

## Indicator Monitoring for a new railway PARadigm in seamlessly integrated Cross modal Transport chains – Phase 1



### Deliverable D 5.1

## Data Policy and Data Management Plan (DMP)

<b>Project acronym:</b>	IMPACT-1
<b>Starting date:</b>	01/09/2016
<b>Duration (in months):</b>	20
<b>Call (part) identifier:</b>	S2R-CFM-CCA-01-2015
<b>Grant agreement no:</b>	730816
<b>Due date of deliverable:</b>	Month 3
<b>Actual submission date:</b>	27-04-2021
<b>Responsible/Author:</b>	Malcolm Lundgren, TRV
<b>Dissemination level:</b>	CO
<b>Status:</b>	Final

Reviewed: yes

*This project has received funding from the European Union's Horizon 2020 Programme Research and Innovation action under grant agreement No 730816.*

*This document reflects the views of the author(s) and does not necessarily reflect the views or policy of the European Commission. Whilst efforts have been made to ensure the accuracy and completeness of this document, the IMPACT-1 consortium shall not be liable for any errors or omissions, however caused.*

<b>Document history</b>		
<i>Revision</i>	<i>Date</i>	<i>Description</i>
1	31/10/2016	First issue
2	30/11/2017	Revision according to comments from annual review report
3	19/12/2017	Revision according to comments from the internal review process
4	20/12/2017	Submission
5	12/12/2019	Rework after Review
6	02/11/2020	Rework after Review
7	23/04/2021	Rework after Review & Update of Disclaimwe

<b>Report contributors</b>		
Name	Beneficiary Short Name	Details of contribution
Malcolm Lundgren	TRV	First author
Florian Brinkmann	DLR	Revision
Carsten Dalaff	DLR	Revision
Svenja Hainz	DLR	Revisions
Michael Meyer zu Hörste	DLR	Rework after Review

## Table of Contents

---

1	Executive summary .....	5
2	Abbreviations and acronyms .....	6
3	Background .....	7
4	Objectives/aims .....	8
5	Data Policy and Data Management Plan (DMP) .....	9
5.1	Information Management & Policy .....	9
5.2	DMP – collaboration tool .....	9
5.2.1	WP1 – Lead DLR.....	10
5.2.2	WP2 - Lead DB/InnoZ .....	11
5.2.3	WP3 - Lead TRV/VTI .....	13
5.2.4	WP4 - Lead DLR .....	14
5.3	Data sets Technical Requirements .....	15
5.3.1	Data quality .....	15
5.3.2	Data sharing.....	15
5.3.3	File naming conventions .....	15
5.4	Data Archiving and Preservation.....	16
5.4.1	Archiving.....	16
5.4.2	Confidentiality .....	16
5.4.3	Data integrity.....	16
5.4.4	Cyber security.....	17
6	Conclusions .....	18
7	References .....	19
8	Annexes.....	20

## Table of figures

---

Figure 1: Participants in IMPACT-1.....	7
Figure 2: Interrelations inside Shift2Rail with respect to the KPI integrated assessment.....	8
Figure 3: IMPACT-1 knowledge management.....	10

## Table of tables

---

Table 1: DMP for WP1 .....	10
Table 2: DMP for WP2 .....	11
Table 3: Overview WP2 tasks .....	12
Table 4: DMP for WP3 .....	13
Table 5: DMP for WP4 .....	14

## 1 Executive summary

---

The purpose of the Data Management plan is to describe the processes in place for securing proper and safe handling of data during and after closure of the project.

IMPACT-1 is a rather data driven project. This is especially an issue for the WP3 and WP4 where mathematical models for assessing the costs and benefits of S2R innovations are developed whereas WP2 has to deal with the topic of personal data by interviewees. . Data management issues are well known in quantitative sciences. Research institutions as DLR and VTI have systems in place that measure up to scientific standards. These include quality control, safe storage with back-ups, file naming conventions and disclosure mechanisms when publishing results whilst respecting commercially sensitive data.

The Data Policy and Data Management Plan (DMP) should ensure that such standards are fulfilled by all partners of IMPACT-1, therefore the following topics are further detailed:

Chapter 5.1 “Information Management & Policy”: Identifies the context of the data management within in the IMPACT-1 domain. Standard routines will be used for post project archiving.

