







# **Deliverable D4.4**

# **Final Dissemination Report**

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#### 1 EXECUTIVE SUMMARY

The aim of this public document is to provide a dissemination and communication report for the Shift2Rail funded 4SECURail project (FORmal Methods and CSIRT for the RAILway sector) and to describe the materials and tools that have been used to facilitate the wide-spread of information and knowledge from the results obtained by the project partners, among the members of the consortium and beyond the life of the project.

Necessary to the proper dissemination of this two-year project, a good cooperation between all the Work Packages (and its corresponding leaders) has been observed throughout the whole life of the project.

The Final Dissemination Report will present the activities carried out during the whole duration of the project, including:

- The organization of the project's Kick-off Meeting.
- The creation of the project identity.
- The creation of the project brochure.
- The creation of the project public website.
- Social media accounts (Twitter and LinkedIn).
- Project's press releases. Newsletters.
- Participation in conferences.
- Publication of results in relevant journals.
- Organisation of workshops for both workstreams of the project.
- Organization of the project's Final Event (held in Paris on 23-24<sup>th</sup> of November 2021).

4SECURail's close links with the Shift2Rail JU and other EU projects ensured further dissemination of the results achieved by the project. The task leader of the Work Package 4 (WP4) was Ardanuy, with the support of the following members of the consortium: FIT Consulting, CNR-ISTI, HIT RAIL BV, UIC and TREE.

Furthermore, the 4SECURail project provided possibilities for spreading its results beyond the project duration, to support further investigation and development of the two topics related to cybersecurity for the railway sector (the Demonstrator development for the use of Formal Methods in railway environment and to support the implementation of CSIRT in the railway sector).

In terms of far-reaching impact, 4SECURail project contributed to put in place new methodologies to develop and test railway products, which may increase their safety and reliability. At the same time, it can reduce the lifecycle costs and could make railways more secure through development and testing of a codesigned CSIRT model and providing an organizational model (plus technical support) to deliver sharing of knowledge and intelligence plus incident monitoring and notification.

With reference to all above stated, the main conclusions regarding the project performance in terms of dissemination as well as lessons learnt over it are presented. The series of dissemination/communication activities that have been carried out during the project lifetime have reached a large audience and, at the same time, the project has ensured a proper dissemination towards the S2R JU.







# 2 ABBREVIATIONS AND ACRONYMS

| Abbreviation / Acronym | Description                                   |
|------------------------|---|
| AB                     | Advisory Board                                |
| ARD                    | Ardanuy                                       |
| CFM                    | Call For Members                              |
| CNR-ISTI               | Consiglio Nazionale delle Ricerche            |
| COLA                   | Collaboration Agreement                       |
| CSIRT                  | Computer Security Incident Response Team      |
| EU                     | European Union                                |
| FIT                    | Finance Innovation and Transport              |
| FM                     | Formal Method                                 |
| GA                     | Grant Agreement                               |
| IM                     | Infrastructure Manager                        |
| JU                     | Joint Undertaking                             |
| KPI                    | Key Performance Indicator                     |
| MX                     | Month X                                       |
| RS                     | Rail Supply                                   |
| SIRTI                  | Società Italiana Reti Telefoniche Interurbane |
| SME                    | Small and Medium sized Enterprises            |
| S2R                    | Shift2Rail                                    |
| TIN                    | Technical Informative Note                    |
| TX.X                   | Task X.X                                      |
| UIC                    | International Union of Railways               |
| WP                     | Work Package                                  |







#### 3 BACKGROUND

A key objective of 4SECURail dissemination strategy has been to spread project findings as widely as possible and to ensure that the involved stakeholders and communities took account of these findings when considering the application of formal methods and the implementation of the CSIRT model under the railway sector. The dissemination strategy provided means and platforms for stakeholders to interact and discuss the project's findings and recommendations, and the interaction between the stakeholders is encouraged to enhance uptake of the project's results.

At the start of 4SECURail, the initial dissemination strategy and plan was elaborated (D4.2) and agreed with the rest of the consortium members. Throughout the project, the Outreach and Networking Work Package (WP4) has driven the dissemination of information, with the active collaboration of all partners: ARD, FIT, CNR-ISTI, SIRTI (which has terminated its participation in the project the 5<sup>th</sup> of October 2021, and for carrying out its tasks another external company has been subcontracted by ARD in his place), HIT, UIC and TREE, engaging in activities such as organizing and participating in conferences, congresses, workshops and showcases.

The two tasks of WP4 related to dissemination were:

- Task T4.1 (Dissemination and Communication): Composed of the above-mentioned activities (such as the Kick-off meeting, project identity, project public website, newsletters, etc).
- Task T4.2 (Advisory Board): Research and technology uptakes have been developed in parallel
  with the support of the AB. The partners of the consortium have supported this task by checking
  the viability and accuracy of the 4SECURail results with the user requirements, cases and scenarios
  coming from the AB members in order to safeguard the project's outputs in conformance with
  the real needs of the sector.

