



"The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723205"

Deliverable D6.5

Communication and dissemination plan (Mid-Term report)

Due date of deliverable: 31/10/2018

Actual submission date: 30/10/2018

Project details

| Project acronym | SAFER-LC |
|---------------------|---|
| Project full title | SAFER Level Crossing by integrating and optimizing road-rail infrastructure management and design |
| Grant Agreement no. | 723205 |
| Call ID and Topic | H2020-MG-2016-2017, Topic MG-3.4-2016 |
| Project Timeframe | 01/05/2017 — 30/04/2020 |
| Duration | 36 Months |
| Coordinator | UIC – Marie-Hélène Bonneau (bonneau@uic.org) |

© Copyright 2017 SAFER-LC Project (project funded by the European Commission). All rights reserved.

No part of this document may be copied, reproduced, disclosed or distributed by any means whatsoever, including electronic without the express permission of the International Union of Railways (UIC), Coordinator of the EU SAFER-LC Project. The same applies for translation, adaptation or transformation, arrangement or reproduction by any method or procedure whatsoever. The document reflects only the author's views and neither INEA nor the Commission is liable of any use that may be made of the information contained therein. The use of the content provided is at the sole risk of the user.



Document details

| Title | Communication and Dissemination plan (Mid-term report) |
|-------------------------|--|
| Workpackage | WP6 |
| Date of the document | 30/10/2018 |
| Version of the document | 02 |
| Responsible partner | UIC |
| Reviewing partner | all |
| Status of the document | Final |
| Dissemination level | Public |

Document history:

| Revision | Date | Description |
|----------|------------|---|
| 01 | 22/10/2018 | First Draft |
| 02 | 30/10/2018 | Final version with the integration of partners' contributions |
| | | |



Consortium - List of partners

| Partner No | Short name | Name | Country |
|---------------|------------|---|---------|
| 1 | UIC | International Union of Railways | France |
| 2 | VTT | VTT Technical Research Centre of Finland Ltd | Finland |
| 3 | NTNU | Norwegian University of Science and Technology | Norway |
| 4 | IFSTTAR | French institute of science and technology for transport, development and networks | France |
| 5 | FFE | Fundación Ferrocarriles Españoles | Spain |
| 6 | CERTH-HIT | Centre for Research and Technology Hellas - Hellenic Institute of Transport | Greece |
| 7 | TRAINOSE | Trainose Transport – Passenger and Freight Transportation Services SA | Greece |
| 8 | INTADER | Intermodal Transportation and Logistics Research Association | Turkey |
| 9 | CEREMA | Centre for Studies and Expertise on Risks, Environment, Mobility, and Urban and Country planning | France |
| 10 | GLS | Geoloc Systems | France |
| 11 | RWTH | Rheinisch-Westfaelische Technische Hochschule Aachen University | Germany |
| 12 | UNIROMA3 | University of Roma Tre | Italy |
| 13 | COMM | Commsignia Ltd | Hungary |
| 14 | IRU | International Road Transport Union - Projects ASBL | Belgium |
| 15 | SNCF | SNCF | France |
| 16 | DLR | German Aerospace Center | Germany |
| 17 | UTBM | University of Technology of Belfort-Montbéliard | France |



Executive summary

SAFER-LC aims to improve safety and minimize risk by developing a fully-integrated cross-modal set of innovative solutions and tools for the proactive management and design of level-crossing infrastructure.

The project will deliver a bundle of recommended technical specifications (for standardisation), human processes and organizational and legal frameworks for implementation and will develop a toolbox accessible through a user-friendly interface which will integrate all the project results and solutions to help both rail and road managers to improve safety at level crossings

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

The objectives of communication and dissemination activities, which shall contribute to the scientific and technical progress of the project as well as to a broad implementation of the project results, are

- to inform the targeted audience on the existence of the project and its objectives, in order to generate interest for the project results implementation,
- to collect inputs and feedbacks from the stakeholders involved in the safety of level crossing,
 and
- to distribute appropriate information to each type of identified target audience so that each target group can easily use and apply the information it is concerned of.

The purpose of this document is to present the communication and dissemination 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.



Table of content

| 1. | Intr | oduction | 6 |
|----|--|--|------------------------------|
| | 1.1. | Purpose of the document | . 6 |
| | 1.2. | Definitions and acronyms | . 6 |
| 2. | Obj | ectives for communication | 7 |
| | 2.1. 2.1.1 2.1.2 2.1.3 2.1.4 2.1.5 2.1.6 2.1.7 2.1.8 | Rail and road infrastructure managers and operators Cooperative intelligent transportations systems (C-ITS) providers Scientific community Standardisation bodies Policy makers Public: LC users | 7 8 9 9 10 10 |
| | 2.2. | Project Target Group needs | 11 |
| | 2.1. | Message and results to be disseminated | 12 |
| 3. | Dis | semination and communication tools | 13 |
| | 3.1. | SAFER-LC Website | 13 |
| | 3.2. | SAFER-LC Private Area | 14 |
| | 3.3. | SAFER-LC Toolbox | 16 |
| | 3.4. | Press Releases ad articles | 16 |
| | 3.5. | Enews articles | 17 |
| | 3.6. 3.6.1 3.6.2 3.6.3 3.6.4 | ResearchGate | 18 18 18 |
| | 3.7. | Brochures/ leaflets | 19 |
| | 3.8.1 3.8.2 3.8.3 | | 20 22 |
| | 3.9. | Relevant International Conferences and Events | 25 |
| | 3.10. | Publications | 30 |
| 4. | Mor | nitoring and Evaluation | 31 |
| 5. | Org | anisation of the dissemination | 33 |
| 6. | Dis | semination rules | 33 |



1. INTRODUCTION

1.1. Purpose of the document

SAFER-LC aims at having a significant impact on enhancing the safety at level crossings. A wide and effective dissemination of results is a strong component of the project and one of the overall goals to be achieved.

The main objectives of the communication and dissemination activities could be summarised as follows:

- To develop dissemination means to maximise the dissemination potential of the project outputs;
- To identify the main targets and ensure the adequate promotion of the project, its activities and results to the targeted audience, and
- To develop, implement, test and evaluate the SAFER-LC toolbox gathering all the results.

