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DELIVERABLE D 7.1

SMART2 public website and communication plan

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² https://projects.shift2rail.org/s2r_matrixtd.aspx

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1. Executive Summary

Deliverable D7.1 is the first report of SMART2 project that comprises efforts in WP7 - Dissemination and exploitation. This deliverable reports on the public website set-up, on the 1st project leaflet describing project objectives, and on the project communication and dissemination plan to increase the project impact.

Furthermore, this document describes how the results of the individual partners are internally communicated in the project and brought together to realize the main SMART2 objectives.

2. Abbreviations and acronyms

Abbreviation / Acronyms	Description
SMART2	Project: Advanced obstacle detection and track intrusion system for smart automation rail transport
GoA	Grade of Automation
IP	Innovation Programme
MAAP	S2R JU Multi Annual Action Plan
S2R JU	Shift2Rail Joint Undertaking
TD	Technical Demonstrator
WP	Working Package
ATO	Automatic Train Operation

3. Background

The present document constitutes the Deliverable D7.1 “SMART2 public website and communication plan” in the framework of the TD5.1 – Fleet Digitalisation and Automation and, in particular, TD 5.1.3 – Freight ATO of IP5 and in close linkage to TD2.2 – Railway network capacity increase (ATO up to GoA 4) (*MAAP version November 2015 [1] and ANNUAL WORK PLAN and BUDGET for 2019*).

4. Objective/Aim

This document has been prepared to provide report on public website set-up, on the project leaflet describing project objectives and on project communication and dissemination plan to increase the project impact.

Deliverable D7.1 is the first deliverable of WP7 – Dissemination and exploitation and it provides initial results of Task 7.1. Website and dissemination material. This deliverable together with the first release of D7.3 – Dissemination and exploitation plan (expected in M9) comprises initial efforts for successful realization of dissemination and exploitation activities targeted in WP7.

It is linked to TD5.1 – Fleet Digitalisation and Automation and, in particular, TD 5.1.3 – Freight ATO of IP5 and it is in close linkage to TD2.2 – Railway network capacity increase (ATO up to GoA 4).

5. Introduction

This communication plan presents the expected and delivered outcome of the SMART2 project, in terms of scientific knowledge and exploitable results, and how these are delivered to the audience (academic, industrial and society). Furthermore, this document describes how the results of the individual partners are internally communicated in the project and brought together to realize the main SMART2 objectives: developing an advanced holistic obstacle detection and track intrusion detection (OD&TID) system.

The SMART2 dissemination and communication plan assumes three phases as illustrated in Figure 1.

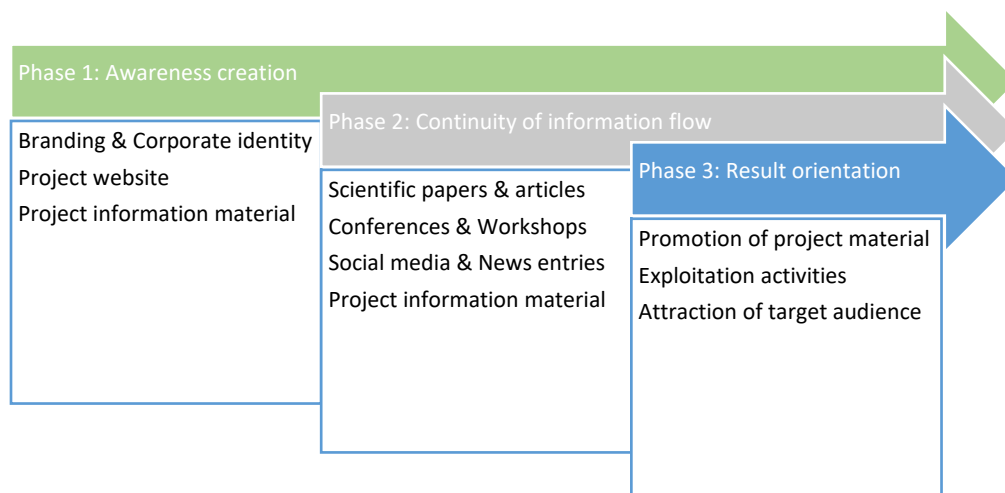


Figure 1 Dissemination and communication phases

The first phase is called “awareness creation” and consists of building up the SMART2 branding and corporate identity, as well as establishing the project website and additional project information material, like templates for documents as well as presentations.

In the second phase named “continuity of information flow”, scientific papers will be written and submitted to conferences and journals as well as presentations at conferences and workshops will be given in order to further raise awareness among the scientific and industrial stakeholders. Furthermore, publications, whitepapers and certain deliverables will be published on the project website in order to keep interested parties informed about the latest progress. In addition, engaging posts on project’s Twitter & LinkedIn as well as on the project’s website constitute an important part of keeping the information flow upright and increase the interest of multiple audiences. Besides this, newsletters, press releases, poster, information about workshops and conferences, etc. are an integral part of this dissemination phase, allowing more interactive communication within and outside the consortium. There will be additional





press releases/newsletters when significant milestones are reached or for specific project events.


