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|  | Title  | Deliverable Number<br><b>D9.3</b> |
| Project Number<br><b>777595</b>   | Dissemination and public engagement activity and<br>impact assessment report | Version<br><b>2.0</b>             |

H2020-S2RJU-2017

**Mat4Rail**

**Designing the railway of the future: Fire resistant composite materials and smart modular design**

## **Deliverable 9.3**

### **Dissemination and public engagement activity and impact assessment report**

WP 9 – Dissemination and Exploitation


**Authors:** Julia Götz, Johannes Ripperger (ACCEL)

**Lead participant:** ACCEL

**Delivery date:** 31.03.2018


**Dissemination level:** Public

**Type:** Report

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## REVISION HISTORY

| Author name (Partner short name)       | Description  | Date       |
|--|--|------------|
| Julia Götz (ACCEL)                     | Draft version (v0.1)   | 30.01.2019 |
| Julia Götz (ACCEL)                     | Input from Partners included (v0.2)  | 08.03.2019 |
| Johannes Ripperger (ACCEL)             | Revision of v0.2 (v0.3)  | 08.03.2019 |
| Julia Götz (ACCEL)                     | Revision of v0.3 (v0.4)  | 11.03.2019 |
| Elena Jubete (CIDETEC)                 | Final version (v1.0)   | 31.03.2019 |
| Julia Götz, Johannes Ripperger (ACCEL) | Additional section 2.9 added on IPR in response to request from S2R (v2.0) | 03.02.2020 |
| Elena Jubete (CIDETEC)                 | Final version (v2.0)   | 07.02.2020 |


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## PARTNER SHORT NAMES

|                  |   |
|------------------|---|
| <b>ACCEL</b>     | accelopment AG  |
| <b>AIMPLAS</b>   | Asociación de Investigación de Materiales Plásticos y Conexas |
| <b>ASAS</b>      | ASAŞ Alüminyum Sanayi ve Ticaret A.Ş.                         |
| <b>CENTEXBEL</b> | Centre Scientifique & Technique de l'Industrie Textile Belge  |
| <b>CIDETEC</b>   | IK4-CIDETEC   |
| <b>COEXPAIR</b>  | Coexpair SA   |
| <b>HUNTSMAN</b>  | Huntsman Advanced Materials (Switzerland) GmbH                |
| <b>ESCATEC</b>   | ESCATEC Switzerland AG  |
| <b>GRAMMER</b>   | GRAMMER Railway Interior GmbH                                 |
| <b>IMA</b>       | IMA Materialforschung und Anwendungstechnik GmbH              |
| <b>INDAT</b>     | INDAT GmbH  |
| <b>ITAINNOVA</b> | Instituto Tecnológico de Aragón                               |
| <b>NVGTR</b>     | NVGTR Gbr   |
| <b>RISE</b>      | RISE Research Institutes of Sweden AB                         |
| <b>SPIRIT</b>    | Spirit Design – Innovation and Brand GmbH                     |
| <b>UNI-HB</b>    | Universität Bremen  |


## ABBREVIATIONS

|                          |   |
|--------------------------|---|
| <b>Assessment Report</b> | Dissemination and public engagement activity and impact assessment report |
| <b>CA</b>                | Consortium Agreement  |
| <b>CDEP</b>              | Communication, Dissemination and Exploitation Plan                        |
| <b>CEN</b>               | European Committee for Standardization                                    |
| <b>D</b>                 | Deliverable   |
| <b>DoA</b>               | Description of Action   |
| <b>EB</b>                | Executive Board   |
| <b>GA</b>                | Grant Agreement   |
| <b>IPR</b>               | Intellectual Property Rights  |
| <b>WP</b>                | Work Package  |

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## EXECUTIVE SUMMARY

### OBJECTIVES OF THE DELIVERABLE

This deliverable is an update of the dissemination and communication activities which had originally been planned as part of the Communication, Dissemination and Exploitation plan (CDEP) submitted as the deliverable D9.1 in project month 4. The focus is on how the individual activities had been implemented, the evaluation of the activities and the impact for Mat4Rail. The deliverable also defines any deviations from the original CDEP.

With the help of this deliverable we want to:

- Describe how planned dissemination and communication activities were implemented.
- Evaluate the impact of the individual activities.
- Define any new strategies and activities relevant for Mat4Rail based on the evaluation of performed activities or new project outcomes.

The overarching aim of the *Dissemination and public engagement activity and impact assessment report* (further referred to as the Assessment Report) is to evaluate Mat4Rail outreach activities and adapt these where needed to increase the impact of Mat4Rail outreach measures and in turn increase the interest and distribution of the project and the resulting outcomes.


### OUTCOMES

All outreach activities as defined in the D9.1 Communication, Dissemination and Exploitation plan (CDEP) have been developed and implemented as planned with minor adjustments. The activities have been continuously monitored and the Mat4Rail consortium members are informed regularly during the General Assembly meetings. Overall, there is no apparent need to significantly change existing communication measures or plans for future dissemination activities.