SAFER-LC Communication and dissemination plan will include the following sections:

- Objectives for communication
- Identification of the project target groups that may be interested by the results
- Identification of the most suitable communication/dissemination channels for reaching the targeted audience
- Dissemination and communication tools

1.2. Definitions and acronyms

| Short name | Name |
|--------------|--|
| CEDR | Conference of European Director of Road |
| CEN | European Committee for Standardization |
| ELCF | European Level Crossing Forum |
| ERA | European Railway Agency |
| ETSI | European Telecommunications Standards Institute |
| EU | European Union |
| GLXS | Global Level Crossing Symposium |
| ILCAD | International Level Crossing Awareness Day |
| IM | Infrastructure Manager |
| ISO | International Organization for Standardization |
| IRSC | International Railway Safety Council |
| LC | Level Crossing |
| ONISR | Observatoire National Interministériel de Sécurité routière (France) |
| TCDD | Turkish Railways |
| US DOT - FRA | United States Department of Transportation - Federal Railroad Administration |
| WCTR | World Conference on Transport Research |
| WP | Work Package |



2. OBJECTIVES FOR COMMUNICATION

This section aims at identifying the activities and outputs that are provided in the project as part of the various work packages (WPs) that are relevant to be disseminated.

2.1. Project Target 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 SAFER-LC consortium has identified the main stakeholders and classified them according to seven categories:

- Advisory Board
- Rail and road infrastructure managers and operators
- Manufacturers for level crossing safety systems
- Cooperative intelligent transportations systems (C-ITS) providers
- Scientific community
- Standardization bodies
- Policy makers
- Public

2.1.1. Advisory Board

The SAFER-LC Advisory Board brings together safety and security experts from rail sector, rail industry, research centre and national authority.

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

The advisory board is composed by representatives from the following organisation:

- European Rail and road infrastructure managers:
 - o ADIF (Spain),
 - INFRABEL (Belgium),
 - NETWORK RAIL (UK),
 - o NOR Ban (Norway),
 - Trafikverket (Sweden)
 - CEDR (Conference of European Directors of roads)
 - UTP (Union des transports publics et ferroviaires)
- Authorities/policy makers
 - Spanish Railway Safety Authority (AESF)



- Spanish Ministerial Department for Roads (DGT)
- o RSI Road Safety institution in Greece
- o DIGIFEMA (Directorate General for Railway and Maritime Investigation in Italy)
- ONISR (The French Road Safety Observatory)
- US DOT FRA (The Federal Railroad Administration)
- Standardisation
 - ESF-GmbH (ISO, ETSI, CEN expert for standardisation)
- Universities
 - Technical University of Madrid (UPM)
- Level crossing experts
 - o Global Level Crossing Services

2.1.2. Rail and road infrastructure managers and operators

Rail and road infrastructure managers and rail operators are the primary dissemination target of the activities carried out in the SAFER-LC project. The aim of the project is in fact to provide innovative solutions that could enhance the safety at level crossings. Therefore, it is crucial to dedicate specific dissemination and communication activities to the members of those groups.

In the consortium:

UIC, SNCF for France, TRAINOSE for Greece, Intader for Turkey

In the advisory board:

- ADIF (Spain),
- INFRABEL (Belgium),
- NETWORK RAIL (UK),
- NOR Ban (Norway),
- Trafikverket (Sweden)
- CEDR (Conference of European Directors of roads)
- UTP (Union des transports publics et ferroviaires)

Outside the consortium:

• UIC network: With 200 members all around the world, representing rail infrastructure managers, rail operators and other public transport providers, it is the rail sector technical platform and it will be very useful for disseminating the project and collecting inputs for the development of requirements. The rail system forum, the safety platform and the security platform are the main bodies that will be addressed.



- **IRU network:** IRU can count on its network of 175 members in 75 countries, gathering national associations of buses, coaches, taxis and truck operators. IRU members will be asked to deliver inputs for the project pilots and to cooperate in the dissemination activities.
- CEDR members: The Road Directors' platform for cooperation and promotion of improvements to the road system and its infrastructure will provide support and advice on decisions concerning the safety procedures taken at national or international level.
- Operation Livesafer: is an international, non-profit education and awareness program dedicated to ending tragic collisions, fatalities and injuries at highway-rail grade crossings and on railroad rights of way. To accomplish its mission, Operation Lifesaver promotes 3 Es: Engineering, Enforcement and Education.
- FFE's network: The board of trustees of the Spanish Railways Foundation is composed by main Spanish rail operators and administrator managers at national and regional level. Furthermore, FFE performs the technical secretariat of the Spanish Railways Technological Platform, that counts with 17 Spanish rail operators and infrastructure managers among its members.

2.1.3. Cooperative intelligent transportations systems (C-ITS) providers

In the consortium:

Commsignia, Geoloc system

Outside the consortium:

UNIFE members

2.1.4. Scientific community

In the consortium

- VTT, NTNU, IFSTTAR, FFE, CERTH-HIT, CEREMA, RWTH, UNIROMA3, DLR, UTBM Outside the consortium:
 - EURNEX community: the EUropean rail Research Network of Excellence with 35 European institutions
 - FFE's network: FFE performs the technical Secretariat of the Spanish Railways Technological Platform, that counts with 451 members belonging to the Spanish rail R&D community, 38 of which are research groups of universities and 49 research and technology centres.
 - SIDT (Italian Academic Society of Transportation): is a national and cultural institution with the aim of promoting and developing the research in the field of transportation and establishing contacts and exchange with other national and international societies as WCTR.



2.1.5. Standardisation bodies

ETSI TC ITS (European Telecommunications Standards Institute technical committee on ITS), C2C-CC (Car to Car Communication Consortium a non-profit industry forum driven by the Automobile manufacturers); ISO TC204 WG16 (ISO Technical committee on ITS working group on communication) and CEN are the main standardisation bodies that will be targeted.

2.1.6. Policy makers

- National authorities: They will be addressed by the member of the consortium at national level
- ANSF (National Agency for Railway Safety): The agency defines the legislative framework for railway operational and technical aspects, manages the authorisation process for the utilization of the railway subsystems and issues safety certificates enabling operations for railway companies and authorisations for infrastructure managers.
- European Commission: DGMOVE (Directorate General for Mobility and Transport), ERA (European Railway Agency)
- International level: ITF (International transport Forum), UNECE (United Nations Economic Commission for Europe), SEETO (South-east Europe Transport Observatory)

2.1.7. Public: LC users

Rail Passengers, motorised road users, pedestrians, cyclists, persons with mobility restrictions, AIPSS (Italian Association of road Safety Professional) etc.

2.1.8. Related EU projects

Interfaces with related EU projects shall be identified and developed with the objective of creating synergies and avoid duplication of work. Exchanges have already been initiated with the other projects of MG3.4 and common workshops will be organised.