WP4 intended to ensure proper dissemination and promotion of the project and its results, in a way which is consistent with the wider dissemination and promotion activities of S2R. It also aimed to ensure that the outputs of the project were delivered in a form which makes them immediately available for use by the S2R Innovative Programmes.

Moreover, WP4, with the collaboration of all partners of the project, also worked on the publication and distribution of material like scientific publications, articles and brochures, press releases, newsletters and a website towards accomplishing dissemination of the project results to a wide range of audiences.

It also ensured that all important actors in the European railway sector were informed about 4SECURail objectives, content and results. A further objective was to facilitate acceptance of the project outcomes by the standards and regulatory bodies, as well as by the main actors of the EU railway sector.

In this sense, the dissemination strategy used has been evolving throughout the course of the project, learning from the 4SECURail dissemination experiences and adapting to its changing needs. The Final Dissemination Report (present deliverable) will present the results of all the dissemination activities held during the lifecycle of the project.







#### 4 OBJECTIVE

## 4.1 Purpose of the deliverable

This document presents the target audience and the dissemination and communication strategy and activities used for the successful dissemination, exploitation, and knowledge transfer of the project in alignment with S2R's communication and dissemination strategy. It also aims to describe the main results of the work carried out as a part of the tasks T4.1 (Dissemination and Communication) and T4.2 (Advisory Board) specified before.

More specifically, the detailed objectives have been:

- To ensure that the outputs of the project are delivered in a form which makes them immediately available for use by the Innovation Programme 2 within S2R.
- To ensure that all important actors in the European railway sector are informed about 4SECURail to facilitate acceptance of the project outcomes by main actors of the EU railway sector.
- To disseminate, engage and promote the project and its research activities to relevant audiences.
- To provide maximum visibility and raise public awareness of the 4SECURail framework and outcomes by following a sound dissemination strategy.
- Develop effective dissemination channels to reach all interested parties outside the consortium, in academia, and the business communities.
- Execute successful dissemination activities (e.g., publications in high-quality journals, participation in relevant business, events, industrial exhibitions, etc.).
- Create a fruitful exploitation channel in Shift2Rail by pursuing a close link with the correspondent Call for Members (CFM) projects X2RAIL-3 and X2RAIL-2.
- Support existing and future regulation and standardization activities in cooperation with the members of the URID-WG managed by S2R JU.

Moreover, these results needed to be assessed in the light of chosen KPIs, to conclude about the efficiency of the dissemination strategy and its execution. The validation and the final conclusions with lessons learnt are shown in the present report.







#### 5 SCOPE

The scope of the dissemination and communication strategy was set through the development of the Plan for Dissemination of project results, which was based on many activities and carried out during the duration of the project, including:

- A Kick-off meeting was held to which representatives of the S2R JU were invited. The event provided to the participants the main information about 4SECURail, including objectives, activities, and main communication channels with the members of the JU.
- A project identity set was created, containing elements such as templates for presentations and reports, as well as a brochure presenting the project.
- A project public website was developed and has been updated on a regular basis, containing general information about the structure, objectives, events, and progress. All public deliverables have been published on the website of 4SECURail.
- Two newsletters have been produced during the project life, one towards the mid-point (M10) and the second one towards the end (M24). These have provided up-to-date information on the status and achievements of the project.
- 4SECURail was to be presented at several European and international railway conferences and congresses, such as InnoTrans, Transport Research Arena, WCRR conference, etc. However, due to Covid-19, it was not possible to attend those events. On the other side, the consortium attended several events virtually.
- To publish articles in relevant publications, such as Railway Gazette, IRJ, RTR European Rail Technology Review, European Railway Review, and Rail Technology Magazine.
- Regarding the workshops described in WP3, UIC organized them involving its members for communicating and disseminating 4SECURail results (both for Formal Methods and CSIRT), maximizing their dissemination and exploitation.
- To conclude the project, a Final Event was organized in Paris to present the results of the project. It was held on November 23<sup>rd</sup> and 24<sup>th</sup> 2021 in UIC facilities. The event has been an opportunity to disseminate the results of the project.

The deliverable D4.4 is organized as following:

- Sections 6 and 7 outline the target audience of the used dissemination strategy and the approaches and actions that have been taken accordingly.
- Section 8 outlines the Final Dissemination Plan including the review of the dissemination activities that have been carried out across the different dissemination channels of the project.
- Section 9 evaluates the interaction with the Shift2Rail IP2 Programme.
- Finally, conclusions and future directions are discussed in Section 10.







