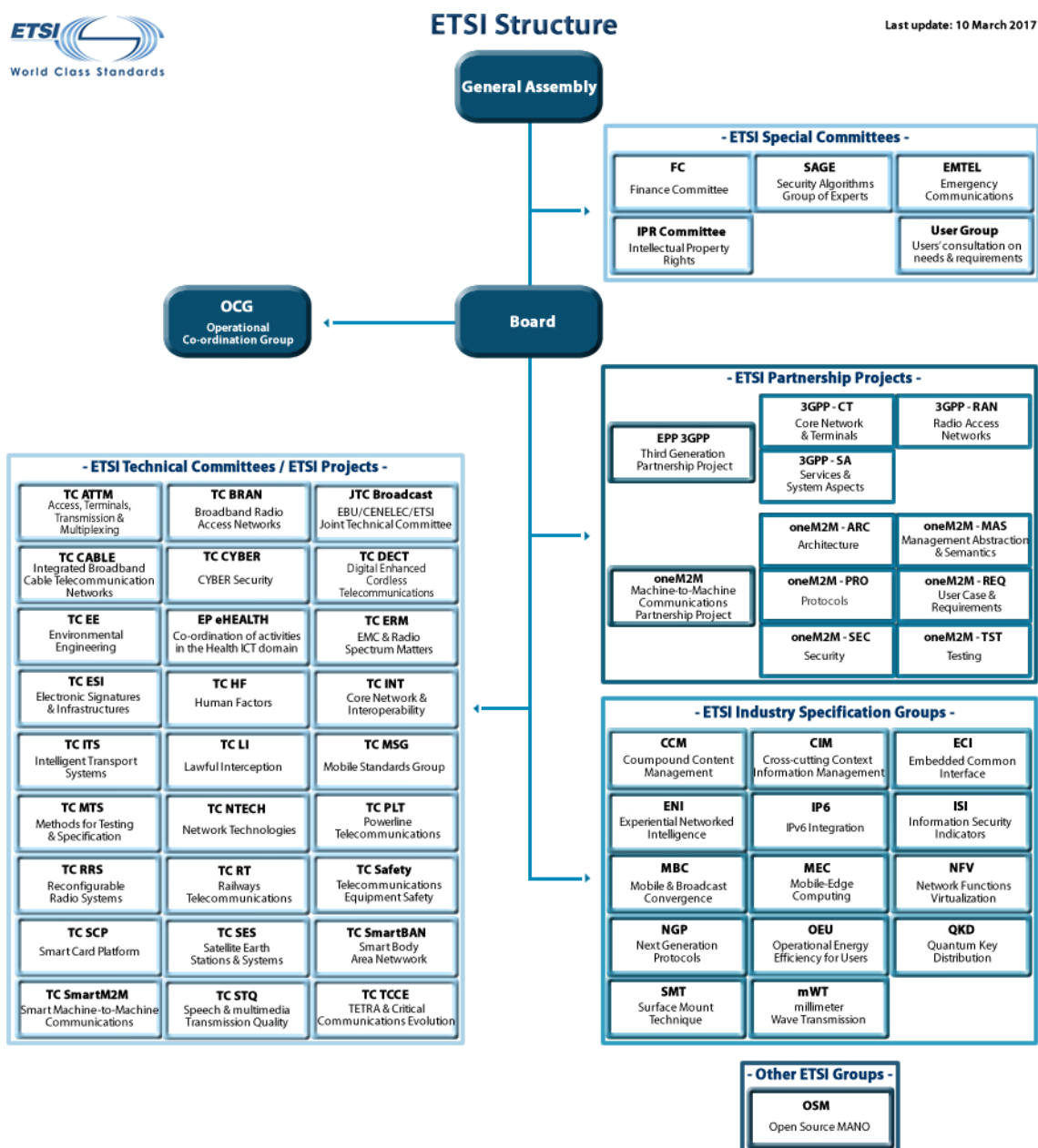


Figure 8-2: ETSI structure

8.5 FORTISS EXPLOITATION ACTIVITIES

How the knowledge gained during the CYRAIL project will be shared within your organisation? (i.e. Do you share it with the commercial department, your security services, the signalling department, ... if you are a research organisation do you share it with students/the wider academic community? how do you intend to share it: training, workshops, newsletters...?)

fortiss is a non-profit research and transfer institute closely associated with the Technical University of Munich (TUM). Therefore, CyRAIL concepts will be incorporated in courses and lectures given at TUM Department of Informatics, as well as outlining some master's thesis ideas for further research and practice. In addition, CyRAIL results gained during the project lifecycle will be internally shared among fortiss members through seminars and workshops as relevant and necessary.

How do you plan to disseminate outside your organisation: publications, conferences (which ones), press releases...?

A primary goal of fortiss is to bring fundamental academic research to industry in order to ensure its exploitation and sustainability in a commercially feasible context. Therefore, the expected outcome of CyRAIL project will enhance fortiss expertise in cybersecurity and will be exploited beyond the railway industry, e.g. automotive industry.