2.2. Project Target Group needs

Table 1 summarises the needs of each target group and the means of communication available to fulfil the needs

Table 1 – Project Target Group needs

| Target group | Identified needs | Means of communication |
|---|---|--|
| Advisory Board | Share knowledge Review of some deliverables Give feedbacks/inputs | Promotional material SAFER-LC workspace Organisation of Workshops Participation of the experts in SAFER-LC WP's or progress meetings |
| Rail and road infrastructure managers and operators | Be informed on the SAFER- LC progress Give feedbacks/inputs Understand and use the project outcomes in order to implement the most adapted measures Evaluate the SAFER-LC Toolbox | Promotional material SAFER-LC workspace Presentations at UIC and IRU meetings and related events Organisation of events, workshops and training sessions Publication of leaflets with the project recommendations Training and workshop on the SAFER-LC Toolbox Addition SAFER-LC website link to IM's own website, overview and sharing of the project results with some photos in their websites |
| Cooperative intelligent transportations systems (C-ITS) providers | Share and exchange knowledge Give feedbacks/inputs | Promotional material Presentations at project meetings and related events Organisation of events, workshops and training sessions Publication of leaflets with the project recommendations |
| Standardisation bodies | Be informed on the SAFER- LC progress and especially recommendations that could become standards | Promotional material Publication of leaflets with the project recommendations Establish contacts with the relevant groups |
| Policy makers | Use the project's outcomes: adapt the legal framework if needed | Promotional material Presentations at Thematic events, workshops and exhibitions |
| Scientific community | Exchange of knowledge | Promotional material Presentations at Scientific thematic events, Workshops, conferences Publication in Scientific journals Social network |
| General public: LC users | Raise overall awareness on the project and its objectives | Promotional material press releases Social networks Education: for example, open summer schools with presentation of SAFER-LC results to the railway engineering students |



2.1. Message and results to be disseminated

Table 2 below summarizes relevant and significant outputs needed to be disseminated. The messages are extracted from each WP and are matched with the target group they need to be disseminated at.

Table 2 - Key Message to be communicated to Project Target Groups

| Project Target Groups | | | | | | | | | |
|-----------------------|---|--|--|--|-------------------------------|-----------------|---------------------------------|-----------------------------------|--|
| WP | Key Message to Communicate | Experts of the advisory Board | Safety managers from rail and road infrastructure managers and operators | Cooperative intelligent transportati ons systems (C-ITS) providers | Standar disation bodies | Policy maker | Scient ific comm unity | General public: LC users | |
| WP1 | Needs and requirements for improving LC safety | X | Х | x | х | X | X | х | |
| WP2 | Low cost measures identified and evaluated | X | X | x | x | x | x | | |
| WP3 | Report on the solutions developed | X | x | X | × | х | х | | |
| | Early results from simulations available | Х | Х | | | | Х | | |
| | Field implementation ready | Х | Х | Х | х | Х | Х | Х | |
| WP4 | Results available | Х | Х | Х | Х | Х | х | Х | |
| | Proposal of standards | Х | Х | Х | Х | Х | Х | Х | |
| | Business models | X | X | Х | X | Х | Х | X | |
| WP5 | Recommendatio ns | X | X | Х | X | Х | Х | X | |



3. DISSEMINATION AND COMMUNICATION TOOLS

3.1. SAFER-LC Website

UIC created a dedicated website at www.safer-lc.eu at the very beginning of the project. The website gives the visitor a comprehensive overview of the project (Erreur! Source du renvoi introuvable.)

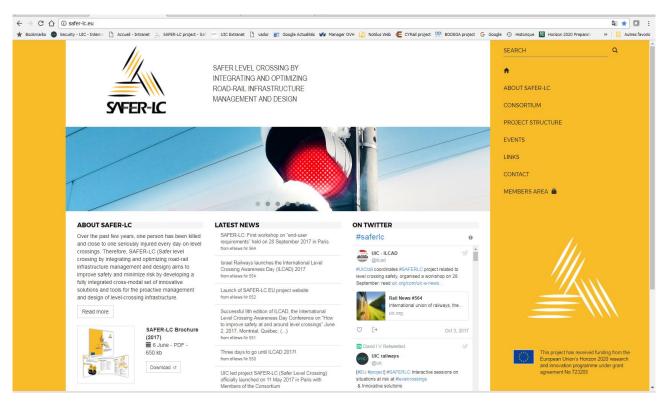


Figure 1- SAFER-LC Website - Home page

The SAFER-LC website will be regularly updated and maintained in order to reflect the project developments. All the news are published on the web page as well as the public outcomes, and the tweets regularly published with the hashtag #SAFERLC and through the twitter account @SAFERLC.

The consortium partners will also refer to the SAFER-LC website within their company website.

The website will remain online after the end of the project and maintain by UIC.



3.2. SAFER-LC Private Area

The main objective of the SAFER-LC private area, so-called "SAFER-LC workspace" or "extranet", is to facilitate communication and exchange of knowledge among the consortium members but also with the members of the advisory board and the end-users.

The "SAFER-LC workspace" is created in the UIC collaborative Tool "OVIDENTIA" which is an open source content management and a collaborative platform based on a large community of users.

This SAFER-LC Workspace enables users:

- to share and stock 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 SAFER-LC workspace is accessible at https://extranet.uic.org/. Screenshots of extranet pages are presented in Erreur! Source du renvoi introuvable. and Erreur! Source du renvoi in trouvable.



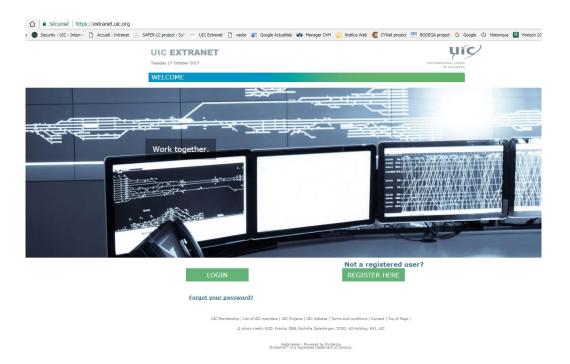


Figure 2 - SAFER-LC private area - welcome page

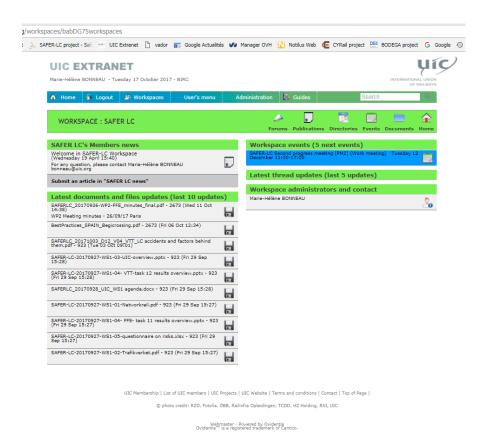


Figure 3 - SAFER-LC private area - Home page of the workspace



3.3. SAFER-LC Toolbox

The most relevant and practical information collected and produced during the project will be gathered in the SAFER-LC toolbox for relevant actors of the LC safety community: road and rail infrastructure managers, train operators, engineers, designers, scientists, decision-makers, policy makers and standardisation bodies rail and road managers.