#### 6 TARGET AUDIENCE

In order to achieve the intended impact, the 4SECURail project consortium disseminated, engaged and promoted information about the project's objectives, research activities, and results to a wide variety of stakeholders throughout the rail sector. This includes several stakeholders directly linked with the railway community (such as industry, academia, standard development organisations, complementary Shift2Rail projects, the public, and so on):

- Research Institutions: Universities, Research Centres, Foundations, etc.
- Public Authorities: National/EU Institutions, Member States, National/Regional Authorities, etc.
- Associations and S&R Bodies.
- RU's & IM's: Signalling experts, Chief Incident Security Officers.
- Past/ongoing R&D projects (Complementary Shift2Rail projects).
- Rail Supply Industry (industrial stakeholders in railway domain): RS integrators/suppliers, Subsystem Suppliers, SME's, Infrastructure Contractors.
- Public

The main purpose of this exchange of information related to the 4SECURail project was to ensure that these significant actors were aware of the developments that 4SECURail will bring to the S2R activities. The dissemination and exploitation measures of the project have been addressed to a full range of potential users and uses.

As part of the 4SECURail dissemination and exploitation strategy, the partners of the consortium have decided how to ensure the best value for the dissemination of resources available when seeking to cover the spectrum of stakeholders.

The project has capitalised upon members' already established contacts, and those of all 4SECURail partners, networks and ways of working when reaching the most appropriate stakeholders to spread and maximise project outcomes and impacts.







#### 7 APPROACH AND ACTIONS

The 4SECURail dissemination process consisted of two parts: the first, strategy and assessment, and the second, implementation. Strategy and assessment had 2 key elements: the dissemination strategy and plan, and the efficacy of dissemination. On the other side, the implementation covered two aspects: execution, measurement and tracking of the progress of the dissemination strategy.

The dissemination of the project results has taken several forms and used a variety of media. Some activities were expected to have a greater impact than others, and thus, their value may differ.

A high-level overview of envisioned communication actions meant to valorise the Project outputs is as follows:

- Brand image: design of the Project Logo and brochure and templates to be used on presentations, documents, posters (if any), etc.
- Website visibility.
- Social media presence: LinkedIn and Twitter have been the social platforms used during the lifetime of 4SECURail to set up community building. Interaction with users has been achieved through the publication of messages about the main advances made and achieved through the project.
- Project leaflet: a project leaflet was created describing 4SECURail project. It was meant to be used
  and distributed physically in various events (including those organised by the project), however,
  due to the arise of Covid-19 it was not possible to use it as initially planned.
- Conference posters and presentations: same situation as described for the project leaflet.
- Journal articles: the consortium participated in several journals through articles such as "Train guards: How cybersecurity is helping rail operators keep on track" published online on Future Rail journal in May 2021, or another article published on a Spanish journal (El Español) called "En busca de la unidad europea para garantizar la seguridad en la digitalización del tren" ("Seeking European unity to ensure safety in train digitisation").
- Web publications of public deliverables: As said before, the website creation has given us the opportunity to post the public deliverables that were delivered during the project lifetime.
- Physical presence dissemination: due to Covid-19, it has not been possible to participate
  physically in railway events to promote and disseminate the project (such as workshops,
  conferences, etc). However, as it will be explained later, we obtained a relevant online audience
  in several workshops organised by the project partners and the Final Event was carried out
  physically with all the consortium members in the UIC premises in Paris.
- Educational dissemination: distribution of the knowledge base to students and academic instructors for educational purposes.
- Academic dissemination of project results: dissemination of Project results through various literary outlets (e.g., academic journals, conference proceedings, book chapters) in accordance with Open Access policies.
- Attendance at non-academic events: the consortium attended and participated in several nonacademic events such as the 6<sup>th</sup> Annual Rail Cybersecurity Europe Conference in February 2021,







- an ER/ENISA online conference on rail cybersecurity, the presentation at the 26<sup>th</sup> International Conference on Formal Methods for Industrial Critical Systems (FMICS'21) and many others.
- 4SECURail workshops: Two technical workshops were organized for each workstream project and all of them received a great feedback and participation from all the attendees. They were a good opportunity to discuss from one side the application of Formal Methods in the railway system (and their costs and benefits), and on the other side, it gave the chance to discuss many different items in regards to the ER-CSIRT model.
- Interaction with other projects and forums: following the same line, the consortium decided to interact and participate with other projects through forums and certain collaborations that helped to improve and consolidate the progress of the work.

As a result, the consortium enhanced a "multiplier" effect in terms of reaching the established KPIs, which becomes crucial in the achievement of targets. The amplification determined by the extended Consortium varies as a function of several factors characterizing the conveyed message (e.g., accessibility) and the underlying channel (e.g., virality, nodality, popularity, numerousness of users simultaneously involved, cost of message replication, etc).