Moreover, as a research institute, fortiss will follow common scientific methods of dissemination such as publications in conferences, workshops or journals to ensure the widespread diffusion of CyRAIL concepts and results among the academic and research communities.

The following tables include a list of some target journals and conferences respectively.

Table 8-1: List of international journals on cybersecurity

JOURNALS		
Journal	Publisher	Website
International Journal of Information Security	Springer	http://www.springer.com/journal/10207
Risk Analysis	Wiley	http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1539-6924
Computers & Security	Elsevier	https://www.journals.elsevier.com/computers-and-security

Table 8-2: List of international conferences on cybersecurity

CONFERENCES				
Conference	Type	Proceedings	Date	Location
International Conference on Risks and Security of Internet and Systems	Annual	Springer LNCS	As per announcement	As per announcement
ACM/IEEE International Conference on Cyber-Physical Systems	Annual	ACM or IEEE	As per announcement	As per announcement
IEEE Conference on Communications and Network Security	Annual	IEEE	As per announcement	As per announcement

How are you going to exploit the results commercially: will you adapt your products according to the results?

fortiss is a non-profit research institute, therefore, it has no commercial purposes.

In which standardisation framework, could the findings be fed in and how?

fortiss is not a standards developing organisation, therefore, it does not carry out any standardisation-related activities.

8.6 AIRBUS EXPLOITATION ACTIVITIES

How the knowledge gained during the CYRAIL project will be shared within your organisation? (i.e. Do you share it with the commercial department, your security services, the signalling department, ... if you are a research organisation do you share it with students/the wider academic community? how do you intend to share it: training, workshops, newsletters...?)

As the European specialist in cyber security, the mission of Airbus CyberSecurity is to protect governments, companies and critical infrastructures from cyber threats. The knowledge acquired from the CyRail project will be shared within Airbus Cybersecurity at different levels. On the one hand, the Engineering department will be deeply involved in the project as it will provide the technical resources to perform the developments and integration activities needed for the project. The project is also closely followed by Airbus Cybersecurity Portfolio Manager in order to make sure that Airbus' outputs of the CyRail project will be integrated in our portfolio. Technical presentation and demonstration of the CyRail project will also be performed towards the Engineering department in order to present our achievements. Specific meetings are also held with the Programs and Sales Departments in order keep them informed. This close collaboration will ensure maximum chances in re-using the results of the project in future commercial proposals or projects. Finally, the results of the project will also been disseminated to Airbus Cybersecurity and Airbus Defense and Space through internal newsletter or through the company's intranet.

How do you plan to disseminate outside your organisation: publications, conferences (which ones), press releases...?

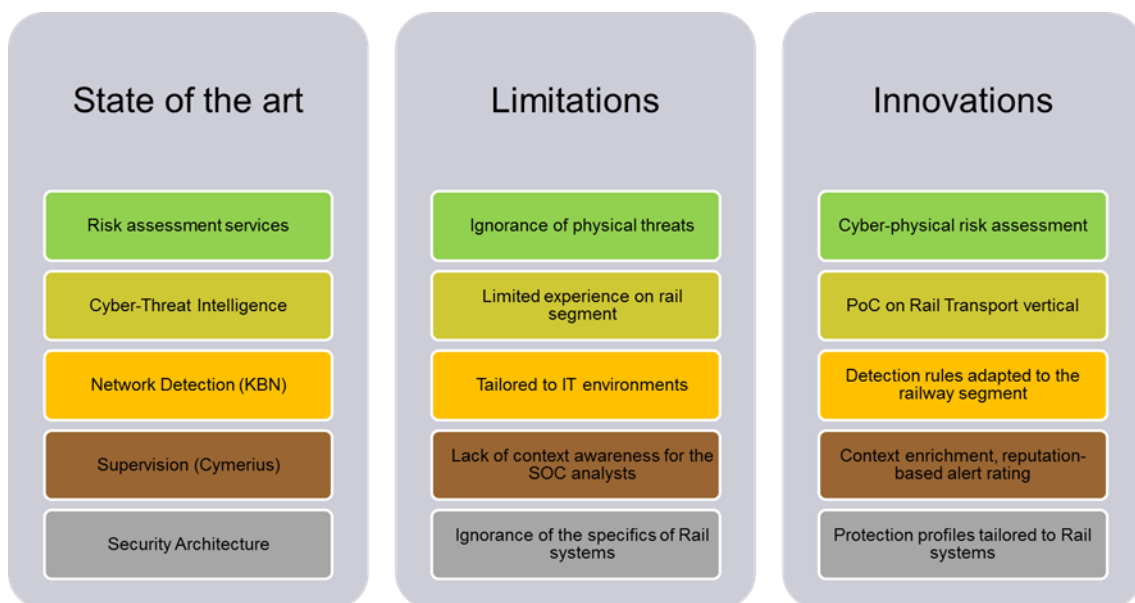
Airbus will contribute to dissemination activities by participating to workshops and R&T events to present the outcomes of the CyRail project.