Chapter 5.2 “DMP – collaboration tool”: Sets out the governance structure of the IMPACT-1 project and identifies how the data management process interacts with the other project technical and management procedures.

Chapter 5.3“Data Sets Technical Requirements”: Defines how data is described and organised and how the data is to be structured

Chapter 5.4 “Data Archiving & Preservation”: Identifies the procedures to be used for archiving, preservation and disposal of data.

## 2 Abbreviations and acronyms

---

<b>Abbreviation / acronym</b>	<b>Description</b>
BT	Bombardier Transportation
CA	Collaboration Agreement
CAF	Construcciones y Auxiliar de Ferrocarriles S.A.
CAWI	Computer Assisted Web Interviewing
CCA	Cross Cutting Activity in S2R
DB	Deutsche Bahn A.G.
DLR	Deutsches Zentrum für Luft- und Raumfahrt e.V.
DMP	Data Management Plan
DOW	Description of Work
EU	European Union
GA	Grant Agreement
H2020	Horizon 2020
IMPACT-1	Indicator Monitoring for a new railway PARadigm in seamlessly integrated Cross modal Transport chains – Phase 1
IP	Innovation Programme in S2R
JU	Joint Undertaking
KPI	Key Performance Indicator
PM	Project Manager (coordinator)
S2R	Shift2Rail
SAG	Siemens A.G.
SPD	System Platform Demonstrator
TMT	Technical Management Team
TRV	Trafikverket
VTI	Statens väg- och transportforskningsinstitut (Swedish National Road and Transport Research Institute)
WA	Work Area
WP	Work Package

### 3 Background

---

The present document constitutes the Deliverable D5.1 “Data Policy and Data Management Plan (DMP)” in the framework of the WA 1.1 and WA 1.2. It contributes as well to WA 2 [5].

This document was submitted in response to the EU S2R JU 2015 call for members (proposal no. 730816). The GA was negotiated and closed during the summer 2016 with official project start 1<sup>st</sup> of September 2016. The consortium is made up of 7 members:

<b>Participant No *</b>	<b>Participant organisation name</b>	<b>Country</b>
1 (Coordinator)	Deutsches Zentrum für Luft- und Raumfahrt e.V. – DLR	Germany
2	Ansaldo STS S.p.a. – ASTS	Italy
3	Bombardier Transportation UK – BT	United Kingdom
4	Construcciones y Auxiliar de Ferrocarriles, S.A. – CAF	Spain
5	Deutsche Bahn AG – DB	Germany
6	Siemens AG – SAG	Germany
7	Trafikverket - TRV	Sweden

**Figure 1: Participants in IMPACT-1**

IMPACT-1 has 5 WPs

- WP1 Management (DLR lead)
- WP2 Analysis of the Socio-economic impact (DB AG lead)
- WP3 SPD definition (TRV lead)
- WP4 KPI tree (DLR lead)
- WP5 Dissemination (TRV lead)
- WP6 Ethics requirements (DLR lead)

The purpose of the DMP is to outline the policy for handling and storage of data during the project and after its closure. Detailed descriptions on approved or disapproved types of data or files are outside the scope of this DMP. Furthermore the DMP policy set out in this document should be seen as complementary and not in conflict with relevant sections in the CA or policies in place by the beneficiaries.