| Communication action                      | Purpose(s)                      | Target(s)  | Audience<br>reached via<br>4SECURail<br>channels | Audience reached via affiliated channels |
|---|---------------------------------|--|--|--|
| Website visibility                        | Raise awareness, inform         | All identified stakeholders + general audience     | ~ 1K   | ~ 10K                                    |
| Social media presence                     | Raise awareness, inform, engage | All identified stakeholders + general audience     | ~ 1K   | ~ 5K                                     |
| Brand image                               | Raise awareness                 | All identified stakeholders + general audience     | ~ 1K   | ~ 10K                                    |
| Web publications of public deliverables   | Inform                          | All identified stakeholders + general audience     | ~ 100  | ~ 1K                                     |
| Physical presence dissemination           | Inform, engage, promote         | All identified stakeholders + general audience     | ~ 50   | ~ 200                                    |
| Sectoral dissemination                    | Inform, engage, promote         | Railway sector                                     | ~ 100  | ~ 1K                                     |
| Educational dissemination                 | Inform, engage, promote         | Academic community, academic instructors, students | ~ 100  | ~1K                                      |
| Academic dissemination of Project results | Inform                          | Academic community, academic instructors, students | ~ 100  | ~1K                                      |







#### 8 DISSEMINATION PLAN

# 8.1 Creation of a project identity

A cohesive visual identity was created during the first three months of the project to be used by the project partners, for all SECURail documents such as presentations, meeting agenda, project flyer and other external communications.

The project identity has been of utmost importance to communicate, to be clearly identified, and to create an experience that encourages people to engage with us. It has contributed and considerably helped with the dissemination activities of 4SECURail and ensured a consistent communication of the project concept, objectives and the obtained results.

### 8.1.1 4SECURail Logo

As a first step, the project logo was prepared and approved. It has been used for all dissemination actions (see Figure 1).

Moreover, a second logo was defined. The padlock in the logo refers to the Computer Security Incident Response Team (CSIRT) while the laptop refers to the use of Formal Methods in the railway environment (see Figure 2).

Both logos have played an important role of relevant significance in creating project association regarding visual communication.



Figure 1 – 4SECURail's project logo









Figure 2 – 4SECURail's dissemination and communication activities logo

### 8.1.2 **4SECURail Templates**

Project templates for PowerPoint presentations, word reports and meeting agenda and minutes, were prepared immediately after the creation of the project logo. The expected deliverables have been produced according to the deliverable template that was planned for all project deliverables:



Figure 3 - 4SECURail used template







# 8.1.3 **4SECURail** project presentation brochure

A brochure presenting the project was released in March 2020.

It contained a summary of the project, including its objectives and expected impacts as well as its main facts and figures. It also included the list of partners at the kick-off date. The brochure was printed and was distributed by the project partners in most of the rail events organised during the life of the project. The brochure has been distributed at project workshops and conferences, where project partners have participated (such as Adif, Cervello, CFL, DB Netz, Enisa, ERA, NS, ProRail, Renfe, RFI, SBB, Shift2Rail, Trafikverket, UNIFE, X2Rail-3, and other Infrastructure Managers and International Organizations for Standars).

The presentation brochure is shown in the Appendices, 4SECURail project presentation brochure.



Figure 4 – 4SECURail presentation brochure (triptych leaflet format)

# 8.2 **4SECURail public website**

A dedicated website was set up at the beginning of the project using the already set graphic identity. The URL of the website is <a href="www.4SECURail.eu">www.4SECURail.eu</a>. The website is publicly accessible and mobile friendly. The public website contains the following pages:

Homepage: This page introduces the website and it displays a brief description of the project with
its main expected impacts. On the right side of the homepage are the main facts and a specific







window with the latest tweets (@4SECURail) of the project (Figure 6Error! Reference source not found.).

- Partners: It contains the project partners' logos with links to their respective websites.
- **News & Events:** The page contains the list of project news and information about related events. The section has been updated continuously throughout the lifetime of the project.
- Advisory Board: The Project engaged an Advisory Board (AB), i.e. a group of external independent
  experts of recognised knowledge in different kinds of background and areas of that have been
  constructed properly representing all domains relevant for the Shif2Rail initiative. The page
  contains the AB partner's logos.
- Documents: The list of the project deliverables and a link, to download those that are public and approved by the Consortium and the Shift2Rail JU, are included in this section. It is allowed to download the publicly available dissemination materials, documents, and presentations. It can also be found the presentation brochure of the project and the presentations shown in the Final Event of Paris.
- **Contact:** The users of the website can find here the direct contact information on how to reach the coordinator and how to get the information for which they may be interested in.



Figure 5 – 4SECURail website's homepage

The website has been used to disseminate the project vision and results to a wider audience and in particular defined target groups. The website has been available throughout the whole project and will be available after its conclusion as well.







#### 8.3 Use of social media

Online social networks have become truly significant in communication and interaction patterns and may have a very good impact in the dissemination of project processes and results, as well as provide a platform for discussion of project outcomes for all engaged parts.

These Social networks are motivating forms of social interaction, dialogue, exchange and collaboration. Social networking sites enable users to exchange ideas, to post updates and comments, or to participate in activities and events, while sharing their wider interests.

Social media channels have been useful for the project in several ways. This includes pushing instant updates (e.g. project news, multimedia content, announcements on upcoming project events, etc) from the project to external contacts (in different stakeholder groups) and on different platforms. Furthermore, social media has enabled the project to interact with the contacts through messaging features in the channels, monitor the feedback and sentiments of each update and leveraging the social connectedness of the contacts to amplify the dissemination of the updates, as these contacts would share 4SECURail updates within their own professional or social networks.