### IMPACT AND EVALUATION

The greatest potential to increase impact lies in disseminating and communicating more through the extended Mat4Rail network and including the well established networks of the Mat4Rail partners, the Shift2Rail network and the PIVOT project.

The results of this deliverable have been presented to and discussed with the Mat4Rail consortium during the 4<sup>th</sup> General Assembly meeting in Basel, Switzerland, 27<sup>th</sup> – 28<sup>th</sup> 2019. Feedback from the partners has been implemented and the final deliverable will be distributed to all partners. The suggested measures (Section 3) will be implemented for the upcoming dissemination activities and continuously monitored and re-evaluated.

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## 1 INTRODUCTION

The aim of this deliverable is:

- to report on the communication and dissemination activities implemented during the first 16 months of the Mat4Rail project
- to present, measure and interpret indicators for dissemination impacts, and
- to draw conclusions, based on these indicators, for improvements of dissemination measures.

The overall aim of evaluating the communication, dissemination and exploitation activities is to keep improving the effectiveness of the CDEP and, hence, Mat4Rail's impact. During the phase of evaluation, the degree of goal achievement is measured through a variety of indicators. This numeric verification of the activities impact is useful in order to decide on how to proceed with the implementation of the Mat4Rail Communication, Dissemination and Exploitation activities as defined in the Deliverable D9.1, CDEP. This intermediate report is intended to guide the planning and implementation of the dissemination activities in the remaining part of the project, thus ensuring effective project dissemination with high impact on target audiences. If the feedback shows that some activities are not yielding the expected results, they need to be adapted. After the next period, the impact of the improved activity will be measured again and the process of evaluation starts all over. In order to achieve a high level of efficiency, this cycle of implementation, feedback, evaluation and adaption is the key to take advantage of learning effects within the project and maybe even between past, current and future projects.

## 2 ACTIVITIES AND IMPACT ASSESSMENT

### 2.1 COMMUNICATION AND EXCHANGE WITHIN THE MAT4RAIL NETWORK

#### 2.1.1 Description of activities

##### **Communication and Exchange within the Mat4Rail network**


The Mat4Rail project consists of 16 partners each involving multiple team members. The large consortium and the number of activities need to be closely coordinated in order to support the exchange within the network of outcomes and solutions to maximise the commercial and non-commercial outcomes at the end of the project. For this a number of tools including the password protected [accelCLOUD](#) have been set up to facilitate the communication of all the involved members in the Mat4Rail network. Further, the Mat4Rail consortium meets in person every 6 months to share their results. The physical meetings offer a platform for active discussion which in turns makes processes more efficient and will increase the impact of the project.

##### **Communication and Exchange within the Shift2Rail Joint Undertaking**

Mat4Rail is a Shift2Rail project, funded under the call S2R-OC-IP1-01-2017, targeting the Shift2Rail IP1 (Innovation Program 1). It is an OPEN CALL (OC) project which runs parallel to the complementary project PIVOT from the Call for Members (CFM) S2R-CFM-IP1-2017. Both PIVOT and Mat4Rail run in parallel to address the challenges from the technological demonstrators TD 1.3; Carbody shell demonstrators, TD 1.6; Doors and Access systems demonstrators and TD 1.7; Train modularity in use.

The Shift2Rail Joint Undertaking (JU) supports all projects within Shift2Rail with a number of meetings and events each year to facilitate the two-way exchange of information and outcomes.

Further, the collaboration and exchange of information between Mat4Rail and PIVOT is essential in order to facilitate knowledge exchange and efficient use of resources. To support knowledge distribution and facilitate discussions between both projects collaborative meetings and events have been held from the start of the project between Mat4Rail and PIVOT.

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### 2.1.2 Impact Assessment

The communication and exchange within the Mat4Rail project and within Shift2Rail are measured by the number of networking events which have been conducted as part of the project. Since the project start in October 2017 Mat4Rail has organised or contributed to 4 General Assemblies, 10 Executive Board (EB) meetings, 2 Shift2Rail Info Days and 4 Shift2Rail Steering Committee meetings as well as 9 collaborative meetings together with PIVOT. The full list can be found below.

#### Communication and Exchange within the Mat4Rail network:


- **M1:** [Kick-off Meeting](#) hosted by CIDETEC in San Sebastián, Spain, 4<sup>th</sup> -5<sup>th</sup> October 2017
- **M7:** [2<sup>nd</sup> General Assembly](#) hosted by UNI-HB in Bremen, Germany, 24<sup>th</sup> – 25<sup>th</sup> April 2018
- **M12:** [3<sup>rd</sup> General Assembly](#) hosted by RISE in Borås, Sweden, 26<sup>th</sup> – 27<sup>th</sup> September 2018
- **M17:** [4<sup>th</sup> General Assembly](#) hosted by HUNTSMAN in Basel, Switzerland, 27<sup>th</sup> – 28<sup>th</sup> 2019
- **M11-M24:** Monthly Executive Board TelCo hosted by CIDETEC