In the third phase “Result orientation”, dissemination will feed into exploitation, which means using the results for commercial purposes or in public policymaking. There will be some ongoing dissemination activities after the project end in order to promote the project results. The main focus will be to exploit those project results and attract the target audience group.

Overall, a variety of communication channels have been adopted to ensure maximum impact from the SMART2 results. Each of these channels has been and will be pursued by one or more SMART2 partners, most suited to exploit the technology through that channel.

Multi-environment nature of the project (SMART2 partners are university partners and industrial partners) and interdisciplinary consortium has been a basis for achievement of broad impact. SMART2 partners have been experts in computer vision, railway freight transportation, machine learning, cloud-based information systems, and development and commercialization of Image Intensifier Tubes and related products. An overview Table of SMART2 partners and their expertise, role in the project, is given below.

Table 1 SMART2 Consortium

Partner	Role in the project
 Institut für Automatisierungstechnik  Universität Bremen UB, University of Bremen, Germany Institute of Automation	Project Coordinator, R&D in computer vision; Leader of WPs: WP 2 – On-board obstacle and track intrusion detection system WP 8 – Project management and coordination
 OHB-DS OHB Digital Services, Germany	Software Development, Cloud Computing, IoT Leader of WP5, the main responsible partner for SMART2 prototype integration
 UNI, University of Niš, Serbia	Decision support system, airborne based demonstrator for OD&TID, evaluation. Leader of WPs: WP 4 – DSS Decision Support System WP 6 – Evaluation

<p>Faculty of Mechanical Engineering</p>	
 Newcastle University UNEW University of Newcastle upon Tyne, United Kingdom	<p>Analysis and definition of freight use cases, RAMS, operational use cases Leader of WP1: Use Cases, Requirements and Specifications</p>
 UNIVERSITATEA TEHNICĂ DIN CLUJ-NAPOCA UTC The Technical University of Cluj-Napoca Department of Mechatronics and Machine Dynamics	<p>Airborne OD/TD system Leader of WP3 - Trackside/Airborne obstacle and track intrusion detection system</p>
 HARDER. digital SOVA SOVA, Harder Digital Sova, Serbia	<p>Night vision Responsible for implementation of SWIR camera sensor system with active illumination (WP2). Leader of WP7 – Dissemination and exploitation</p>
 FOKUS TECH FOKUS TECH napredne tehnologije d.o.o., Slovenia	<p>Development of advanced 3D obstacle detection system (trackside) Coordination of Tasks 3.1 and 3.3 in WP3</p>

6. Dissemination and Communication strategy and assessment

A clear communication and dissemination strategy is essential and a forerunner for the execution of a dissemination and communication plan. Therefore, the SMART2 project has set out a clear strategy for dissemination and communication. The strategy defines the audiences the project aims to target and defines why such audiences should be targeted and by which means.

The communication goal is to highlight the benefits of the SMART2 project for society, e.g. by showing the public society and media the impact of the project on everyday lives. When it comes to dissemination the goal is to transfer knowledge and make project results available to an audience that may take an interest.

The SMART2 dissemination process will consist of two parts: the first, strategy and assessment, and the second, implementation. Strategy and assessment have two key elements: the dissemination strategy and plan, and the efficacy of dissemination. Implementation covers following aspects: execution, measurement and tracking of the progress of the dissemination strategy.

6.1 Target audience

In order to achieve the intended impact, the SMART2 project consortium will disseminate information about the project's objectives, activities, and results to a wide variety of stakeholders throughout the rail sector. This includes several stakeholders directly linked with the railway community (see Figure 2 – SMART2 Target Audience):

- Research Institutions: Universities, Research Centres, Foundations, etc.
- Public Authorities: National/EU Institutions, Member States, National/Regional Authorities, etc.
- Associations and S2R Bodies.
- RUs & IMs: Managers, Chief Incident Security Officers, Drivers, ETCS experts, Signalling experts, ect.
- Past/ongoing R&D projects such as X2RAIL-4, ARCC, X2RAIL-2, SMART, MISTRAL, MOMIT and GoSAFE Rail.
- Rail Supply Industry: RS integrators/Suppliers, Sub-system Suppliers, SMEs.

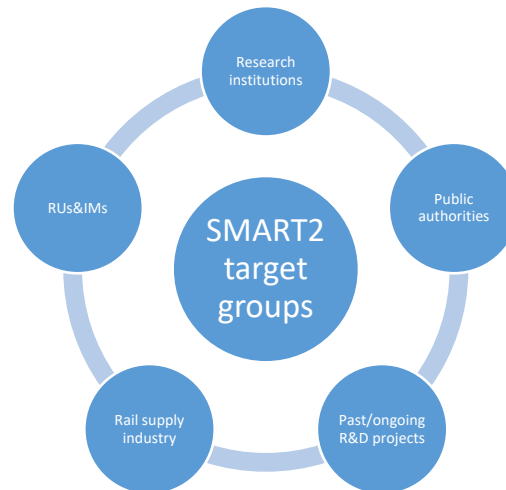


Figure 2 SMART2 Target Audience

The main purpose of this exchange of information related to the SMART2 project is to ensure that the identified important actors are aware of the developments that SMART2 will bring to the Shift2Rail activities. The dissemination and exploitation measures of the project shall address the full range of potential users and uses. As part of the SMART2 dissemination and exploitation strategy, the partners will decide how to ensure best value for the dissemination of resources available when seeking to cover the spectrum of stakeholders. The project will capitalise upon members' already established contacts, and those of all SMART2 partners, networks and ways of working when reaching the most appropriate stakeholders to spread and maximise project outcomes and impacts.