#### 8.3.1 Twitter account

A twitter account was created to maximise project diffusion and communication activities through the most relevant twitter channels related to the railway sector. 4SECURail consortium opted for Twitter as its social media platform for dissemination due to its nimbleness and efficiency.

S2R\_4SECURail twitter account (@4SECURail) was launched at the Kick-off Meeting. It has been used to convey messages from the 4SECURail project, from the Shift2Rail JU, the partners of the project and from actors of the railway and transportation sector.

Figure 6 shows the homepage of the twitter account:







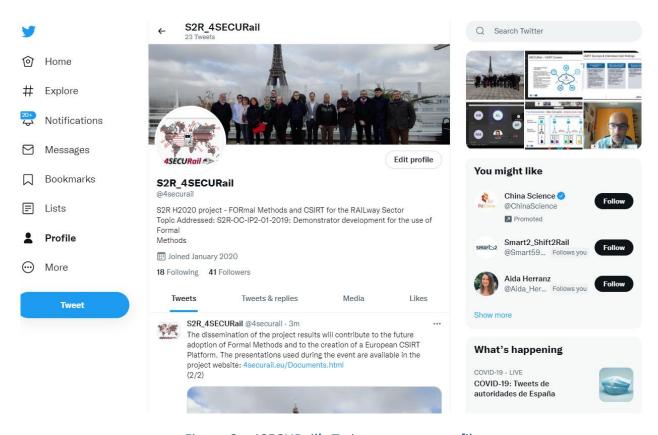


Figure 6 – 4SECURail's Twitter account profile

Twitter has been used to disseminate 4SECURail results to enhance the visibility of Shift2Rail to the largest audience possible, in the railways but also in the transport sector. It has been also used to update project followers with brief news, links and notifications about planned project activities, being accessible to all the community. Each tweet had around 550 impressions (times people saw the posted tweet on Twitter) and 43 profile visits, meanwhile the number of interactions in each tweet have been around 15 engagements (times people interacted with the posted tweet).

#### 8.3.2 LinkedIn account

A 4SECURail LinkedIn account was also created to set a network with key contacts which could be contacted to fulfil the communication and dissemination activities and to make more detailed reporting on the project achievements.

Figure 7 shows the 4SECURail's LinkedIn homepage:







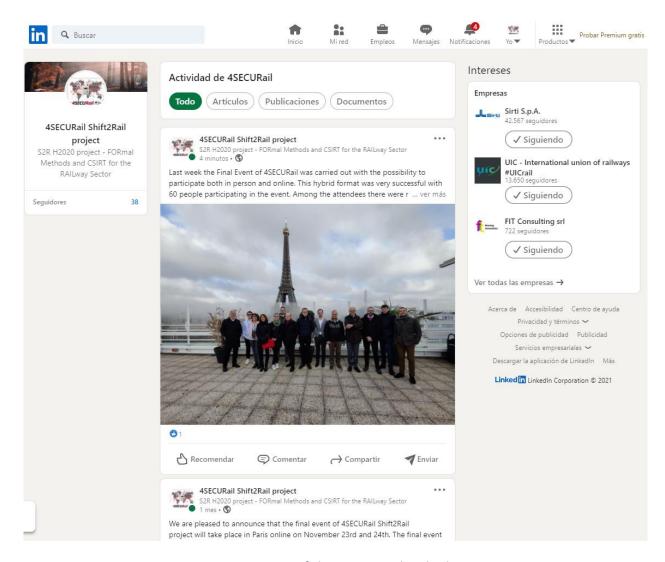


Figure 7 – Homepage of the 4SECURail LinkedIn account

LinkedIn has been used, all along the project life, to disseminate 4SECURail results to enhance the visibility of Shift2Rail to the largest audience possible, in the railways but also in the transport sector. LinkedIn also provided the suitable platform to diffuse relevant project achievements to wide audience ways (blog posts, presentations, video, etc). Each post had around 250 visualisations and between 5 and 15 interactions.

# 8.4 Press release and media coverage

In the scope of the dissemination strategy of 4SECURail project a press article was released by the consortium in order to reach relevant communication media and publications.

#### 8.5 Content for Shift2Rail electronic newsletter

4SECURail has provided content to Shift2Rail for its electronic newsletter as often as possible via the S2R Projects Communication Planning spreadsheet.







# 8.6 Participation in European research conferences and congresses

As described in the previous deliverable D4.2 (Dissemination Plan), the consortium partners had planned to present the obtained results through working papers and conferences. It was intended that every partner was going to share the results with its clients and present the project during fairs (for example InnoTrans, Expo Ferroviaria, etc). These efforts were focused to also lead to marketing strategies for later commercial exploitation of new products.

However, as said before, the outbreak of Covid-19 pandemic lead to the cancellation of those events.