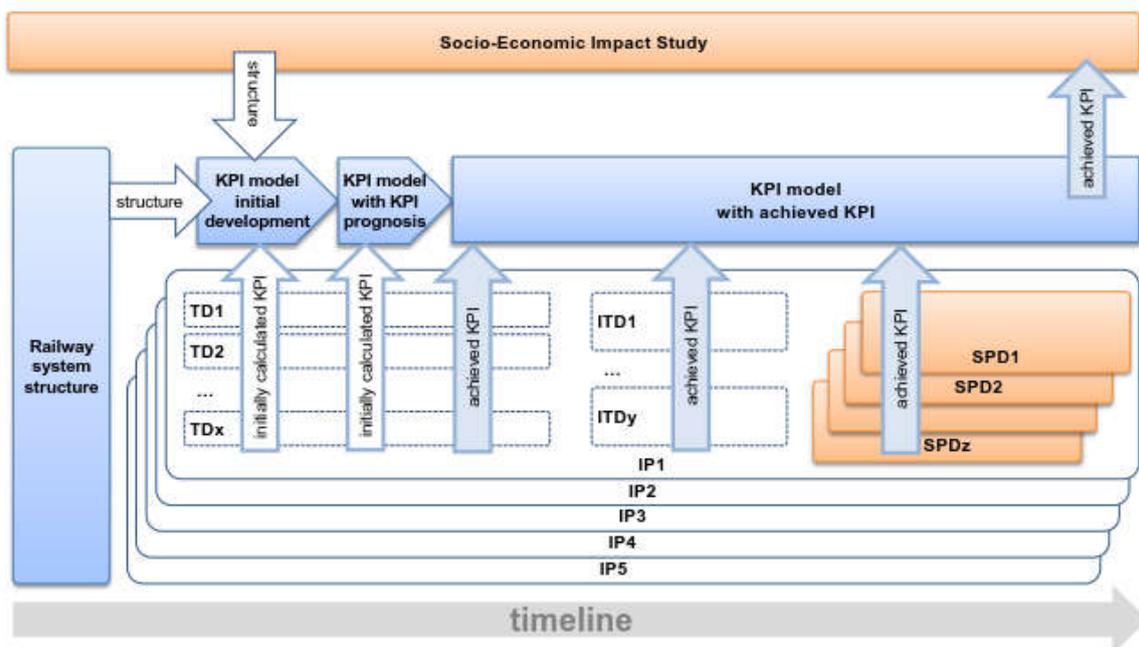
## 4 Objectives/aims

This document has been prepared to provide a plan to control and ensure quality of project activities concerning data management within the project.

The objectives of IMPACT-1 are:

- Evaluating the effects for mobility, society and environment induced by new technology solutions and developments,
- Introducing relevant targets and needs to create a more attractive, a more competitive and more sustainable rail system
- Defining System Platform Demonstrators (SPD) that represent future application use cases
- Defining Key Performance Indicators (KPIs) that enable the assessment of the Shift2Rail overall target achievement

Trends, scenarios and socio economic impact assessments will address societal values of S2R whereas the KPI model focusses on S2R's operational targets i.e. step change improvements in costs, capacity and reliability. Both levels interact during the course of the project. Exchange of data between the WPs will be a key element for the successful running of IMPACT-1.



**Figure 2: Interrelations inside Shift2Rail with respect to the KPI integrated assessment**

The aim of the DMP is to control and ensure quality of project activities, and to effectively and efficiently manage the data generated within IMPACT-1. It also describes how data will be collected, processed, stored and managed including aspects like external accessibility and long term archiving.

## 5 Data Policy and Data Management Plan (DMP)

---

### 5.1 Information Management & Policy

Information management is the discipline by which information is managed within an organisation. It covers collection, ownership, archiving and disposal. Information management is also a dissociated part of management and governance of companies and projects. This document does not intend to in depth go through theoretical concepts of information management layers or architectures. The purpose is to highlight the practical handling of data in IMPACT-1 so adequately deals with company concerns about data that may be commercially sensitive but responds to the need for dissemination of project results at conferences, academic papers and the like.

The DMP has been developed to address the following management and policy objectives:

- Comply with participating companies commercial interests whilst allowing project activities to be carried out necessary for a successful completion of deliverables at the same time.
- Guaranteeing adequate quality of data
- Fulfil required storage of technical and financial data as requested by the H2020 rules and the CA
- Allow the coordinator and the steering committee to get timely and accurate information on the progress of individual tasks, milestones and deliverables.

### 5.2 DMP – collaboration tool

The purpose of the DMP is to make sure that handling of data is done in a way that safeguards quality, storage and confidentiality requirements are fulfilled. Overseeing the appropriate handling of data for modelling and in dissemination of project results is a key management activity for the steering committee which is composed of DLR, ASTS, BT, CAF, DB, SAG, and TRV.