6.2 Approach and actions

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

- **Website visibility:** Design, development, and usage of a fully functional and user-friendly website. The Web interface will comprise areas with main information about Consortium, partners, technical objectives, planned events and with material for download such as publishable deliverables and leaflets.
- **Social media presence:** Set up, community building, message posting and interaction with users on social media platforms (e.g., Twitter and LinkedIn).
- **Brand image:** Design of the project logo and brochure and templates for the presentations, documents, and posters (if any) to be given away at events or via the Web.
- **Web publications of public deliverables:** Release of public deliverables by means of the Project website.
- **Physical and/or remote presence dissemination:** Events (e.g., workshops, conferences) organised remotely (on-line) or on-site by the European Commission, Shift2Rail, and

Consortium Partners in their respective countries. Also remotely (on-line) or on-site railway related conferences / exhibitions.

- **Educational dissemination:** Distribution of the knowledge base to students and academic instructors for educational purposes.
- **Academic dissemination of the project results:** Dissemination of the project results through various literary outlets (e.g., academic journals and conference proceedings) in accordance with Open Access policies.

In order to assess the effect of the dissemination and communication activities on the target audience, a number of Key Performance Indicators (KPI) have been selected and quantified, allowing to measure progress towards fixed goals for communication and dissemination activities. Table 2 summarises the selected and quantified KPIs.

Table 2 SMART2 Communication & Dissemination measures overview

Communication action	Purpose(s)	Target(s)	Audience reached via SMART2 channels
Social media presence	Raise awareness, inform, engage	All identified stakeholders + general audience	~ 200 Followers
Web publications of public deliverables	Inform	All identified stakeholders + general audience	~ 5000 Readerships
Physical/remote presence dissemination	Inform, engage, promote	All identified stakeholders + general audience	~10.000 Attendees
Educational dissemination	Inform, engage, promote	Academic community, academic staff, students	~ 500 Participants
Academic dissemination of project results	Inform	Academic community, academic instructors, students	~ 50.000 Readerships

7. Dissemination plan

7.1 Creation of project identity

A unified visual identity was created during the first three months of the project for use by the SMART2 project partners, e.g. logo, documents, reports, presentations, project flyer and other external communications. The project identity is of utmost importance to communicate, to be

clearly identified, and to create an experience that encourages people to engage with the project. It will help dissemination activities and ensure a consistent communication of the project concept, objectives, and results.

7.1.1 SMART2 logo

The project logo of the SMART2 has been selected by the SMART2 consortium. The logo was designed by UB and it represents the ideas behind the SMART2 project in an abstract and modern way (Figure 3). It also highlights that SMART2 project will build on results achieved in SMART project (<http://www.smartrail-automation-project.net/>) by advancing the on-board OD&TID system.



Figure 3 Logo of SMART2 project

7.1.2 SMART2 templates

Project templates such as PowerPoint presentations, have been prepared immediately after the creation of the project logo. The expected deliverables will be produced according to the deliverable template that will be used for all project deliverables and that will be in line with the S2R Deliverable template (<https://shift2rail.org/wp-content/uploads/2021/03/S2R-deliverable-template.docx>).

7.1.3 SMART2 Project flyers

The first SMART2 flyer contains the key facts about the project, such as lists of the project Partners and it gives the brief summary of project goals and objectives. The first project flyer, which was released in March 2020, is available for the download from SMART2 public website and it is attached to this deliverable in Appendix.

The second SMART2 flyer will be published at SMART2 website by the end of the project and will be available for download. It will contain publishable information about the activities, performed in the course of the project and about the achieved results.

7.2 SMART2 website

The project website has been set-up as one of the main dissemination tools, to communicate the project's objectives and outputs to the general public. The SMART2 website is hosted by the HD SOVA, leader of WP7, and is reachable through the URL <https://smart2rail-project.net/>.

The SMART2 project website will be regularly updated to reflect the consortium activities. Among others, the public deliverables, summarizing the scientific outcome of SMART2, will be available for download and the list of publications will be updated according to publications dynamic. The SMART2 flyers will be also available on the website for download.

The website is divided into a public and a private section, the latter one being restricted for access by Consortium members only.

The public SMART website section has the following structure:

- Home
- About Project
 - Project Objectives
 - Work Packages
 - Project Flyer
- Consortium members
- Results
 - Deliverables
 - Publications
- News & Events
- Gallery
- Links

The "Home" page is the main or starting page and it contains links to all menus and submenus, mentioned above. There are also links to Facebook and Twitter SMART2 accounts. In the bottom part of Homepage, there are personalization fields for entering to password protected part of website. This protected part of website will be used as one of the channels for internal communication during SMART2 project realization. A snapshot of the "home" page is shown in Figure 4.