## 8.7 Presentations and publications

The 4SECURail project consortium included partners from both research-focused and industry-oriented organisations. 4SECURail results being of interest for railway industry members and railway authorities, the need has been detected to share with them the presentations, posts and papers presented in workshops and published through easily accessible dissemination platforms in the areas relevant to the project.

The publications that have been carried out through the lifetime of the project have been the following:

- "Comparing formal tools for system design: a judgment study". Publication in conference proceedings/workshop (ICSE '20: Proceedings of the ACM/IEEE 42<sup>nd</sup> International Conference on Software Engineering). Authors: Alessio Ferrari, Franco Mazzanti, Davide Basile, Maurice H. ter Beek and Alessandro Fantechi.
- "Designing a Demonstrator of Formal Methods for Railways Infrastructure Managers". Publication
  in conference proceedings/Workshop (Lecture Notes in Computer Science, Volume 12478).
  Authors: Davide Basile, Maurice H. ter Beek, Alessandro Fantechi, Alessio Ferrari, Stefania Gnesi,
  Laura Masullo, Franco Mazzanti, Andrea Piattino and Daniele Trent.
- "Formal Analysis of the UNISIG Safety Application Intermediate Sub-layer Applying Formal Methods to Railway Standard Interfaces". Publication in conference proceedings/Workshop (Lecture Notes in Computer Science, Volume 12863). Authors: Davide Basile, Alessandro Fantechi and Irene Rosadi.
- "Strategy Synthesis for Autonomous Driving in a Moving Block Railway System with Uppaal Stratego". Publication in conference proceedings/Workshop (Lecture Notes in Computer Science, Volume 12136). Authors: Davide Basile, Maurice H. ter Beek and Axel Legay.
- "Compositional verification of concurrent systems by combining bisimulations". Article in journal (Formal Methods in System Design). Authors: F. Lang, R.Mateescu, R. and F. Mazzanti.
- "Systematic Evaluation and Usability Analysis of Formal Methods Tools for Railway Signaling System Design". Article in journal (Transactions on Software Engineering). Authors: Alessio Ferrari, Franco Mazzanti, Davide Basile and Maurice H. ter Beek.

In addition to already published or submitted works, further research outputs are expected to be published beyond the project lifetime (A submission on the demonstrator RSSRAIL will be done and further publications will follow onwards).







All 4SECURail publications are in accordance with the Open Access principals stated in Article 29.2 of the GA, "Each beneficiary must ensure open access (free of charge online access for any user) to all peer-reviewed scientific publications relating to its results".

# 8.8 Organization of Workshops

It is to be noted that in addition to the effort and actions mentioned in WP4, some technical activities would also maximize dissemination and exploitation and were representing resources to support these actions.

4SECURail partners organised technical workshops that involved both workstream members for collecting feedback on intermediate and final results and that will have a strong impact on the dissemination and exploitation efficiency of the project. The main objective was to present test results to the targeted community for assessing the prototypes, along with presentation and demonstration of the Formal Methods and their Cost-Benefit Analysis as well as the CSIRT model and working platform.

Firstly, on the 9<sup>th</sup> of June 2020, two technical workshops took place regarding the two workstreams of 4SECURail. The event was a success and the attendants were very interested and participative, they provided a valuable feedback that helped to improve the outputs of each workstream.

Later on, the 2<sup>nd</sup> technical workshop for Workstream 2 (Implementation of the CSIRT model) was held on the 8<sup>th</sup> of June 2021. The event achieved a great success with more than 40 participants, and thanks to their active participation, it was an excellent opportunity to discuss many different items in regards to the ER-CSIRT model. The attendees who participated in the event were from a wide range of companies and organizations such as: ADIF, Cervello, CFL, DB NETZ, DB SYSTEL, ENISA, ERA, ER-ISAC, EXPLEO Group, FSI, Governmental CERT Luxemburg, INCYDE GmbH, InfraBel, Network Rail, NS, ÖBB, ProRail, RENFE, RFI, SBB, Shift2Rail, SNBC/NMBS, SNCF Reseau, SZDC, Trafikverket, UNIFE and X2Rail-3.

On the other side, project partners held the 2<sup>nd</sup> technical workshop for Workstream 1 (Demonstrator Development for the use of Formal Methods in railway) on the 29<sup>th</sup> of June 2021. The event received a great feedback and participation from all the attendees, and it was a good opportunity to discuss the application of Formal Methods in the railway system, and their costs and benefits.

The attendees who participated in these events were also from a wide range of companies and organizations such as Infrastructure Managers and International Organizations for Standards, such as: ADIF, Alstom, DB Netz, DB Systel, EIM Rail, FREng, FIET, Nagaoka University of Technology, Prover/Trafickverket, RENFE, SMIEEE and others.