The SAFER-LC toolbox will be a free online tool with both practical and scientific aims. On the one hand it will be a guide to best practice designed to integrate (in a user-friendly and accessible way) all the recommendations, promising measures, and specifications developed during the project. On the other hand, it will be based on empirical evidence collected from the scientific literature, practical case studies, and from the project lab and field tests results and evaluation;

UIC will develop a web-based interface for this toolbox with the objective to make the information easy to find, to consult and also to update. This toolbox will be continuously updated, even after the end of the project.

The toolbox will be presented to UIC and IRU commissions and working groups; in addition, one workshop (WS3) will be organised to get feedback from the advisory board as well as UIC and IRU members on the toolbox. A training session (WS4) will also be organised during the final conference to present the tool and to train the experts who will utilize it.

The objective is to develop an online toolbox bringing together all information produced during SAFER-LC project

3.4. Press Releases ad articles

The SAFER-LC project will produce press releases whenever activities that may be of interest for the general public are performed (under the condition that such dissemination activities could be beneficial for the project and no confidentiality and/or security-related issues are at stake).

Press releases and articles published since the beginning of the project

Press release and articles for the project kick-off

- UIC press release in English, French and German (around 1,000 addressees)
 http://safer-lc.eu/safer-lc-kick-off-meeting#Press-releases
- VIA LIBRE daily magazine Bulletin received by email by more than 6,000 subscribers. The people receiving the magazine are experts from the railway sector from Spain, Latin America and many other countries. In Spanish at: https://www.vialibre.org/noticias.asp?not=21854&cs=infr
- CEREMA's Website: https://www.cerema.fr/fr/actualites/cerema-contribue-au-projeteuropeen-safer-lc-innovation



Press release and articles for the mid-term conference

- UIC press release in English, French and German (around 1,000 addressees) : https://uic.org/com/IMG/pdf/cp20 safer-lc mid-term conference en.pdf
 VIA LIBRE daily magazine. Bulletin received by email by more than 6,000 subscribers. The people receiving the magazine are experts from the railway sector from Spain, Latin America and many other countries. In Spanish at https://www.vialibre.org/noticias.asp?not=25419&cs=acti
- FFE's Website: https://www.ffe.es/noticias/noticia.asp?id=1000
- Spanish Railways Technological Platform (PTFE) weekly bulletin. Received by email by 868 persons, all involved in railway research and innovation from the Spanish railway actors. The news is also available at PTFE's website: http://www.ptferroviaria.es/boletin/boletin.asp
- CEREMA's website: https://www.cerema.fr/fr/actualites/securite-aux-passages-niveau-etape-franchie-10-octobre

3.5. Enews articles

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

UIC electronic newsletter (*UIC e-News*), focused on projects and activities, is sent weekly to its stakeholders (railway undertakings, international bodies; more than 5,000 addressees).

Seven Articles published since the beginning of the project:

http://uic.org/com/uic-e-news/548/
http://uic.org/com/uic-e-news/552/
http://uic.org/com/uic-e-news/564/
https://uic.org/com/uic-e-news/564/
https://uic.org/com/uic-e-news/586/
https://uic.org/com/uic-e-news/593/
https://uic.org/com/uic-e-news/614/
https://uic.org/com/uic-e-news/618/
https://uic.org/com/uic-e-news/618/

3.6. Social networks

Social networks are very efficient to target a large audience or more specific communities. At this stage, two different networks have been chosen (Twitter and ResearchGate), but when relevant, other networks such as Facebook will be also used.



3.6.1. Twitter

Twitter is one of the channels chosen for disseminating information about the project to a wide audience. The objective is to use the Twitter accounts of the project's partners to "tweet" pieces of news such as news articles, information about SAFER-LC workshops and events, relevant conferences, major findings.

The partners will use at least the specific hashtag created for the project: #SAFERLC so that all the tweets with #SAFERLC will be published in real time on the homepage of the SAFER-LC website.

One of the key advantages of using Twitter is that it enables the dissemination of short pieces of information which will contribute to driving back the traffic towards the project's website. Another benefit is the multimedia support offered by Twitter, which allows partners to post short videos, text and pictures.

Up to now around 30 tweets with the hashtag #SAFERLC have been produced and are available on twitter at https://twitter.com/hashtag/saferlc

A dedicated SAFERLC account (@SAFERLC) have been created in October2018 since it was not anymore possible to publish tweets related to the hashtag #SAFERLC in real time on the homepage of the SAFER-LC website. Since October 2018, the tweets displayed on the SAFERLC website are those from the SAFERLC twitter account at https://twitter.com/@saferlc

3.6.2. ResearchGate

ResearchGate is the channel chosen for disseminating information to the Scientific community as it is a very efficient social networking site for scientists and researchers to share papers, ask and answer questions, and find collaborators. At the date of this deliverable, the ResearchGate page of the project has 21 followers and 130 reads. Further information on SAFER-LC is available at https://www.researchgate.net/project/SAFER-LC-Safer-Level-Crossing-by-integrating-and-optimizing-road-rail-infrastructure-management-and-design

3.6.3. Sparkrail

<u>www.sparkrail.org</u> offers a library where users have the opportunity to contribute their knowledge and find something new. This helps the rail industry and its research community in particular, to understand what we know and who knows it, and creates opportunities for networking and cooperation

3.6.4. Facebook

Once the results will be available, a group page for SAFER-LC can be creating to share some striking content which can be understood by all public, thus increasing the awareness of people both about SAFER-LC results and LCs and the importance of the safety around LCs.



3.7. Brochures/leaflets

The SAFER-LC brochure (A5 size) introduces the key objectives and the partners of the project (Figure 4). The brochure has been released in May 2017 for the kick-off and will be updated during the project. 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 SAFER-LC website at http://safer-lc.eu/IMG/pdf/safer-lc-safer_level-crossing-brochure.pdf as well as a Spanish version of the brochure has been published and is available at http://safer-lc.eu/IMG/pdf/safer-lc-brochure-spanish.pdf



Figure 4 - SAFER-LC Brochure

3.8. SAFER-LC Events

Two types of events will be organised.