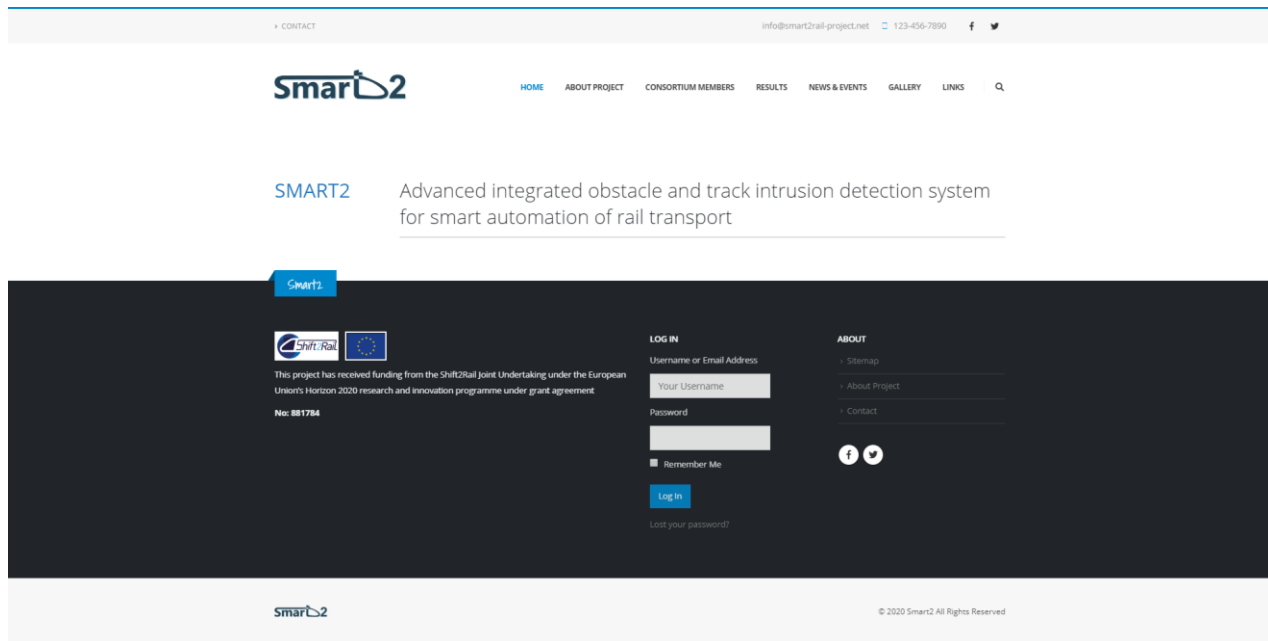


Figure 4 SMART website “home” page

The “About Project” page comprises of the “Project objectives”, “Work packages”, and “Project flyer” sub-pages. Thus, the “About Project” page presents project goals, objectives and research areas. In Figures 5 and 6 “Project objectives” and “Work packages” pages have been respectively presented.