#### Shift2Rail meeting and events:

- **M0:** Shift2Rail JU Project Coordinators Info Day, 14<sup>th</sup> November 2017
- **M3:** Shift2Rail JU Info Day, 12<sup>th</sup> December 2017
- **M4:** Shift2Rail JU IP1 - Steering Committee, 16<sup>th</sup> January 2018
- **M9:** Shift2Rail JU IP1 - Steering Committee, 27<sup>th</sup> June 2018
- **M13:** Shift2Rail JU IP1 - Steering Committee, 9<sup>th</sup> October 2018
- **M16:** Shift2Rail JU IP1 - Steering Committee, 15<sup>th</sup> January 2019

#### Collaborative meetings and events between Mat4Rail and PIVOT:

- **M0:** Kick-off TelCo held for Design partners of both projects, 20<sup>th</sup> November 2017
- **M3:** Initial Design Meeting between the interior design members held at Deutsche Bahn in Munich, Germany, 14<sup>th</sup> December 2017
- **M6:** 2<sup>nd</sup> [Design Meeting](#) held in Paris, France, 21<sup>st</sup> March 2018
- **M9:** Collaborative [Carbody workshop](#) held at CIDETEC in San Sebastián, Spain, 19<sup>th</sup> - 20<sup>th</sup> June 2018
- **M12:** Design meeting held at the Shift2Rail booth at [Innotrans 2018](#) in Berlin, Germany, 20<sup>th</sup> September 2018
- **M13:** [PIVOT Midterm event](#), held at Maison des Associations Internationales in Brussels, Belgium, 18<sup>th</sup> October 2018
- **M16:** WP8 *Innovative driver's desk* meeting with PIVOT members in Vienna, Austria, January 2019
- **M17:** Stakeholder Board meeting in Madrid, Spain together with PIVOT and Mat4Rail partners, 1<sup>st</sup> February 2019
- **M17:** WP6 *Innovative plug & play systems* Meeting between Mat4Rail and PIVOT to exchange final results in Paris, 19<sup>th</sup> February 2019

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## 2.2 ONLINE MEDIA

### 2.2.1 Description of activities

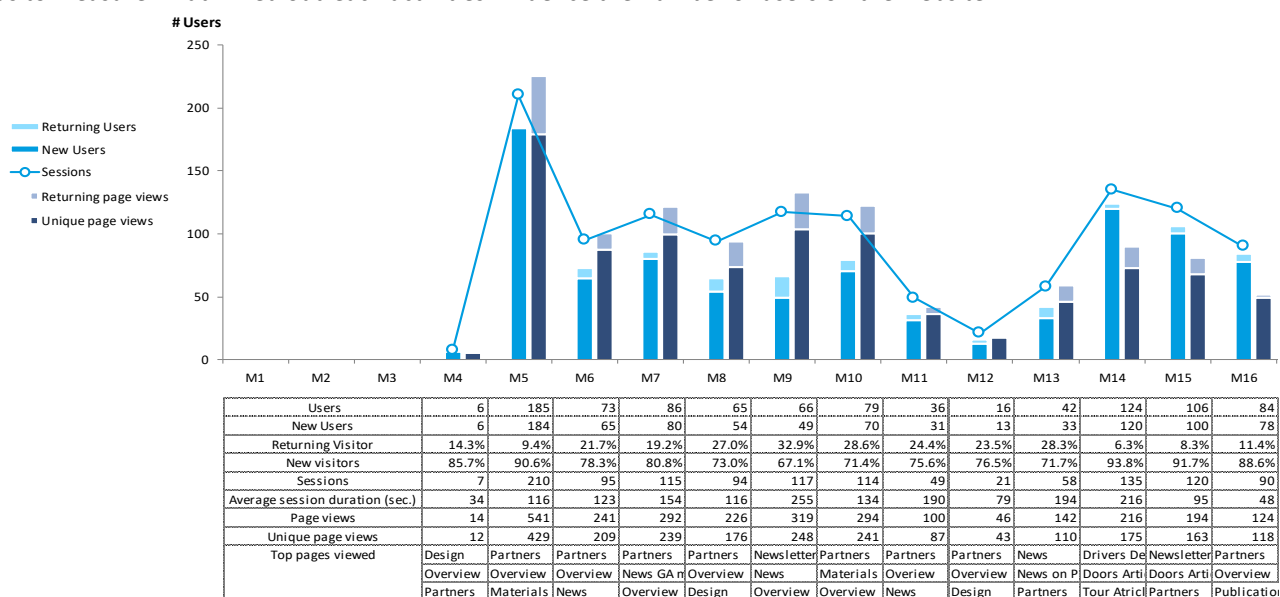
The main online platforms and linked Mat4Rail activities are listed below:

**The project website** is available on [www.mat4rail.eu](http://www.mat4rail.eu) and serves as the main source of information for stakeholders (outside the consortium) on objectives, progress and results of the project and has been live from the project start and described in detail in the Deliverable D9.2 Mat4Rail website. ACCEL routinely reviews the website in order to update it with, for example, new results, events or communication material. In the first year of the project, the website mainly informed visitors on the goals, principles and planned activities of the project and its potential impact. The [News](#) section on the Mat4Rail website is continuously updated with short news articles on the progress of the project, events and Shift2Rail related activities. The news entries provide a brief overview of relevant project activities, advancements, updates and results that are of interest to the stakeholder groups. During the second year we expect the project results to be prioritised and more sub-pages to be added.