Public conferences which will include a large audience, with representatives from all stakeholders will be organised at midterm and at the end of the project. They will be unique opportunities to stimulate interest in SAFER-LC and the results, reach wide and varied audiences, stimulate discussion and feedback.



 Workshops which are an opportunity to share results, stimulate discussion and to gather contributions and technical expertise from the various stakeholders and especially from the advisory Board.

Table 3 presents the list of conferences and workshops during the project life:

Table 3 - Dissemination events of the project

| Title | Relate d WP | Expected date | Expected Location | Expected Type of attendees | Number of attendees | |
|---|----------------|----------------------|-------------------|---|---------------------|--|
| Past Events | | | | | | |
| Workshop 1 on end- user' requirements | WP1 | 28 September 2017 | Paris | Advisory board + UIC and IRU members | 40 | |
| Workshop 2 on Human factor at LC | WP2 | 27 March 2018 | Paris | Advisory board + experts | 38 | |
| Common workshop with other related projects | WP6 | 20 February 2018 | Brussels | Partners of the related projects and EU representatives | 10 | |
| Mid-term conference | all | 10 October 2018 | Madrid | All target groups | 80 | |
| Forthcoming Events | 3 | | | | | |
| Workshop 3 on the toolbox evaluation | WP6 | M32 | Paris | Advisory board + UIC and IRU members | 30 | |
| Final conference and workshop 4 on the toolbox training | all | M36 | Paris | All target groups | 80 | |

3.8.1. Workshop 1 on end-user requirements





The First SAFER-LC workshop on "end-user requirements" was held on Thursday 28 September 2017 at the headquarters of UIC. Around 40 participants from 12 countries were attending the workshop organised around 2 sessions: the morning session dedicated to presentations and then a



brainstorming session in the afternoon. The participants included road and rail representatives (RUs, IMs, road administrations) from Belgium, Finland, France, Germany, Greece, Hungary, Italy, Norway, Spain, Sweden, Turkey and UK.

In his introductory speech, Marc Antoni, UIC Director of Rail System department, welcomed the participants from the Advisory Board and from the consortium. He stressed the fact that in the medias, accidents at level crossings (LC) are presented as rail accidents whereas more than 90% are due to road drivers and pedestrians dangerous/risky behaviours. Level crossing accidents are the second cause of fatalities on rail infrastructure after suicides and trespasses, already addressed by UIC within the European project RESTRAIL; so, it was logical for UIC to address this aspect after the successful RESTRAIL toolbox creation. The SAFER-LC consortium gathers road and rail experts to have a holistic view, enabling to address both human and technical innovative answers. According to the differences between the signalling principles country by country, the workshop aims to list the needs and requirements on road and rail side taking into account the disparities in the different countries in Europe.

Then, Edward Rollings gave the Network Rail perspective regarding safety of LC in UK. LC in UK are very regularly assessed to improve safety by managing and mitigating the risk at crossing. Network Rail is continuously developing and deploying risk reduction measures to enable and encourage safe use. Several measures on technical side and human side were presented as well as the new opportunities that digitalisation of railways can bring such as speed supervision, near continuous train location reporting to radio block centre, internet of Things and Smart access systems.

This was followed by the road perspective with a presentation given by Helena Rådbo from Trafikverket, the Swedish Transport Administration. Helena Rådbo explained the "Toward Zero in Sweden" safety strategy, which is applied at all levels in the country: political, industry and end users. A Database for all LC has been implemented with information from both road and rail side and reporting of all incident/accidents at level crossing. This makes it possible to overview the system and define the strategy for implementing prevention measures at LC.

These keynotes speeches on end-user perspectives were followed by the presentation of the first results of SAFER-LC project regarding the analysis of LC safety in Europe and beyond (by Sarah Whalley from FFE) and the identification of typical factors behind LC accidents (by Anne SILLA from VTT).

During the afternoon, a brainstorming session dedicated to situations at risk or leading to dangerous behaviour at level crossings and innovative solutions was organised.

The aim was to work on a questionnaire in small groups to prioritise the risks at LC, identify new ones, and discuss on possible innovative solutions. Animators from each of the five tables presented short accounts of the findings on the higher risks identified and some possible innovative solutions.

In total 25 questionnaires were filled in during the workshop. The participants were asked to identify LC related high risk situations both from the road and the rail perspective. In addition, the participants



were asked to assess the criticality of each identified risky situation (high/medium/low perceived risk).

This workshop enabled the collection of some valuable contributions from the participants especially for WP1 and the deliverable D1.3 on "Needs and requirements for improving level crossing safety "

All the presentations given are available at http://safer-lc.eu/safer-lc-first-workshop

3.8.2. Workshop 2 on Human factor at LC





The second SAFER-LC workshop was held on 27 March 2018 at UIC HQ. In total, 38 road and rail systems experts from 12 countries (Belgium, Finland, France, Germany, Greece, Hungary, Italy, Norway, Poland, Spain, UK, and USA) participated in the workshop.

The workshop was organized around 2 sessions: the morning session focusing on "Human centered safety measures" led by DLR and the afternoon session on "Cost Benefit analysis" led by IFSTTAR.

Jerzy Wisniewski, UIC Director of Fundamental values, opened the day and welcome the participants. Then Marie-Hélène Bonneau, coordinator of the project, gave an overview of SAFER-LC project followed by Sarah Walley from FFE who presented the first results of WP2 on "human factors at LC and design for self-explaining and forgiving infrastructure". More than two hours were then dedicated to a brainstorming session organized by Annika Dressler and Jan Grippenkoven from DLR on innovative human centered measures: 6 groups were arranged to think on 3 types of level crossing (full barrier, half barrier and/or flashing light, and passive) with different scenario: motorized users (car drivers, moto cyclist, Truck drivers) and vulnerable users such as pedestrian, cyclist, disabled persons. Each of the groups composed of 6-7 experts generated and documented around 20 ideas to enhance safety. The collected ideas were afterwards evaluated by another group on 3 criteria: how effective, how low cost and how innovative.

The afternoon session started with Reginald R. Souleyrette from the University of Kentucky in US. He explained ongoing work related to level crossing safety within the National University Rail (NURail) Center which is a consortium of seven partner colleges and universities. He presented a study on In-Vehicle Alerts (how best to warn drivers), another one on Integration of Driver Simulator



and Naturalistic Driving Study Data as well as projects on risk analysis and evaluation of solution related to infrastructure.