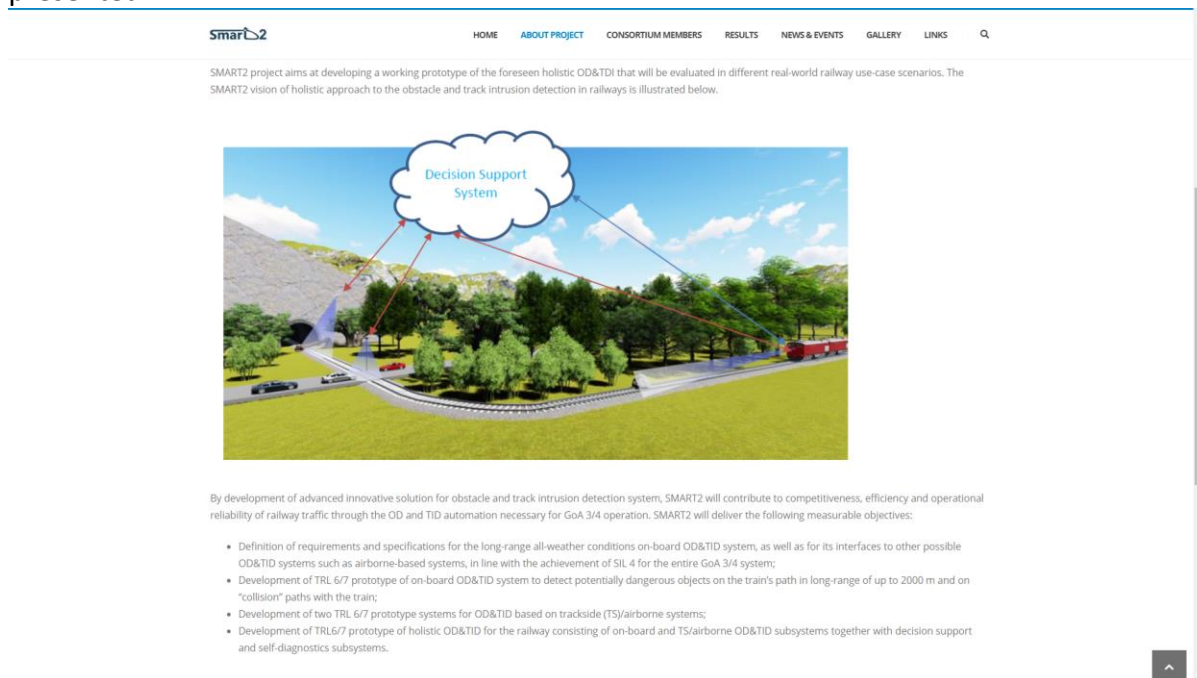
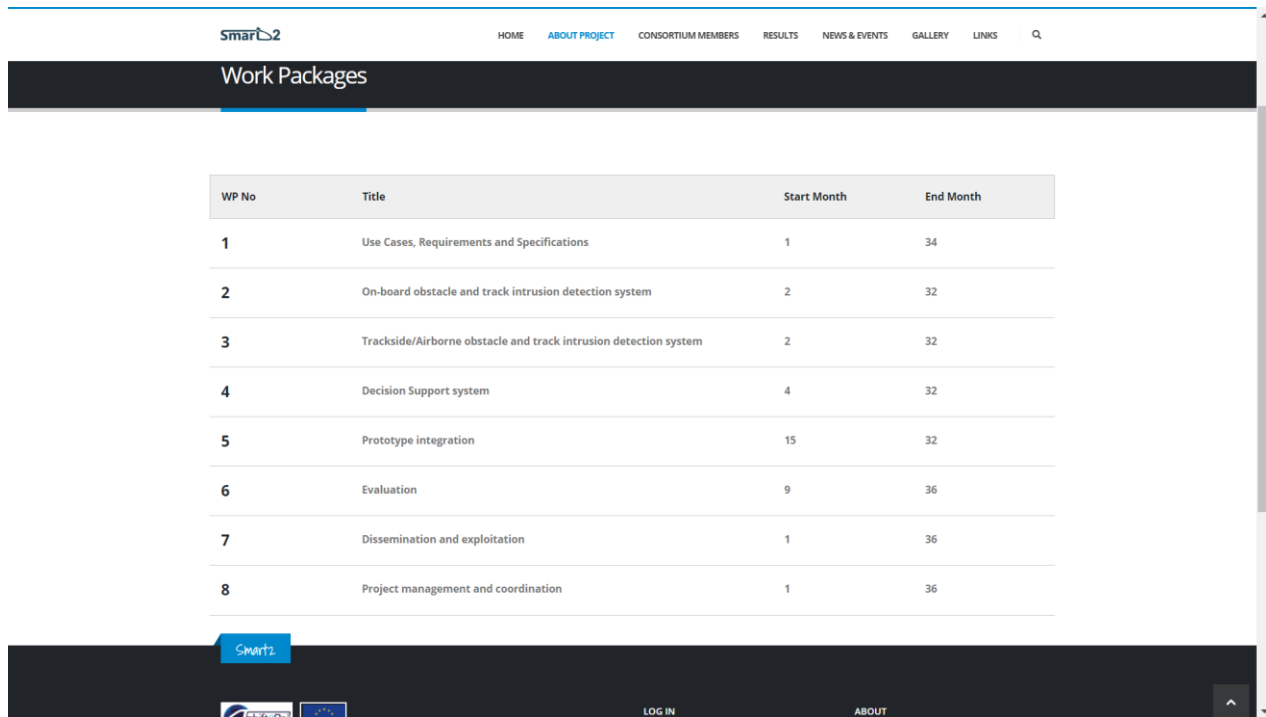


Figure 5 “Project objective” page



WP No	Title	Start Month	End Month
1	Use Cases, Requirements and Specifications	1	34
2	On-board obstacle and track intrusion detection system	2	32
3	Trackside/Airborne obstacle and track intrusion detection system	2	32
4	Decision Support system	4	32
5	Prototype integration	15	32
6	Evaluation	9	36
7	Dissemination and exploitation	1	36
8	Project management and coordination	1	36

Figure 6 “Working packages” page

The “Consortium members” page comprises the sub-pages of all organizations involved in the SMART2 project, describes their role in the project and provides links to web pages describing each Partner in a more detailed way.

The “Results” page comprises “Deliverables” and “Publications” subpages. The “Deliverables” subpage will list all the deliverables that will result from the project. The public deliverables will be made available on the “Deliverables” sub-page once they are approved for public release. The “Publications” sub-page will provide information about scientific publications from Partners.

The “News&Events” page will be concerned with project events (project meetings) but will also announce the conferences and workshops, regional and international fairs and exhibitions that will Partners organize or where they will present their results and developments.

The “Gallery” page lists all pictures from important project events.

In the “Links” page external links to relevant websites will be posted.