# 8.9 Advisory Board

In 4SECURail project, research and technology uptakes have also been supported by an Advisory Board. This helped the consortium by giving recommendations and advice that contributed to the assessment of the developed solutions and to reach the goals set-up in the dissemination and communication strategy. The 4SECURail partners supported this task by checking the viability and accuracy of the 4SECURail results with the user requirements, cases and scenarios coming from the Advisory Board members in order to safeguard the project's outputs in conformance with the real needs of the sector.







The Advisory Board members for each workstream of the project are representatives of the following organisations:

- Formal Methods Workstream: Danmarks Tekniske Universitet, Infrabel, ProB, Prover and the University of Twente.
- CSIRT Workstream: EXPLEO, MOVE EU RAILSEC, UNIFE and Cervello Railway Cyber Security.

On the 9<sup>th</sup> and 10<sup>th</sup> of June 2020, two Advisory Board meetings were held, one for each workstream of 4SECURail. These meetings were included as part of the first technical workshop event organised by 4SECURail. The event were very fruitful, and the attendants were very satisfied. Furthermore, links with other relevant project or work activities, RTD European or National programs raised from these meetings.

On 23<sup>rd</sup> of November 2021 another two Advisory Board meetings took place just the day before the Final Event main conference. In these meetings the results of each workstream were presented and some feedback about the way to present these results the day after to the general audience were received.

One of the critical implementation risks and mitigation actions set at the beginning of the project was the lack of interest on the 4SECURail project by external stakeholders. The Advisory Board helped raising the awareness and increasing the interest into the results of the project.

#### 8.10 Final Event

The Final Event of the 4SECURail's project was held on November 23<sup>rd</sup> and 24<sup>th</sup> 2021 in Paris at UIC facilities. It has been organised by the Project Coordinator (Ardanuy) and UIC with the help of all the consortium members.

The main goal of the final event was to disseminate the results obtained through the project to the European railway community:

- Presentation of the CSIRT model and prototype
- Presentation of the example of formal methods application in the railway industry along with a cost-benefit analysis

The whole event had a hybrid format, allowing for face-to-face and online participation, and was mainly announced by e-mail, targeting specific people relevant for the matters of the project. The event was also announced via social media channels and the project website.

On November 23<sup>rd</sup> there were two separate meetings, one for each workstream, with the Advisory Board and members of the complementary projects.

The day after, on 24<sup>th</sup> the main conference of the final event took place.

The hybrid format was very successful and 80 participants attended either the first or second day, mostly online. Among the participants there were members of our Advisory Board, the complementary Shift2Rail CFM projects X2Rail-5 and X2Rail-3, and other relevant stakeholders of the European railway sector.

The planned agenda was the following:







# DAY 1: NOVEMBER 23RD, 2021

| Time  | Торіс  | Duration |
|-------|--|----------|
| 15:00 | Advisory Board and complementary project meeting – Formal Methods Workstream | 2 h      |
| 15:00 | Advisory Board and complementary project meeting – CSIRT Workstream          | 2 h      |
| 19:00 | Social dinner  |          |

# DAY 2: NOVEMBER 24TH, 2021

| Time  | Торіс  | Duration |
|-------|--|----------|
| 09:00 | Final event conference. Hybrid format, at UIC and online | 3h       |

Figure 8 – Final Event agenda

The consortium members decided to create a registration form link (4SECURail Final Conference (private session) - Registration - Evenium.net) to keep record of all participants to this final event.







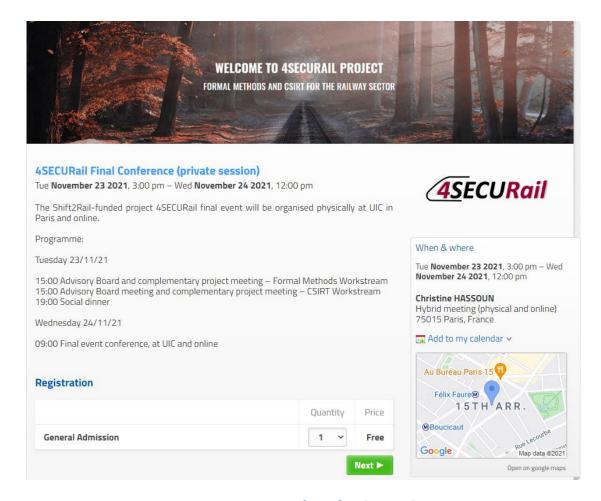


Figure 9 – Registration form for the Final Event

The major objectives of such an event were:

- To enable other stakeholders not directly involved in the project to be briefed on results at important project milestones.
- To have an interactive discussion on the basis of their comments and proposals made to draft version documents and deliverables disseminated through professional associations – partners of the project.
- To validate the proposed results by consensus of all stakeholders concerned.
- To check the potential for the implementation of the proposed solutions.
- To provide guidance for further work and for the completion of deliverables.

The dissemination of the project results will contribute to the future adoption of Formal Methods in the standardization process of industrial equipment and to the creation of a European CSIRT platform.

The different presentations that were used during the Final Event, and for which author's consent was provided, are available in the project website.