**Social media channels** have been set up for Mat4Rail to promote results, events and topics related to rail industry and Shift2Rail. Mat4Rail currently has a [Twitter](#) account and a [YouTube](#) channel which are monitored by ACCEL.

### 2.2.2 Impact Assessment

ACCEL continuously monitors the statistics and user numbers of the Mat4Rail website via Google Analytics. This allows us to measure what linked outreach activities influence the number of users on the website.




The number of visitors to the **project website** varies each month but is closely linked to other activities related to the project. In month 5 we distributed the initial press release (see section 2.4 content material) which led to an increase of users on the website. The two newsletters which were distributed late in M9 and in M14 (see section 2.4 content material) also can be depicted in more users visiting the website.

When focussing on the most visited pages we can see that the Overview, Partners and Design pages register the most page views. In the months where the newsletters were distributed the Newsletter and the subsequent articles are listed as the most viewed pages. The duration of time spent on the website also increases which suggests that the visitors spend time reading the articles.

Overall, we can say that visitors to the Mat4Rail website are interested in which partners are involved in the project as this page is always in the top 3 most visited pages. The newsletter also has a high impact on the number of visitors to the website and during the month the newsletter is distributed the newsletter and the included articles are always the in the top visited pages.

The **news articles** are measured by the number of articles we have produced in relation to Mat4Rail, in total we have created 17 articles between month 4 and 16 which averages on 1.5 articles per month. Currently, a number of the articles are related to Mat4Rail events or events Mat4Rail will contribute to.



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**Social media:** Mat4Rail's social media accounts are measured by the amount of content as well as subscribers, likes and shares. The Mat4Rail [Twitter](#) account was created in February 2018 and has 79 followers. The 30 tweets created since then have led to 40 link clicks, 27 retweets, 54 likes and a total of 21,408 impressions.

Currently, two videos are available on the Mat4Rail [YouTube](#) channel which were created by ACCEL and CIDETEC with input from all partners. Details are available in section 2.5 Visual and audio-visual material.

## 2.3 PRINT MATERIAL

### 2.3.1 Description of activities

As part of the CDEP, the Mat4Rail consortium defined various Mat4Rail print material focusing on the different target groups. Depending on the target audience of each created material, a different focus and approach will be taken. The language used and the message portrayed will need to be adapted to the interest and needs of each target audience.

The main print materials cover the project factsheet, a general project factsheet available online and in print to inform the public and different stakeholders about key project information and a project brochure. The project brochure is currently under development and will offer the partners a tool they can distribute manually during events, conferences or meetings when discussing Mat4Rail. The brochure was initially planned for month 8 but due to the preference of creating a newsletter and more results being available later in the project was postponed and is currently under development.

### 2.3.2 Impact Assessment

A general project factsheet (figure 1) was created at the start of the project to inform the public and different stakeholders about key project information. The factsheet includes the following: Background information, Project objectives, Work plan, Impact and Information about the Consortium. To date, the partners had the possibility to print the A4 factsheet at their facilities giving them an easy to print and distribute tool when communicating the project.


In time for the [JEC World 2019](#) (M18), we have created a multi-page project brochure (see figure 2) which presents the project, its objectives and activities. Each work package is presented giving further information on the status of each work package, its activities and results at M17. The brochure is available in print (500 brochures printed in M18) and available on the [project website](#) as a download. As the brochure was being finalised while the Deliverable D9.3 was being written, the download statistics are not yet available.



Figure 1: Mat4Rail Factsheet



Figure 2: Mat4Rail Brochure 2019

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## 2.4 CONTENT MATERIAL

### 2.4.1 Description of activities

**Press release:** In collaboration with CIDETEC, ACCEL created a draft press release, shared it with the whole consortium and asked all partners for feedback. The press release included fact and figures around the Mat4Rail project, some general technical background and some information on project partners. The press release was made available to all project partners who were able to adjust the content to their needs and to distribute via their media offices. The press release was translated to [English](#) (ACCEL), [Spanish](#) (CIDETEC), German (UNI-HB), Swedish (RISE) and Turkish (ASAS).

**Newsletter:** The Consortium agreed that a Mat4Rail newsletter would be a useful measure to communicate directly to relevant stakeholder in the railway industry. To date, two project newsletters have been distributed via email to registered interested stakeholders.