This presentation was followed by a brainstorming session on cost-benefit analysis (CBA) animated by Mohamed Ghazel and El-Miloudi El Koursi from IFSTTAR. The work package 5 dedicated to CBA and final recommendations was presented by El-Miloudi El Koursi as well as lessons learnt from past projects (RESTRAIL, SELCAT) on CBA.

Then, ten questions were presented, discussed and answered by the participants on various components of the CBA such as values of life, accident cost (property damage), values of delays, LC data, factors to determine risky LC, cost of measures, effects of accidents which usually are not monetarized Accident, Social analysis and ethical issues

The day was very fruitful with a lot of ideas produced and evaluated on how to make level crossings safer. The results were analysed and included in the deliverables on human factor centred low cost measures (D5.3) and on CBA (D5.1).

All the presentations given during the day are available at http://safer-lc.eu/safer-lc-second-workshop.

3.8.3. Mid-term conference



SAFER-LC held its mid-term conference on 10 October 2018 in Madrid, at the Spanish Railway Foundation HQ in the presence of around 80 participants from 18 countries in Europe. The audience was composed of experts from Rail and road infrastructure managers and operators, safety authorities, policy makers and researchers and other stakeholders involved in enhancing safety of level crossings.

This one-day conference was opened by Mr Cesar Lopez, General Manager of the Spanish Railway Foundation (FFE), who underlined the importance of integrating both road and rail visions for improving safety and security at level crossing. Jacques Colliard, Head of UIC



Security Division, put emphasis on the interest of European funded projects to bring together experts from road and rail sector with complementary skills.

The first two sessions were dedicated to the SAFER-LC project achievements, the ongoing work and the next steps within specific work packages.

Regarding Human Factors at level crossings, two main achievements were presented:

- The Human assessment tool: this tool has been developed and will be applied to assess the solutions evaluated within the project from a human perspective on short- and longterm scale, for example from the point of view of behavioural improvement, acceptance, reliably, usability.
- A set of measures to enhance LC Safety has been collected and will be tested and evaluated, for example: LCs as self-explaining as possible, improving visibility, using signs and symbols that road users are familiar with, conveying relevant message via onboard systems.

The second session was dedicated to technical solutions for smarter Level Crossings. Ongoing development focuses on:

- Technologies to detect dangerous situations such as advanced off-line video surveillance system based on Machine learning for modelling and analyzing LC users' behaviour in order to assess the risk at LC, optimized real time Automatic Incident Detection (AID) dedicated to LC (Detection of dangerous situation such ad vehicle stopped at LC, vehicle zig-zagging on the LC, Pedestrians crossing while barriers are closed, etc.) and newly developed and readily available smart wireless sensing technologies as well as photogrammetric device, for monitoring and remote maintenance of LC.
- Communication system to increase awareness of the users (road users and rail infrastructure managers and operators) on this detected situation. V2X, ITS-G5, LTE, communication systems will be integrated and tested to share the information related to the dangerous situation detected.

These developments will be integrated, tested and evaluated from both technical and human factor perspective in the next phase of the project. Three types of testing environments have been selected: simulation; controlled environment, real-world field tests. Nine pilot tests are now being implemented and the tests will be executed until April 2019.

The next sessions were dedicated to learning from related projects at national and international level:

- ADIF, Spanish rail Infrastructure Manager, described the LC protections system in Spain as well as an ongoing research project on new real time surveillance system based on artificial vision.
- INSPIDE in Spain, presented their onboard vehicle solution COMOBITY to better protect vulnerable users (Cyclist and pedestrians)
- CDV, Research center for transport in Czech Republic, explained the risk factors at level crossings with flashing lights in the Czech Republic



- FPZ, the university of Zagreb which work closely with Croatian Infrastructure manager (HZ) gave an overview on the level crossing safety campaign in Croatia
- PRORAIL, Rail Infrastructure Manager in The Netherlands, described innovative measures recently deployed
- SAFE STRIP H2020 project on "Safe and green Sensor Technologies for selfexplaining and forgiving Road Interactive aPplications" was presented by ERTICO. A Safer Rail Crossings Use Case will be developed and tested together with SAFER-LC.
- DIGIM UIC Global project on Digital Impacts on Business processes was also presented and especially the POC developed by ViaRAIL on how to estimate the closing time of LCs and advice the cars drivers about the best behavior (waiting or alternative route).

Finally, the next steps of the SAFER-LC project were pointed out as it follows:

- Execution of the Pilot Tests
- Evaluation of the measures from technical and human factor point of view
- Development of business models
- Design and development of the toolbox to gather solutions and recommendations to prevent accidents at LC.

The presentations are publicly available on the website at http://safer-lc.eu/safer-lc-mid-term-conference-17.

3.9. Relevant International Conferences and Events

Table 4 lists the past international conferences and events where the SAFER-LC project partners have participated or could have participated whereas Table 5 introduces upcoming international conferences where abstracts can be submitted, and presentations can be given when possible. The list of future international conferences is not exhaustive.

Table 4 – Past International Conferences and Events

| Title | Date | Countries addressed | Type of Audience | Frequen cy | Dissemination actions | Partner involve d | Location |
|--|----------------|----------------------|------------------------------|--------------|---|-------------------|-------------------------|
| PTFE – Safety of the rail system | 9 May 2017 | Spain | Rail safety expert | One- time | Presentation of SAFER-LC | FFE | Madrid |
| 9th International Level Crossing Awareness Day (ILCAD). | 2 June 2017 | Worldwide | Rail and road safety experts | Annual | Presentation of SAFER-LC Distribution of brochures Networking | UIC | Montrea I, Canada |
| IRU Road Safety Commission | 4 Oct. 2017 | Europe (enlarged) | Road Safety experts | Bi annual | Presentation of SAFER-LC Distribution of brochures Networking | IRU | Geneva |