Beside the project website, the websites of all the SMART2 partners will publish the references to results, innovations in processes and products obtained through the project.

The information about the SMART project has been also published on the S2R JU website https://projects.shift2rail.org/s2r_ip5_n.aspx?p=S2R_SMART2

7.3 Internal SMART2 communication

Operating as a team, with an international consortium like SMART2 needs special attention. Therefore, an infrastructure has been created to enable easy communication, making extensive use of available online tooling, together with regular contact. This infrastructure has been used also for establishing communication with the complementary S2R member project. This section lists implemented planned actions.

There are several channels for internal communication between SMART2 partners:

- SMART2 document SharePoint
- WebEX meetings
- People Exchange

7.3.1 SMART2 SharePoint

The SMART2 SharePoint is an online platform that it is used for file exchange and communication within the SMART2 Project. It is allowed to all registered project members to access any files and folders already there, to create new folders and upload/overwrite files.

OHB-DS as member of consortium with strong expertise in the field of ITC has established SMART2 SharePoint and has taken responsibility for its administration.

There is a limit to the size of the files that can be uploaded. The limit is 250 MB per file. If it is needed to upload several files at the same time, the limit of a "list of files" is 15 Gb with a maximum of 250 Mb per file.

The whole SharePoint has 1 Tb of storage available, shared across all the users.

7.3.2 Web meetings

WebEX was introduced by the project coordinator, UB, for organising effective web meetings with the possibilities of sharing files and applications. Different types of regular web meetings will be organised during the project lifetime such as general meetings, Work Package specific meetings and Work Package leaders' meetings. Small group meetings will be also organised as needed to provide smooth project execution.

7.3.3 People exchange

Besides the web meetings, effective collaboration among the partners will be achieved through the significant people exchange in particular during the integration and evaluation phase. The realised exchanges and collaborations will be reported in detail in project periodic reports.

7.4 Use of social media

Twitter and LinkedIn have been chosen as additional social media channels for interactions among researchers and other projects for creating, sharing and exchanging information and ideas in virtual communities and networks.

Both social media are connected to SMART2 website, in the right top corner of the Homepage of SMART2 website, there are links to Twitter and LinkedIn accounts.

7.4.1 Twitter account

The official SMART2 project Twitter account is: <https://twitter.com/Smart59351029>. In Figure 7, SMART 2 Twitter page is presented.

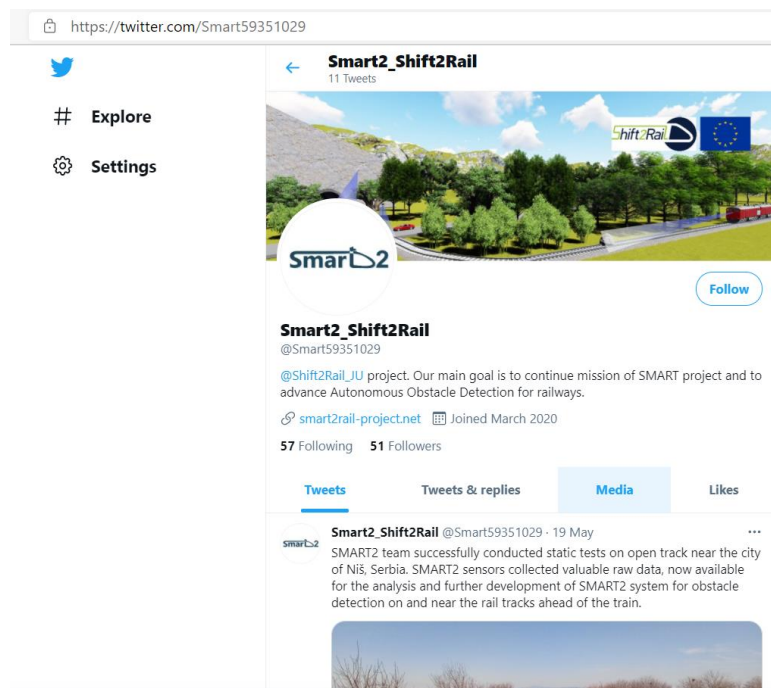


Figure 7 SMART2 project Twitter account

7.4.2 LinkedIn account

A SMART2 LinkedIn account has also been 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.

The official SMART2 project LinkedIn account is: <https://www.linkedin.com/company/smart2-project/>. Figure 8 shows the SMART2's LinkedIn homepage.