#### Newsletter 01: 27<sup>th</sup> June 2018


- [The project behind the trains of the future](#)
- [Mat4Rail at the Baltic Sea](#)
- [The Mat4Rail's interior design team meets complementary PIVOT project in Paris](#)
- [Mat4Rail on Tour](#)



#### Newsletter 02: Distributed 5<sup>th</sup> December 2018

- [The driver's desk of the future will be modular and flexible!](#)
- [Further opportunities in railway structures through innovations in materials and processes](#)
- [Material-independent design loads for car-bodies](#)
- [Mat4Rail on Tour](#)

To offer more interested stakeholders the opportunity to read the newsletters and not only the subscribers, the articles have been made available on the project website as stand-alone articles but also as printed PDF version.

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## 2.4.2 Impact Assessment

**Press Release:** The impact of press release was measured by the number of media outlets that reported on Mat4Rail after the publication of press releases. The initial press release, the translations to multiple languages and the redistribution by Mat4Rail partners via their communication offices to existing networks greatly increased the uptake and distribution of the 1<sup>st</sup> Mat4Rail press release. The impact of the 1<sup>st</sup> Mat4Rail press release was measured by the number of print and online media that reported on Mat4Rail after the publication of the press release:

- [CompositesWorld](#): AIMPLAS participates in European railway lightweighting initiative
- [Heraldo.es](#): El tren del futuro será más ligero y confortable
- [Innovations Report](#): Mat4Rail: EU Research Project on the Railway of the Future
- [Logistic News 24](#): Europaweite Forschung: Wissenschaftler arbeiten an der Eisenbahn der Zukunft
- Estrategia: CIDETEC elevará la capacidad de transporte de los trenes con un sideño modular inteligente
- Empresa XXI: Cidetec coordina el proyecto Mat4Rail
- [Global Railway Review](#): Rolling Stock Developments In-Depth Focus 2018
- [ALU & Art](#): ASAŞ, Mat4Rail Projesi ile Horizon 2020 Shift to Rail Programına Kabul Edilen İlk Türk Firması Oldu
- [China Plastic & Rubber Journal](#): AIMPLAS participates in European lightweight railway project
- [Mundoplast](#): Polímeros reforzados resistentes al fuego, en aplicaciones de trenes
- [empresasón](#): ITAINNOVA participa en el proyecto Mat4Rail, para lograr un futuro más sostenible
- Composites Plus: Mat4Rail desarrolla materiales compuestos ignífugos para la futura modularización de vehículos ferroviarios
- [JEC Group](#): Fire-resistant composite for modular interior design for the railway of the future
- [TITAN FRP](#): Mat4Rail develops fireproof composite materials for future modularization of railway vehicles
- [NETCOMPOSITES](#): Mat4Rail Targets Fire-Resistant Composites for Future Railways
- [LFT-G](#): Mat4Rail þróar Fireproof Composite Efni til framtíðar Modularization af ökutækjum járnbrautum
- [Technical Textile](#): AIMPLAS PARTICIPATING IN MAT4RAIL
- [Fairmessage -Innotrans 2018](#): Mat4Rail Eu-Forschungsprojekt zur Bahn der Zukunft
- [exxpo](#): Mat4Rail: railway of the future
- [EPPM magazine](#); <https://www.eppm.com/materials/travel-light-aimplas-helps-design-railway-of-the-future/>

**Newsletters:** The newsletter 1 was sent to 51 recipients and number 2 to 69 recipients. On average, the newsletter is opened by half of the registered people. The number of registered stakeholders to the newsletter is lower than anticipated at currently 70 registrations. However, by making the newsletter and its articles available on the website we can reach interested members who are not registered. This can be depicted from the number of visitors on the website (cf. section 3.2.1) and leads to the further distribution of the newsletter through the Mat4Rail partner's network and through Shift2Rail who included the Mat4Rail newsletter within their newsletter.

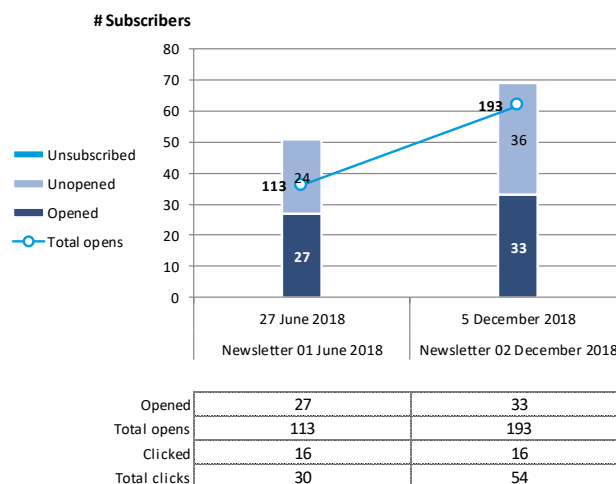



Figure 3: Mat4Rail newsletter statistics

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## 2.5 VISUAL AND AUDIO-VISUAL MATERIAL

### 2.5.1 Description of activities

Currently, Mat4Rail has created two videos both focusing on presenting the partner results and their contributions to Shift2Rail. The [first video](#) was created for Shift2Rail's Quick-Wins which were presented by Shift2Rail at their booth during the InnoTrans 2018. The [second video](#) presents similar content to the Shift2Rail Quick-Win but with a focus on the Mat4Rail project and the overall project synopsis.