Adequate handling of data is key to the successful completion of IMPACT-1. The project will be dependent on gathering of data from the other IPs and itself will generate data of importance not only for IMPACT-1 but for the S2R endeavour. In particular the handling of the data by data-“heavy” WPs is described below:

5.2.1 WP1 – Lead DLR

Table 1: DMP for WP1

<b>Involved Organisations</b>	<b>DLR, TRV/VTI</b>
<b>Person Responsible for protection and deletion of data</b>	Michael Meyer zu Hörste (DLR)
<b>Type of data</b>	Project management and project content related data and files. All data and files directly related to the project IMPACT-1 are stored and exchanged via the cooperation tool.
<b>Contract basis</b>	The confidentiality of these data and of the content is covered by the Grant Agreement, the Consortia agreement and the nondisclosure statement of the S2R partners.
<b>Access Authority</b>	Michael Meyer zu Hörste (DLR)
<b>Access control</b>	S2R/JU is providing a collaboration tool to the project partners, which will offer the possibility to allocate different rights to both the members and the documents for a practical application of the DMP. Moreover, the collaboration tool is also able to make data available for the general dissemination purposes and public where open data sharing is chosen as an option. Not all data can be made publicly accessible outside the S2R JU initiative, as this would jeopardise the effective implementation of results by EU industries. The collaboration tool will not only be used for data repository but also for practical project management and technical work.
<b>Storage and deletion of the data</b>	

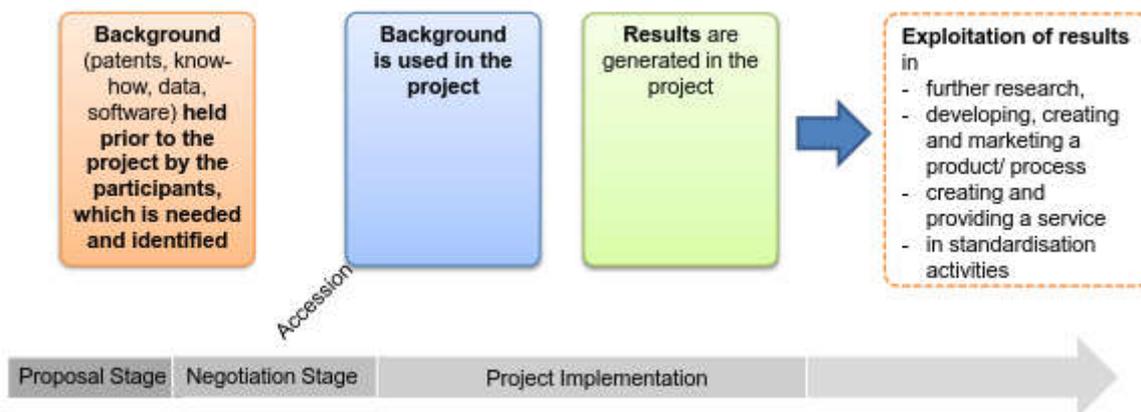


Figure 3: IMPACT-1 knowledge management

## 5.2.2 WP2 - Lead DB/InnoZ

**Table 2: DMP for WP2**

<b>Involved Organisations</b>	<b>DB AG (InnoZ), TRV/VTI</b>
<b>Person Responsible for protection and deletion of data</b>	Aljoscha Nick (DB/InnoZ), Claus Hedegaard Sørensen (TRV/VTI)
<b>Type of data</b>	Survey data including personal data
<b>Contract basis for service/cooperation</b>	Blanket framework contract
<b>Access Authority</b>	Claus Hedegaard Sørensen (TRV/VTI), Aljoscha Nick (DB/InnoZ)
<b>Access control</b>	Digital data is stored in a protected folder on the servers of VTI (WP 2.1) as well as InnoZ (WP 2.4) with defined access authorisations. Analogue data is stored in locked rooms or in lockable cabinets.
<b>Storage and deletion of the data</b>	As part of the CAWI method, identification data and CAWI data are stored separately. All personal data not intended for publication will be deleted until the end of February 2019 unless otherwise stated.
<b>Redistributable control</b>	Data may be transferred to third parties only in anonymous form (aggregated survey data). If personal data for presentations is used (photo, audio, video, pseudonymised citations), the people in question will have to first agree to the usage of their personal data.
<b>Procurement of contacts for survey participants</b>	The contact details for the personal interviews (WP 2.1) are collected via existing networks within the project consortium of IMPACT-1. The contact within the CAWI (WP 2.4) is organized via a hyperlink. There is no personal contact via address lists.
<b>Survey method</b>	Personal Interviews in WP 2.1; Computer Assisted Web Interviewing (CAWI) (DB/InnoZ) in WP 2.4
<b>Service Provider/ Co-op Partner</b>	Survalyzer AG (Switzerland)