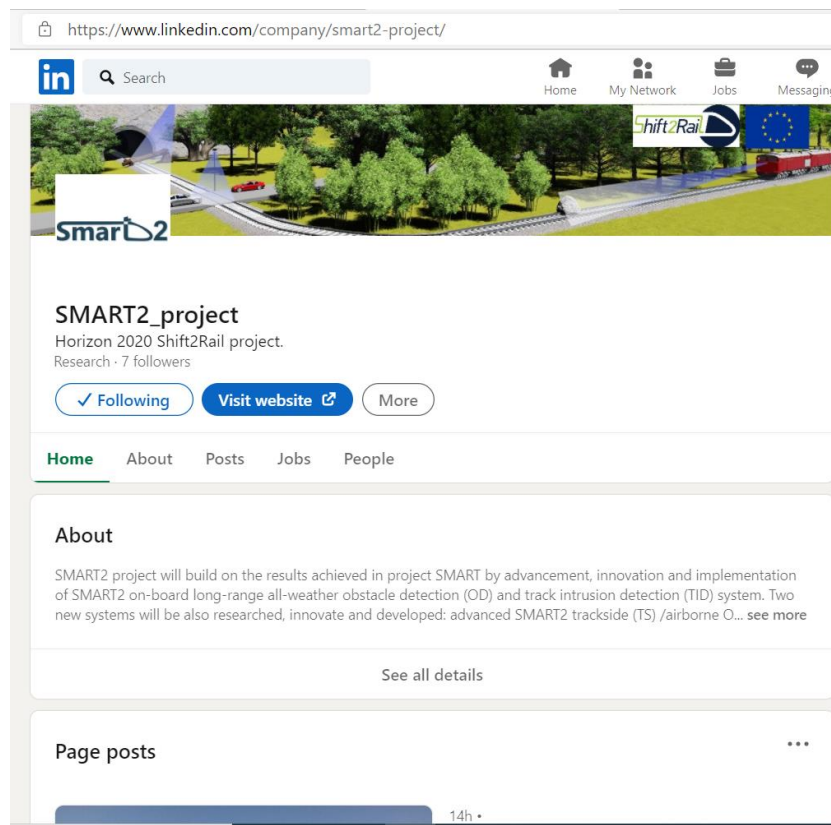


Figure 8 SMART2 LinkedIn homepage

LinkedIn will be used, all along the project life, to disseminate SMART2 results to enhance the visibility of Shift2Rail to the largest audience possible, in the railways but also in the transport sector.

7.5 Content for Shift2Rail electronic newsletter

SMART2 will provide to Shift2Rail content for its electronic newsletter as often as possible via the [S2R Projects Communication Planning Google sheet](#).

7.6 Final event conference

A SMART2 public event, at the end of the project, will be organised by the Project Coordinator (UB). The final conference will be used to present the project results and raise awareness about SMART2's key conclusions. This conference will be open to anyone interested in participating. To ensure maximum audience invitations will be sent to the key actors in the field. The location will be chosen to ensure maximum participation.

It will provide a platform to discuss the achieved results of the project. Solutions for the identified problems and challenges will be presented based on the SMART2 project results and the harmonization of needs, requirements and demands facing the Shift2Rail expectations will be discussed.

The major objectives of such event are:

- 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
- 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.

Apart from the Final Conference, SMART2 partners plan to promote the project results during European research conferences and congresses.

7.7 Participation in European research conferences and congresses

It is important to share the know-how acquired by the partners of the SMART2 consortium with as many railways stakeholders as possible. SMART2 partners will focus on the presentation of the results through working papers and conferences. Therefore, every single partner will share the results with its clients and present the project during fairs (for example, InnoTrans 2022). These efforts will also lead to marketing strategies for later commercial exploitation of new products.

Apart from the Final Event Conference, SMART2 partners plan to promote the project results during events organised in Europe in 2020 -2022, such as Railcon 2020 (International Scientific-Expert Conference on Railways, October 2020, Nis, Serbia) and Railcon 2022 (Nis, October 2022) , TRA 2022 (Transport Research Arena 2022, Lisbon, November 2022) and InnoTrans (Berlin, September 2022), consortium partners' events and other relevant occasions. Foreseen are on-site as well as remote presence in case of transformation of events to a virtual environment due

to the crises such as one caused by Covid-19 pandemic.

7.8 Project presentations and publications

Project results are also planned to be published in related scientific journals (e.g. “Sensors”, “IEEE Transactions on Intelligent Transport”, “The Proceedings of the IMechE, Part F: Journal of Rail and Rapid Transit”) as well as in international press and electronic newsletters of topics related to railway such as Railway Gazette; and Rail Technology Magazine.

The partners will use their scientific communication and networking channels to disseminate the project results. Scientific publications will be provided by all partners in the project; the activities will be directed and supervised by the WP leaders to avoid patenting problems. In addition to participation at scientific conferences and science communication events / exhibitions are foreseen. The Consortium will include measures to provide open access (‘green’ or/and ‘gold’ model, publishing in Open Access Journals or/and Self Archiving) to peer-reviewed scientific publications which might result from the project

7.9 Interaction with Shift2Rail IP5 and IP5

The SMART2 project outcomes are foreseen as a contributor to the scope of Shift2Rail Innovation Programme 5. In addition, SMART2 will directly interact with complementary project of S2R members X2RAIL-4 that addresses the call S2R-CFM-IP2-01-2019: Completion of activities for enhanced automation systems. It means that SMART2 cooperation with S2R members will include interaction with Shift2Rail IP5 and IP2. This interaction will include joint meetings, information exchange and feedback reviews. SMART2 is fully committed to finalise and sign the Collaboration Agreement (COLA) with its correspondent CFM project XRAIL-4. However, cooperation between SMART2 and X2Rail-4 already started at SMART2 kick-of meeting in January 2020 with IP2 member’s attendance to the meeting. COLA between SMART2 and XRAIL-4 will define precisely communication and dissemination joint activities.