Figure 4: Screenshots of the Mat4Rail videos

### 2.5.2 Impact Assessment

The videos were made available in September 2018 and have received a total of 339 views. The videos have been watched for a total of 12.5 hours. The number of views is higher than anticipated and defined in the evaluation section of the CDEP. The consortium will continue using audio-visual material to communicate with stakeholders and plans another project video with short interviews of the project partners.

## 2.6 SCIENTIFIC PUBLICATIONS AND CONFERENCE PRESENTATIONS

### 2.6.1 Description of activities

A key part of Mat4Rail's dissemination strategy for the second year is the publication and presentation of the latest results in scientific journals and at scientific conferences in the field. In line with the Horizon 2020 rules and current trends in IP management and publication strategies, the Consortium is committed to Open Access publishing.

All academic project partners will disseminate their specific scientific findings through publications in peer-reviewed journals depending on the domain of their expertise. The majority of these publications will be in English language in order to ensure broad usability dissemination potential. In the CDEP, several important conferences and journals have been identified as potential opportunities to present the latest findings with regard to the Mat4Rail project.


### 2.6.2 Impact Assessment

For journal papers we decided to use the impact factor of journals and the number of citations as computed by Google Scholar as an indicator of their impact. For presentations at scientific conferences, we will count the number of presentations and conferences, since measuring the impact here is even more difficult than with journal papers (for example, counting audience numbers, number of contacts made, quality of audience and contacts etc.) and not possible with reasonable effort.

A minimum of 10 publications will be generated from Mat4Rail in international (peer-reviewed) journals. These publications will be prepared by the WPs leaders and partners. All peer-reviewed publications will be Open Access in line with the Horizon 2020 rules.

- **M4:** [FPS 2018](#) Fire protection of rolling stock in Berlin, Germany, Per Blomqvist ([RISE](#)) "Mat4Rail: Research on fire safe composite materials within the Shift2Rail programme" 28<sup>th</sup> February - 1<sup>st</sup> March 2018
- **M7:** [Epoxy and Resins Technology Conference](#) in Stockholm, Sweden, Sandra Gómez ([CIDETEC](#)) "Towards a composite based carbody: Improving the FST properties of epoxy resins" 14<sup>th</sup> - 17<sup>th</sup> May 2018



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## 2.7 NETWORKING EVENTS AND DEMONSTRATIONS AT EXHIBITIONS, TRADESHOWS, WORKSHOPS, AND INFORMATION DAYS

### 2.7.1 Description of activities

The Mat4Rail consortium uses and joins existing events, exhibitions, trade shows, workshops and information days as a platform to network and to demonstrate Mat4Rail related information and results to relevant stakeholders such as potential business collaborators. Starting in the second project year, Mat4Rail partners attend national and international events to present the Mat4Rail results and prototypes

### 2.7.2 Impact Assessment

In the DoA, we anticipated that the majority of networking events and demonstrations where Mat4Rail partners will actively communicate about the project and its results would take place within the second year of the project. This assumption was made based on the fact that the majority of project results would be available for dissemination in the second half of the project. There have however already been platforms and events that the Mat4Rail partners used to reach out to stakeholders to create an increased interest in the project's objectives and potential impact for the railway session.

- **M2:** Fire retardants for thermoplastics and thermosets workshop organised by AIMPLAS in Spain, 14<sup>th</sup> – 15<sup>th</sup> November 2017
- **M4:** KMM-VIN Working group 1: TRANSPORT, CIDETEC contributed to the working group "Materials for Transport" in Brussels, Belgium, 28<sup>th</sup> February 2018
- **M12:** [Innotrans 2018](#), NVGTR, SPIRIT, GRAMMAR, IMA and ACCEL used the platform for networking in Berlin, Germany, 18<sup>th</sup> – 21<sup>st</sup> September 2018
- **M13:** [SusChem brokerage event](#), CIDETEC participated in Brussels, Belgium, 23<sup>rd</sup> October 2019
- **M17:** [Transfiere](#) AIMPLAS participated in Malaga, Spain, 13.-14. February 2019

## 2.8 CONTRIBUTION TO STANDARDS

### 2.8.1 Description of activities


Mat4Rail contributes to the development of new standards and certification processes for the rail industry. Close contact and collaboration with standardisation bodies facilitates the uptake of Mat4Rail results in the most relevant standards in the railway and railways safety industries.

To date, Mat4Rail has collaborated at two standardisation related events to support the development or new standards and certification process.