Figure 10 - Final Event carried out in UIC premises (Paris)



Figure 11 - 4SECURail Team







#### 9 INTERACTION WITH THE SHIFT2RAIL IP2

The 4SECURail project outcomes were foreseen as a contributor to the scope of Shift2Rail Innovation Programme 2. A special attention was given in the Shift2Rail projects X2Rail-2 and X2Rail-3 to learn from each other's results and cross-fertilise the work progress.

Delivery of the innovations have been achieved through the efficient co-operation between 4SECURail and the Shift2Rail Joint Undertaking, underpinned by the motivation of the 4SECURail project consortium to disseminate all results required for the carrying out of the planned research work within X2Rail-3 and X2Rail-2 projects. The results of 4SECURail will go directly as outputs to the Joint Undertaking, for use as inputs to other activities in Shift2Rail.

The figure below presents the integration of 4SECURail within Shift2Rail and the close links with the correspondent X2Rail-3 and X2Rail-2 projects, where 4SECURail has contributed to the required aspects of TD2.7 and TD2.11 implementation, in close collaboration with complementary activities.

Therefore, the dissemination and exploitation of the project's results to IP2 of Shift2Rail has been ensured by a collaboration between the different specified actors. Knowledge transfer discussions have been organised between the project WP leaders and relevant Shift2Rail TD leaders.

4SECURail has been fully committed to finalise and sign the Collaboration Agreement (COLA) with its correspondent CFM projects, X2Rail2 and X2Rail3. However, cooperation between 4SECURail and X2Rail2/X2Rail3 already started and the projects have set up a tight collaboration from the beginning of the projects, and it has been decided that signing both COLA's was not needed since the collaboration between both projects was equally produced.

On the other side, the delivery of all the planned TINs<sup>1</sup> due by 4SECURail and analysis of the TINs received took place (considering also the comments) in the revision of 4SECURail deliverables. The organization of an Advisory Board with the members specified under section 8.9 of the present deliverable helped the consortium to reach the goals set-up in the dissemination and communication strategy.

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<sup>&</sup>lt;sup>1</sup> Technical Informative Note, referred to any informative technical document exchanged within the framework of a Collaboration Agreement







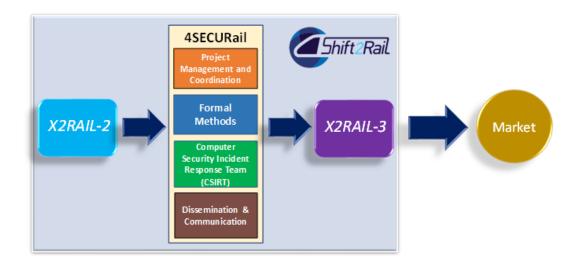


Figure 12 - 4SECURail interaction within Shift2Rail IP2 framework







#### 10 CONCLUSIONS

As reported above, a series of dissemination/communication activities were carried out during the project duration. As described, actions, materials and strategy that have been use for external communication, along with the engagement and uptake of the results by relevant stakeholders and Shift2Rail IP2.

Dissemination activities and events have been planned and defined in line with the Dissemination Plan (Deliverable D4.2), that was used as an initial strategy which has been further updated and reviewed on a regular basis during the lifetime of the project. The results of the activities of the present Work Package and the impact achieved have been also monitored by the Project Coordinator (Ardanuy).

A large audience has been reached by 4SECURail and the project had at the same time ensured a proper dissemination towards the Shift2Rail Joint Undertaking to ensure a smooth and effective transfer of results into the Shift2Rail projects.

4SECURail partners are willing to go on disseminating the project results beyond the project lifetime to assure better sustainability and usability of the project results. For this reason, each partner will individually undertake dissemination activities according to their possibilities and profile.







### 11 APPENDICES

# 11.1 Appendix 1: 4SECURail project presentation brochure



Figure 13 – 4SECURail project presentation brochure (1/2)







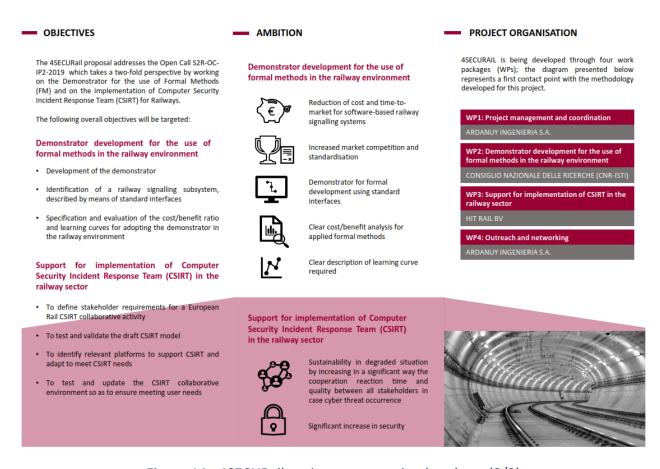


Figure 14 - 4SECURail project presentation brochure (2/2)