8. Conclusions

The document provides guidance in relation to public website set-up, on the project leaflets describing project objectives and results and on project communication and dissemination plan to increase the project impact. The current design of the SMART2 project webpage is considered as a starting point, and it will evolve during the project duration to reflect the advances and developments on the different use cases and work packages of the project.

9. References

- [1] MAAP – Shift2raill Multi Annual Action Plan, 2015

10. Appendix-1st Project Flyer

Project Objective

SMART2 project will build on the results achieved in project SMART by advancement, innovation and implementation of SMART2 on-board long-range all-weather obstacle detection (OD) and track intrusion detection (TID) system. Two new systems will be also researched, innovate and developed: advanced SMART2 trackside (TS) /airborne OD&TID system. All three systems will be integrated into a holistic OD&TID system via interfaces to central Decision Support System (DSS).

A holistic approach to autonomous obstacle detection for railways would enable increased detection area including areas behind a curve, slope, tunnels and other elements blocking the train's view on the rail tracks, in addition to a long-range straight rail-tracks OD.

The data recorded will be processed to inform DSS about possible obstacles and track intrusions in their fields of view. DSS will integrate information coming from three OD&TID sub-systems and will make final decision on OD&TID and will suggest possible actions for the train control. SMART2 platform will be flexible and open for interfacing additional OD&TID modules based on future technologies.

Consortium Members

University of Bremen, Germany
OHB Digital Services, Germany
University of Niš, Serbia
University of Newcastle, United Kingdom
Technical University of Cluj-Napoca, Romania
Harder Digital Sova, Serbia
Fokus Tech napredne tehnologije d.o.o, Slovenia



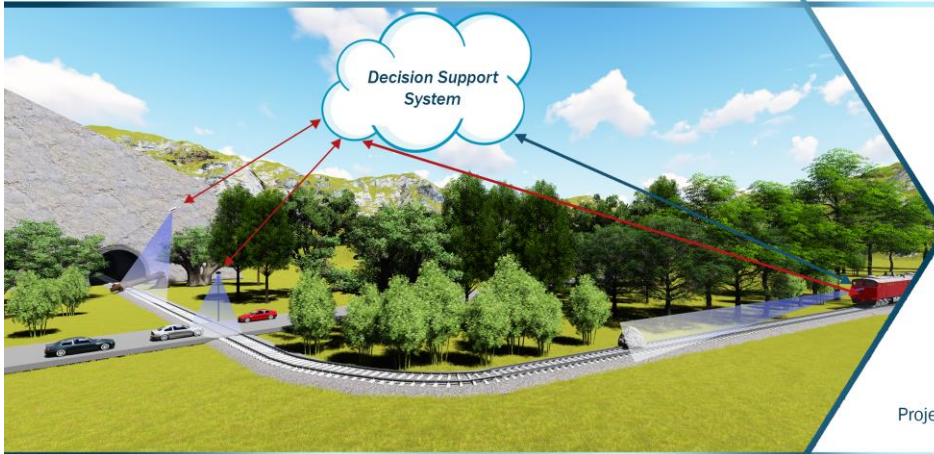

SMart Automation of Rail Transport 2

Advanced integrated obstacle and track intrusion detection system for smart automation of rail transport

www.smart2rail-project.net

Project Objective

SMART2 project aims at developing a working prototype of the foreseen holistic OD&TDI that will be evaluated in different real-world railway use-case scenarios. The SMART2 vision of holistic approach to the obstacle and track intrusion detection in railways is illustrated below.



Smart2

Smart Automation of Rail Transport 2

Work Packages

Use Cases, Requirements and Specifications	WP1
On-board obstacle and track intrusion detection system	WP2
Trackside/Airborne obstacle and track intrusion detection system	WP3
Decision Support system	WP4
Prototype integration	WP5
Evaluation	WP6
Dissemination and exploitation	WP7
Project management and coordination	WP8

By development of advanced innovative solution for obstacle and track intrusion detection system, SMART2 will contribute to competitiveness, efficiency and operational reliability of railway traffic through the OD and TID automation necessary for GoA 3/4 operation.

SMART2 will deliver the following measurable objectives:

- Definition of requirements and specifications for the long-range all-weather conditions on-board OD&TID system, as well as for its interfaces to other possible OD&TID systems such as airborne-based systems, in line with the achievement of SIL 4 for the entire GoA 3/4 system;
- Development of TRL 6/7 prototype of on-board OD&TID system to detect potentially dangerous objects on the train's path in long-range of up to 2000 m and on "collision" paths with the train;
- Development of two TRL 6/7 prototype systems for OD&TID based on trackside (TS)/airborne systems;
- Development of TRL6/7 prototype of holistic OD&TID for the railway consisting of on-board and TS/airborne OD&TID subsystems together with decision support and self-diagnostics subsystems.