During the [Stakeholder Board meeting](#) held on the 1<sup>st</sup> February (M17) in Madrid, Spain Mat4Rail together with PIVOT and representatives of external advisors of CEN (European Committee for Standardization) took first steps towards standardisation of composites and dissimilar joints for use in structural carbody parts. In addition to presenting the results to date of both projects, in the field of new composites and joints for the railway sector, the productive event served to reach two important commitments:

- On the one hand both Mat4Rail and PIVOT committed to participate actively in a new survey group within the CEN TC256 Committee for the implementation and approval of new materials in railway. The first meeting of this working group was held on 20<sup>th</sup> of February in Brussels with participation of representatives from both projects.
- On the other hand, the representatives of CEN pledged to share with Mat4Rail and PIVOT a new standard for the development within the Working Group 52, of adhesive unions for the railway sector. It is the so-called standard in WI 000256799 "Adhesive bonding of rail vehicles and parts". CEN representatives will ensure that Mat4Rail and PIVOT have the opportunity to comment on the draft and incorporate the results of both projects before the final publication of such standard.

Mat4Rail partners joined the CEN/TC 256 kick-off meeting held in Brussels, Belgium on the 20<sup>th</sup> February 2019. The CEN/TC 256 *Implementation and Approval of New Materials* focuses on the Standardisation of all applications (except electrical and electronic subjects), in the field of railways, including urban transport, specifically intended for vehicles

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and fixed installations. Mat4Rail partners joined the meeting as part of the Survey Group to support the implementation of results derived from Mat4Rail into the standards. A second meeting has been organised for the group in Brussels, Belgium for the 24<sup>th</sup> April 2019.

The research results regarding material-independent design loads shall be used for the further development of the European Standard EN 12663 “Structural requirements of railway vehicle bodies”. The revision of this standard is scheduled in the working programme of CEN/TC 256/SC 2/WG 02. The work during Mat4Rail, especially the statistical analysis of measured operational loads on railway car-bodies and the development of an algorithm for the generation of synthetic operational load sequences, shall help to adjust the normative design loads as defined in the European standard and shall provide a method for a modern fatigue strength assessment using the cumulative damage approach according to prEN 17149.

### 2.8.2 Impact Assessment

In summary, Mat4Rail members have already established the required contacts and are represented in the key relevant standardisation working group(s). They are thus in an optimal position to feed their results into the next generation of standards currently under development. The impact in terms of standards is expected to be significant and conducive.

## 2.9 INTELLECTUAL PROPERTY RIGHTS (IPR)


In addition to the dissemination and communication of results, the Mat4Rail consortium examined exploitation opportunities over the course of the project’s duration. The commercial and non-commercial use of project results is governed by the intellectual property right (IPR) agreements initially defined internally between all Mat4Rail partners in accordance with the management procedures (see DoA, section 3.2) and agreed upon as part of the Consortium Agreement (CA), in particular sections 8 and 9 including the rules on the use of fore- and background. The Mat4Rail Innovation Manager, Alaitz Rekondo (CIDETEC) monitored developments in order to ensure that such activities are compliant with the rules of the Consortium Agreement (CA).

Innovation management was a key process throughout the project to ensure the Mat4Rail research activities on materials, access door systems and interior design concepts for railway, technological developments and outcomes were well in line with current technology developments, maintaining low risk level for the project and preventing results from losing relevance due to evolving market trends. These opportunities were documented for all Mat4Rail partners in the deliverable D1.4 Innovation Report (M17) covering the following key areas to facilitate innovations and the future use of results derived from the Mat4Rail project:

- Consideration of possible innovations, protecting them before disseminating the projects results. Innovation management strategies provide efficient procedures to protect new results and reach agreements on dissemination, ensuring that there is no information published which could be protected later, therefore invalidating patent possibility.
- Definition of strategies in relation to licenses to third parties.
- Identification of possible issues to overcome for the successful implementation of the results of the project.
- Re-adaptation of innovation management strategies to the market needs and changes.
- Acquisition of feedback from the rail sector, and different communities (standardization bodies, users, etc.) in order to maximise the success of the materials and concepts developed.

The innovations covered in Mat4Rail represent an improvement for the rail industry in terms of cost reductions and increased sustainability by means of weight and energy consumption reduction. The increased train versatility provided by modular interior design results in a wider range of use of the trains according to the railway customer demands.

To date, no patents have been registered based on results and outcomes from the project by the consortium members. However, Mat4Rail partners will carry on seeking exploitation opportunities for up to four years after the project end

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to further facilitate the exploitation of results and to fulfil the exploitation obligations in line with the Grant Agreement by:

- using the results in further research activities;
- developing, creating or marketing a product or process;
- creating and providing a service, or
- using them in standardisation activities.


This includes the use of results in further research within the Shift2Rail Programme which the Mat4Rail partners have shown high interest in.