| 27th IRSC - International Railway Safety Conference | 22–27 Oct. 2017 | Worldwide | rail safety sector | Annual | Information on SAFER-LC Distribution of brochures Networking | UIC | Hong Kong |
|---|--------------------------|------------------------|--|--------------|--|------|--|
| UIC Safety platform | 15 Nov. 2017 | Europe | rail safety sector | Bi annual | Presentation of SAFER-LC and discussion on end- user's requirements | UIC | Paris |
| ECLF meeting | 15 Nov. 2017 | Worldwide | Level Crossing experts | | Presentation of SAFER-LC results Distribution of brochures | UIC | Paris |
| IRSA – International Railway Symposium | 28–30 Nov. 2017 | Worldwide | Rail Researcher and professional | Biennial | Information on SAFER-LC Distribution of brochures Networking | RWTH | Aachen |
| UNECE Working party on road traffic safety | 2017, 2018 | European (enlarged) | LC experts | annual | Presentation of SAFER-LC results Distribution of brochures Networking | UIC | Geneva |
| 2018 TRB (Transportation Research Board) Annual Meeting | 7-11 Januar y 2018 | Worldwide | Transport experts | annual | Presentation of SAFER-LC results Distribution of brochures Networking | | Washin gton, D.C |
| CES | 9-12 Jan. 2018 | Worldwide | Automotive | Annual | Information on SAFER-LC Distribution of brochures Networking | СОММ | Las Vegas, NV, USA |
| Tokyo Auto Salon | 13-15 Jan. 2018 | Worldwide | Automotive | Annual | Information on SAFER-LC Distribution of brochures Networking | СОММ | Tokyo, JP |
| TRA 2018 - Transport research area | 16-19 April 2018 | Europe | Researcher authority | Biennial | Presentation of SAFER-LC results Presentation of the project in the EU Stand Distribution of brochures | UIC | Vienna |
| 3rd German Workshop on Rail Human Factors | 17-18 Avril 2018 | Worldwide | Rail Human factors experts, Rail Industry | Biennial | Presentation of SAFER-LC results Distribution of brochures Networking | DLR | Stadthall e Braunsch weig, Germany |



| 7th annual scientific seminar of Norwegian University of Science & Technology | 7-8 May 2018 | North Europe | Rail safety experts | Annual | Presentation of SAFER-LC results Distribution of brochures Networking | VTT | Trondhe im |
|---|------------------------|-----------------|------------------------------------|-------------|---|---|-------------------------------|
| 10th International Level Crossing Awareness Day (ILCAD). | 7 June 2018 | Worldwide | Rail and road safety experts | Annual | Presentation of SAFER-LC Distribution of brochures Networking | UIC | Zagreb |
| TU Automotive Trade Show | 08-10 June, 2018 | Worldwide | Automotive | Annual | Information on SAFER-LC Distribution of brochures Networking | СОММ | Detroit, MI, USA |
| 2nd Car 2 Car CC meeting | 21-22 June 2018 | Europe | Automotive | Multiple | SAFER-LC Distribution of brochures Networking | СОММ | Wolfsbur g, Germany |
| ETSI Workshop on Future Rail Communication s | 4-5 July 2018 | Europe | Automotive | One time | Participation in standardisation, networking | СОММ | Sophia Antipoli, France |
| 5GAA plenary meeting | 11 July 2018 | Worldwide | Automotive | Multiple | Participation in standardisation, networking | СОММ | Paris, France |
| ECCV 2018 (European Conference on Computer vision) | 01 Sept. 2018 | Worldwide | Research | annual | Presentation of SAFER-LC research results | Cerem a, UTBM, IFSTT AR at least | Germany |
| 4th International Conference on Railway Technology: Railways 2018 | 03-07 Sept. 2018 | Worldwide | Research | annual | Presentation of SAFER-LC research results | CERT H | Barcelona, Spain |
| INNOTRANS 2018 | 17-20 Sept. 2018 | Worldwide | Rail Industry | Annual | Distribution of brochures Networking | COMS IGNIA | Germany |
| ITS World Congress | 17-21 Sept. 2018 | Worldwide | Transport | Annual | SAFER-LC Distribution of brochures Networking | СОММ | Copen- hagen, Denmark |



| 13th CRITIS (International Conference on Critical Information Infrastructures Security) | 23-26 Sept. 2018 | Worldwide | Research | Annual | Distribution of brochures Networking | UIC | Lithuania |
|---|------------------------------|-----------|-----------------------|----------|--|------------|--------------------------|
| 2nd Car 2 Car CC meeting | 27 Sept. 2018 | Europe | Automotive | Multiple | SAFER-LC Distribution of brochures Networking | СОММ | Magdebu rg Germany |
| 2018 25th IEEE International Conference on Image Processing (ICIP) | 9-10 Octob er 2018 | Worldwide | research | Annual | Presentation of SAFER-LC research results, Poster | CERE MA | Greece |
| 28th IRSC - International Railway Safety Conference | 22–25 Octob er 2018 | Worldwide | rail safety sector | Annual | Information on SAFER-LC Distribution of brochures Networking | UIC | Dublin |

Table 5 – Planned International Conferences

| Title | Plann ed date | Countries addressed | Type of Audience | Freque ncy | Dissemination actions | Partners involved | Location |
|--|----------------------------|---------------------|------------------------------------|------------|---|-------------------|------------------------|
| RTR18 Conference - European Conference on Results from Road Transport research in H2020 projects | 28 & 29 Nov. 2018 | Europe | Road Transport sector | Annual | Presentation of SAFER-LC research results Distribution of brochures Networking | UIC | Brussels |
| 10th International Level Crossing Awareness Day (ILCAD). | 6 June 2019 | Worldwide | Rail and road safety experts | Annual | Presentation of SAFER-LC Distribution of brochures Networking | UIC | the Netherla nds |



| IRSA – | | | | | Presentation of SAFER-LC | | |
|---|-------------------------|-----------|--|----------|--|---|----------|
| International Railway Symposium Aachen | Nov. 2019 | Worldwide | Rail Researchers and professionals | Biennial | research results Distribution of brochures Networking | RWTH, | Aachen |
| IEEE International Conference on Intelligent Transportation Systems 2019 | unkno wn | Worldwide | Research | Annual | Presentation of SAFER-LC research results | CEREMA, UTBM, IFSTTAR at least | Unknown |
| INNOTRANS | 2020 | Worldwide | Rail Industry | Annual | Presentation of SAFER-LC results Distribution of brochures Networking | tbd | Germany |
| 14th CRITIS - International Conference on Critical Information Infrastructures Security | Sept. 2019 | Worldwide | Research, CI operators and stakeholders | Annual | Presentation of SAFER-LC results Distribution of brochures Networking | UIC | Sweden |
| ICIP 2019 | Oct. 2019 | Worldwide | research | Annual | Presentation of SAFER-LC research results | Cerema, UTBM, IFSTTAR at least | Taiwan |
| Rail Human Factors Conference | 2019 | Worldwide | Rail Human factors experts, Rail Industry | Biennial | Presentation of SAFER-LC results Distribution of brochures Networking | DLR, UIC | London |
| Applied Human Factors | 2020 | Worldwide | Transportatio n and Human factors experts | Annual | Presentation of SAFER-LC results | DLR | tbd |
| TRA 2020 - Transport Research Arena | 27-30 April, 2020 | Europe | Researchers authorities | Biennial | Presentation of SAFER-LC results | UIC | Helsinki |
| GLXS - Global Level Crossing and Trespass Symposium | 2019 / 2020? | Worldwide | Rail and road safety experts | Biennial | Presentation of SAFER-LC results Distribution of brochures Networking | tbd | tbd |



3.10. Publications

The most valuable information to be disseminated through scientific papers will be identified and respective papers through relevant conferences and journals will be written and published.