How are you going to exploit the results commercially: will you adapt your products according to the results?

As described above, the project is closely followed by Airbus Cybersecurity Portfolio Manager in order to make sure that Airbus' outputs of the CyRail project will be integrated in our portfolio. A close collaboration between the R&T team and the Programs and Sales departments will ensure maximum chances in re-using the results of the project in future commercial proposals or projects.

Thanks to the project, Airbus will make its security detection and supervision solutions evolve so that it can address new areas like the Rail Transport vertical or include new functionalities like context enrichment for incident supervision. The targets aimed by Airbus Cybersecurity include Airbus Group (ie. improving our capabilities to protect our group), the Armed Forces and the Critical Infrastructures.

The chart below describes the ambition for Airbus in terms of innovations (right), with regard to our current capacities (left) and limitations (middle):



New functionalities will be added to Airbus tools regarding the detection and the supervision of cyber-incidents. Among others, the achievements of Airbus within the CyRail project will directly enrich our knowledge base tools Orion Threats[®] with specific threats related to the railway domain. It will also increase our expertise in anomaly and attack detection, using Keelback Suite[®]. This will enable Airbus to be more performant as a SOC operator, by providing enhanced

alerting and collaborative incident management. This will also improve the quality of the SOC services and tools provided by Airbus to its clients.

The new capacities developed through the CYRAIL project will allow Airbus to address a new market, the railway market, which will lead to major exploitation opportunities.

In which standardisation framework, could the findings be fed in and how?

N/A

8.7 ATSEC EXPLOITATION ACTIVITIES

How the knowledge gained during the CYRAIL project will be shared within your organisation? (i.e. Do you share it with the commercial department, your security services, the signalling department, ... if you are a research organisation do you share it with students/the wider academic community? how do you intend to share it: training, workshops, newsletters...?)

ATSEC, a vendor independent company specialised in information security consultancy and evaluations. The company operates accredited Common Criteria evaluation facilities in Germany, Sweden and the US. Therefore, ATSEC office in Sweden will share its knowledge regarding evaluation of railway system with ATSEC office in Germany and the US. Atsec Sweden will arrange internal training sessions and present the CYRAIL project results to employees working for ATSEC in Germany and the US. In addition, ATSEC intends to share the outcome of this project on atsec security blog (<http://atsec-information-security.blogspot.se>) to outreach wider audience.

How do you plan to disseminate outside your organisation: publications, conferences (which ones), press releases...?

ATSEC plans to disseminate the results in national and international conferences in order to share knowledge gained in the CyRail project. ATSEC plans to present finding in:

Common Criteria User Forum (CCUF) <http://www.ccusersforum.org>

International Common Criteria Conference (ICCC) <https://www.commoncriteriaportal.org/iccc/>

How are you going to exploit the results commercially: will you adapt your products according to the results?

The final deliverable of this project is a Protection Profile (PP) written for a component in the ERTMS system. A Protection Profile (PP) is a document used as part of the certification process according to ISO/IEC 15408 and the Common Criteria (CC). ATSEC will provide evaluation of ERTMS systems against the written PP.

In which standardisation framework, could the findings be fed in and how?

The final deliverable of this project is a Protection Profile (PP) written for a component in the ERTMS system. A Protection Profile (PP) is a document used as part of the certification process according to ISO/IEC 15408 and the Common Criteria (CC). PPs have been built into the language of internationally agreed mutual recognition arrangements such as the Common Criteria Recognition Arrangement (CCRA), and the MRA known as SOGIS, the Senior Officials Group – Information Systems Security which is a body of the European Commission. The PP written in the Cyrail project could be used as a procurement requirement in various European countries and it will also enable comparison of products that comply to the PP.

8.8 OTHER RELEVANT NETWORK FOR THE EXPLOITATION OF THE RESULTS

The European Network for Transfer and Exploitation of EU Project Results (E.N.T.E.R.), a non-profit association that comprises 904 members from 44 countries, promoting 567 E.U. projects (February 2016) - online dissemination channel is a relevant network for the exploitation of the results. The types of member organisations include ministries, chambers, social partners, associations, other networks, private organisations, SMEs, NGOs, universities, training organisations, among others. Through its registration in the network, CYRail will be able to: 1) disseminate and promote the project's outcomes; 2) receive notifications of dissemination

conferences and events organised by the network; 3) collect documentation related to the project's dissemination activities.

9. CONCLUSIONS

In order to ensure efficient and effective implementation of the dissemination and exploitation activities, this Dissemination and exploitation Plan (D7.1) will be updated regularly, especially the relevant events. It aims to serve as the main guideline for the whole consortium so that each partner can organise and implement dissemination and exploitation activities according to the objectives established and the resources available. The dissemination and exploitation will be updated at the end of the project to include individual actions of each partner.

10. REFERENCES

- [1] List of current ETSI members: <http://www.etsi.org/membership/current-members>