**Table 3: Overview WP2 tasks**

Title	Methodology	Target Group	Data Collected
<b>WP 2.1</b> Socio-economic values and needs	XX personal interviews (face-to-face/telephone/Skype; semi-structured)	Experts from public administration, business, research, non-governmental organisations from different European countries and from inside as well as outside the rail sector	<ul style="list-style-type: none"> <li>• Contacts</li> <li>• Information about profession</li> <li>• Professional opinion on pre-set societal goals of Shift2Rail,</li> </ul>
<b>WP 2.4</b> Key success factors for a successful railway system	CAWI	(Potential) Customers, Experts for railway systems	<ul style="list-style-type: none"> <li>• Personal data (age, gender, IP address)</li> <li>• Mobility behaviour (choice of transport, assessment of influencing factors)</li> </ul>

### 5.2.3 WP3 - Lead TRV/VTI

**Table 4: DMP for WP3**

<b>Involved Organisations</b>	TRV/VTI, DLR, DB, SAG
<b>Person Responsible for protection of data</b>	Ida Kristoffersson (TRV/VTI)
<b>Type of data</b>	Within WP3 forecast models for predicting mode choice are developed. These models build on data about price and time elasticities and data about average travel times, costs, travel time uncertainty etc. in the city/area where the model will be applied for a particular use case. The data about elasticities will be collected during IMPACT-1, whereas the data about average travel statistics in the use case areas will be collected later within IMPACT-2.
<b>Contract basis</b>	The confidentiality of these data and of the content is covered by the Grant Agreement, the Consortia agreement and the nondisclosure statement of the S2R partners.
<b>Access control</b>	Data is stored in a folder on a VTI server, for which backup is made every night. In case of analogue data this is stored in locked cabinets.
<b>Storage and deletion of the data</b>	All data and documents produced within the IMPACT-1 project are stored and exchanged via the EC cooperation tool.

## 5.2.4 WP4 - Lead DLR

**Table 5: DMP for WP4**

<b>Involved Organisations</b>	<b>DLR, ANSALDO, BT, CAF, DBAG, SAG, TRV</b>
<b>Person Responsible for protection and deletion of data</b>	Carsten Dalaff (DLR)
<b>Project work</b>	Florian Brinkmann (DLR), Svenja Hainz (DLR), Michela Tirri (ANSALDO), Richard French (BT), Ruth Arregi (CAF), Jürgen Ernst (DBAG), Birgit Milius (SAG), Malcolm Lundgren (TRV), Mats Berg (KTH)
<b>Type of data</b>	Data that is provided by the IPs, TDs and Operators and IMs as input for the KPI development and calculation
<b>Contract basis</b>	The confidentiality of these data and of the content is covered by the Grant Agreement, the Consortia agreement and the nondisclosure statement of the S2R partners.
<b>Access Authority</b>	Carsten Dalaff (DLR), Florian Brinkmann (DLR), Svenja Hainz (DLR)
<b>Access control</b>	S2R/JU is providing a collaboration tool to the project partners, which will offer the possibility to allocate different rights to both the members and the documents for a practical application of the DMP. Moreover, the collaboration tool is also able to make data available for the general dissemination purposes and public where open data sharing is chosen as an option. Not all data can be made publicly accessible outside the S2R JU initiative, as this would jeopardise the effective
<b>Storage and deletion of the data</b>	

implementation of results by EU industries. The collaboration tool will not only be used for data repository but also for practical project management and technical work.

## 5.3 Data sets Technical Requirements

### 5.3.1 Data quality

The responsibility for gathering data to be used for the creation of scenarios, SPDs, KPI models and the like is delegated to the parties involved in the corresponding tasks. Routine academic quality measures should be applied by all parties in establishing quality and, if relevant, integrity.