### 3 CONCLUSION AND MEASURES FOR IMPROVEMENT

Regular evaluation of the defined Mat4Rail Communication, Dissemination and Exploitation activities gives us the opportunity to react quickly when implemented activities are not meeting the expected impact. The digital platforms used for the implementation of online Mat4Rail activities offer useful integrated tools such as website analytics or followers/subscriptions to measure methods and impact over longer time periods. For non-online activities, continuous feedback and further distribution from Mat4Rail partners, the extended network and external audiences plays a vital role. The feedback helps us to monitor and measure all the activities in place and to respond in a timely manner. One measure Mat4Rail has already implemented to support this is the monthly Executive Board (EB) meetings held online with all work package leaders. The regular updates of each work package offer continuous status updates, feedback and solutions to facilitate decision making within the Mat4Rail consortium.

From our experience, setting up a new network of audiences interested in the Mat4Rail project takes time and continuous information distribution and maintenance. Given that the duration of the Mat4Rail project is limited to two years, the number of stakeholders reached can seem limited if the outreach activities are based solely on the initial Mat4Rail network. Based on this and from the evaluation of already implemented activities we conclude that we are highly dependant on the support from the extended Mat4Rail network. This includes contacts at media offices from all Mat4Rail partners, Shift2Rail and the PIVOT project. By distributing Mat4Rail outreach activities further through these existing and well established networks, the impact of individual activities have a much larger impact and can reach a far larger audience base. As a measure, Mat4Rail will aim at communicating more about developed and implemented activities with the extended network to reach a wider audience. A further measure we will incorporate is translating information and results to the local languages of the Mat4Rail partners. By offering information and texts in the local language, the uptake from external media and from a lay audience will be facilitated.

Furthermore, although our aim is to achieve as much positive feedback as possible, negative feedback should also be taken into consideration as it can show us limitations which will can help guide us in order to maximise impact and facilitate future exploitation.

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## 4 OUTLOOK

For the upcoming outreach activities, the Mat4Rail consortium will implement the feedback and evaluation outcomes from previous activities to improve and facilitate the planned communication and dissemination measures. Mat4Rail has also planned to disseminate results in relevant journals. Publications will be made available via the project website once published in compliance with the Horizon 2020 rules on open access publishing of peer-reviewed manuscripts. Further upcoming activities are listed below:

- **M18:** [JEC World 2019](#), contributions from CIDETEC, COEXPAIR, AIMPLAS and HUNTSMAN in Paris, France, 12<sup>th</sup> – 14<sup>th</sup> March 2019
- **M18:** Mat4Rail Brochure
- **M19:** 3<sup>rd</sup> Mat4Rail Newsletter
- **M19:** WP7 *Innovative seats* Meeting with PIVOT to present final results in Paris, France, 10<sup>th</sup> April 2019
- **M19:** [Eurasia Rail 2019](#), ASAS will present Mat4Rail in Izmir, Turkey, 10<sup>th</sup> – 12<sup>th</sup> April 2019
- **M19:** CEN/TC 256 "Implementation and Approval of New Materials Survey Group 2<sup>nd</sup> meeting" in Brussels, Belgium 24<sup>th</sup> April 2019
- **M21:** [International Paris Air Show](#), COEXPAIR will have a booth as an exhibitor in Paris, France, 17<sup>th</sup> – 23<sup>rd</sup> June 2019
- **M21:** [FPRM 2019](#) - Fire Retardant Polymeric Materials, Poster presentation by UNI-HB in Turku, Finland, 26<sup>th</sup> – 28<sup>th</sup> June 2019
- **M22:** [MATCOMP 2019](#), AIMPLAS to submit a publication and present Mat4Rail results in Galicia, Spain 2<sup>nd</sup> -4<sup>th</sup> July 2019
- **M22:** [AB2019](#) - 4th International Conference on Structural Adhesives by UNI-HB in Porto, Portugal, 11<sup>th</sup> – 12<sup>th</sup> July 2019
- **M23:** 4<sup>th</sup> Mat4Rail Newsletter
- **M24:** [Euromat 2019](#) conference, contribution by RISE in Stockholm, Sweden, 1<sup>st</sup> – 5<sup>th</sup> September 2019
- **M24:** 2<sup>nd</sup> Mat4Rail Press Release
- **M24:** Final project event in collaboration with PIVOT, to be held in Paris, France, date tbd.
- **M25:** [Advanced Engineering 2019](#). COEXPAIR will have a booth as an exhibitor in the United Kingdom, 30<sup>th</sup> – 31<sup>st</sup> October 2019
- **M25:** [ALUS 09](#) - 9<sup>th</sup> International Aluminium Symposium, ASAS will present Mat4Rail in Istanbul, Turkey, 10<sup>th</sup> – 11<sup>th</sup> October 2019.
- **M29:** [AMI International](#): Interview about Mat4Rail project
- **M30:** [JEC World 2020](#); The composite door demonstrator manufactured by COEXPAIR, with the prepreg material produced by CIDETEC, will be shown at COEXPAIR booth.