Relevant papers will target railway and traffic journals (e.g. International Railway Review, ETRR – European transport review research, El- Der Eisenbahningenieur, S+D Signal und Draht, ZEV Rail etc.) as well as general traffic and safety research journals (e.g. Accident Analysis and Prevention, Transportation Research Part F, Journal for Transportation Safety and Security etc.) and journals related to intelligent transport (e.g. IEEE Transactions on Intelligent Transportation systems, IEEE Transactions on Vehicular technology etc.).

Scientific peer-reviewed open access articles since the beginning of the project:

Havârneanu, G.M., Dreßler, A., Grippenkoven, J., Silla, A, Prieto, E., & Bonneau, M.-H. (2018). SAFER-LC project: Safer Level Crossings by integrating and optimizing road-rail infrastructure management and design. Proceedings of 7th Transport Research Arena TRA 2018, April 16-19, 2018, Vienna, Austria. In press on Zenodo (https://zenodo.org/)

Other publications since the beginning of the project:

- In January 2018: "Eisenbahningenieur" (Railway Engineer): 3-5 pages introduction of the project
- In November 2018: Intelligent Transport magazine -safety & security supplement:
 Common article with SAFER STRIP and SAFE TEN-T



4. MONITORING AND EVALUATION

In order to measure the impact and thus conduct the most accurate assessment of the dissemination activities, a set of key performance indicators have been defined. Table 5 addresses the key performance indicators, their relevance to the tools/ channels used and the estimated target value.

Table 6 – Estimation of Dissemination Key Performance Indicators

| Tools/Channels | Key Performance Indicators | Target value | Value for the 1 st period | |
|-----------------------------|---|--|--------------------------------------|--|
| Project Website | Total visits to Project's website | 5,000 per year | 2,000 | |
| UIC weekly e- Newsletter | Number of Subscribers | 5,500 per e- Newsletter | 5,000 | |
| Press Release | Number of media contacts at UIC (all UIC press releases are issued in 3 languages: English, French, German) | 3,500 media contacts per release | | |
| Congress/conferences | Number of presentations | 10 per year | 15 | |
| Workshop and conferences | Number of event organised | 2 per year | 3 | |
| SAFER-LC Toolbox | Number of users that will test and evaluate the toolbox | 100 | - | |
| Mailing | Number of targeted emails | 200 per year | 750 | |
| Brochures / leaflets | Brochures / leaflets Number of brochures printed and distributed | | 1,000 | |
| Publications | ations Number of publications | | 2 | |

SAFER-LC website statistics for the 1st period (from 1st of May 2017 to end of October 2018)

Number of visitors: around 2,000

Percentage of new visitors: 80%

Number of page views: around 6,000

Average session duration: 02.26 minutes

Source of traffic: Figure 5



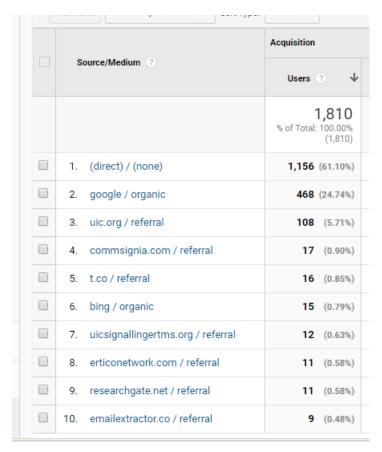


Figure 5 - Source of Traffic

Top page views: Figure 6

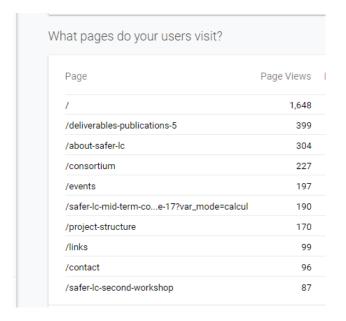


Figure 6 - Top page views



5. ORGANISATION OF THE DISSEMINATION

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

The dissemination manager is responsible for:

- Producing dissemination material
- Organising the final conference
- Keeping track and reporting back to the project officer 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 as well as presentation of the project in relevant national events.
- Submitting technical papers and presenting the project results at relevant external conferences according with the project quality plan
- Suggesting stakeholders to be invited to the related conferences helping to promote the project

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

6. DISSEMINATION RULES

The disclaimer below should be added to every technical document:

© Copyright 2017 SAFER-LC Project (project funded by the European Commission). All rights reserved.

No part of this document may be copied, reproduced, disclosed or distributed by any means whatsoever, including electronic without the express permission of the International Union of Railways (UIC), Coordinator of the EU SAFER-LC Project. The same applies for translation, adaptation or transformation, arrangement or reproduction by any method or procedure whatsoever.

The document reflects only the author's views and neither INEA nor the Commission is liable of any use that may be made of the information contained therein. The use of the content provided is at the sole risk of the user.



For all publications mentioning the SAFER-LC 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 723205"

The logo below should also be included



Chapter 8.4 of the consortium agreement shall be respected:

Chapter 8.4 on dissemination extracted from the consortium agreement is displayed below:

8.4.1. For the avoidance of doubt, nothing in this Section 8.4 has impact on the confidentiality obligations set out in Section 10.

8.4.2. Dissemination of own Results

During the Project and for a period of 1 year after the end of the Project, the dissemination of own Results by one or several Parties including but not restricted to publications and presentations shall be governed by the procedure of Article 29.1 of the Grant Agreement subject to the following provisions.

Prior notice of any planned publication shall be given to the other Parties at least 30 calendar days before the publication. Any objection to the planned publication shall be made in accordance with the Grant Agreement in writing to the Coordinator and to the Party or Parties proposing the dissemination within 14 calendar days after receipt of the notice. If no objection is made within the time limit stated above, the publication is permitted."