### 5.3.2 Data sharing

The following system for classification of data sets will be used:

- CO0: do not use the information as a reference or as a source for the project. Information will be only provided for control / checking and “fine-tuning” of tools. Information / Data shall not be used for sharing between the project partners. (Example: sensitive economic company owned data for the validation of the KPI-tool)
- CO1: confidential level 1: data shall not be shared at any time during or after the project outside the original work package members
- CO2: confidential level 2: data shall not be shared outside the consortium members
- CO3: confidential level 3: data can be shared outside the consortium without restriction

### 5.3.3 File naming conventions

All files irrespective of the data type shall be named in accordance with the following document file naming convention:-

IMPACT-1\_WPxx\_title\_V#\_CO#\_A

The file naming convention contains the 6 following sections:-

[PROJECT]\_[WORKPACKAGE]\_[TITLE]\_[VERSION]\_[DISSEMINATIONCLASS]\_[ARCHIVE]

where:

- [PROJECT] is IMPACT-1 for all document types;
- [WORKPACKAGE] is the IMPACT-1 project work package number, with WP as a prefix; numbers formatted as 1 to 5
- [TITLE] represents the description of the data item contents
- [VERSION] is the version number consisting of integer numbers only without leading zeros, prefixed with V;

- [DISSEMINATIONCLASS] is the dissemination classification allocated to a document type that define the data access post archiving, see chapter 7, for allowable values and consists of the characters CO and a suffix of a single number in the range 1 to 3;
- [ARCHIVE] this is a single character defining the allocation of the data item for future archiving and is represented by a Y or N.

Example: IMPACT-1-WP5-D5.1\_Draft-V1-CO1-N.

## 5.4 Data Archiving and Preservation

### 5.4.1 Archiving

At the formal project closure all the data material, that has been collected or generated within the project and registered in the S2R collaboration tool and classified for archiving, shall be copied and transferred to a digital archive of the S2R collaboration tool. The JU S2R is responsible for its adequate long term preservation as well as maintaining a system for queries and retrievals for as long as the data files are to be kept. The relevant data created by each IMPACT-1 project partner and not stored within the S2R collaboration tool will be archived by each partner.

The recording and archiving of audio or visual data files as well as personal data will need written approval by the concerned subjects and is subject to the responsibility of the collecting organization.

### 5.4.2 Confidentiality

Information shall only be made available to those who are authorised to access it. Information Owners are accountable for defining access to the information they own. To safeguard and prevent unauthorised access to information, Information Owners shall classify and govern information in accordance with the data set classification taxonomy described in the previous chapter and respecting commitments in the CA. The procedures implemented for data collection, storage, protection, retention and destruction comply with the EU Directive 95/46/EC [3] on the protection of individuals with regard to the processing of personal data and on the free movement of such data and the respective national law and regulations for data.

### 5.4.3 Data integrity

Data and information owners overseen by the TMT (DLR, TRV and DB) are responsible for the level of protection required against unauthorised or accidental changes. An additional “quality” assurance is provided by scientific peer reviews of articles and papers that come out of the project. Information shall be protected against loss or damage until it is no longer required to be retained for audits by the EU. Further keeping of records are subject of negotiations with DLR and the party requesting such archiving.



Horizon 2020  
European Union Funding  
for Research & Innovation



#### 5.4.4 Cyber security

All information flagged for archiving shall be screened for malware infestation before entering the S2R collaboration tool repository.

## 6 Conclusions

---

The conclusions reached at this stage of the R&I and highlighted in this report This report should be read in association with all the referenced documents including the GA [1], CA [2] and H2020 anointed model agreement [4], annexes and guidelines.

The report will be subject to revisions as required to meet the evolving needs of the IMPACT-1 project and will be formally reviewed at month 6 and 12 to ensure its fit for purpose.

## 7 References

---

- [1] Grant Agreement IMPACT-1
- [2] Consortium Agreement IMPACT-1
- [3] EU Directive 95/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data
- [4] H2020 AGA — Annotated Model Grant Agreement: V2.2 – 25.11.2016
- [5] European Commission. (2015). Shift2Rail Multi-Annual Action Plan (MAAP). Available at: [http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/jtis/h2020-maap-shift2rail\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/jtis/h2020-maap-shift2rail_en.pdf) (16.04.2018).



Horizon 2020  
European Union Funding  
for Research & Innovation



## 8 Annexes

---

none