



SAFER LEVEL CROSSING BY INTEGRATING AND
OPTIMIZING ROAD-RAIL INFRASTRUCTURE
MANAGEMENT AND DESIGN

SAFER-LC Workshop 2

Paris, 27 March 2018

Overview WP2: Human Factor at LC: Design
for self-explaining and forgiving
infrastructure

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WP2: Human Factor at LC: Design for self-explaining and forgiving infrastructure (M1-M34)

▲ **Participants:** FFE (Spain), DLR (Germany), UIC (France), VTT (Finland), UNIROMA3 (Italy), SNCF (France), CERTH-HIT (Greece), TRAINOSE (Greece), INTADER (Turkey), COMM (Hungary)

▲ **Objective:**

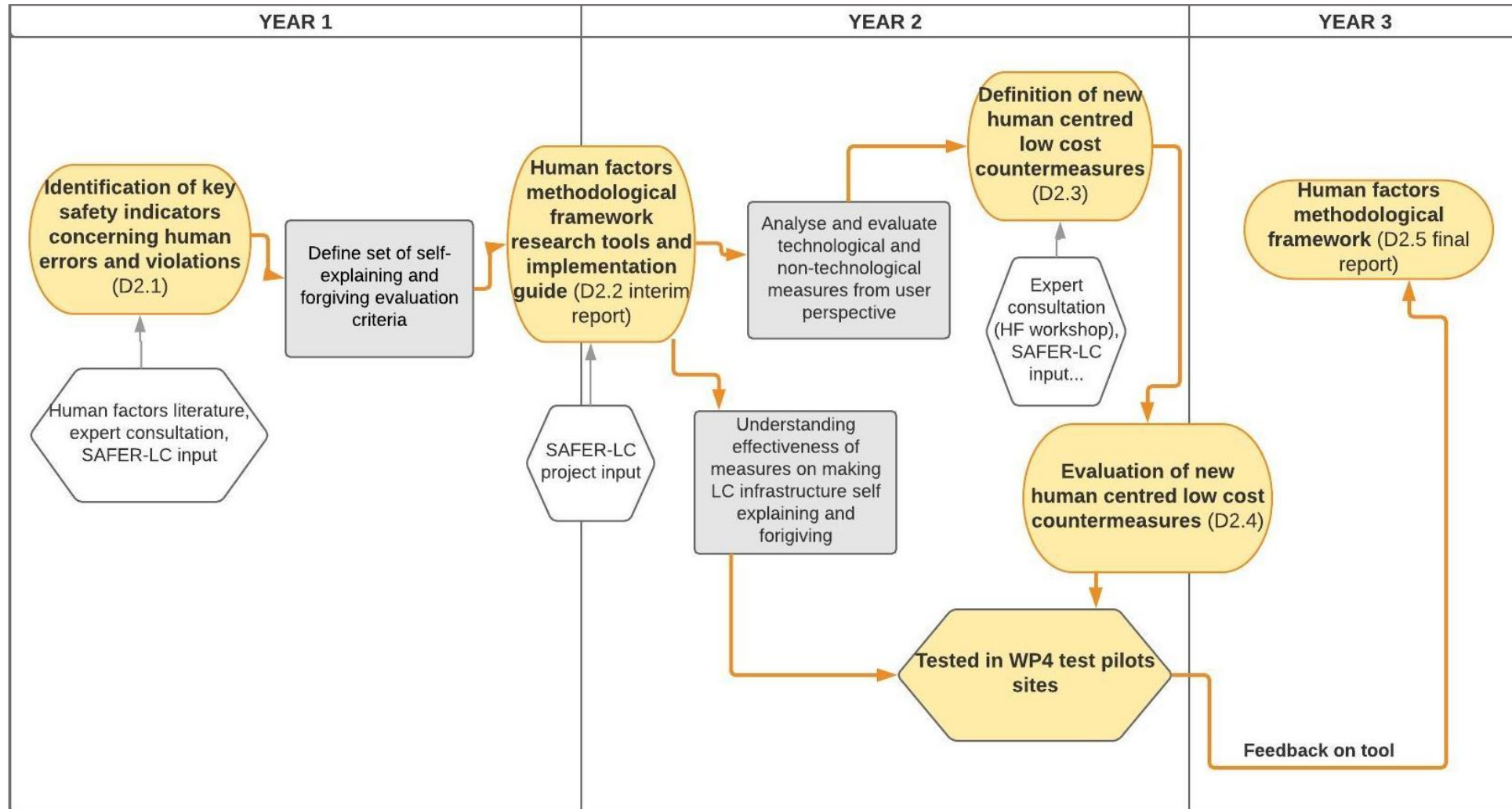
Enhance the safety performance of LC infrastructures from a **human factor perspective**, making them more self-explaining and forgiving, designed to **take into account the needs of different road and rail users**, and especially issues related to **vulnerable users**.

The objective will be met delivering the following activities:

- **Development of a human factors methodological framework;**
- **Design and evaluation of innovative human-centred low cost measures** (technological non-technological) encompassing different types of LC users.

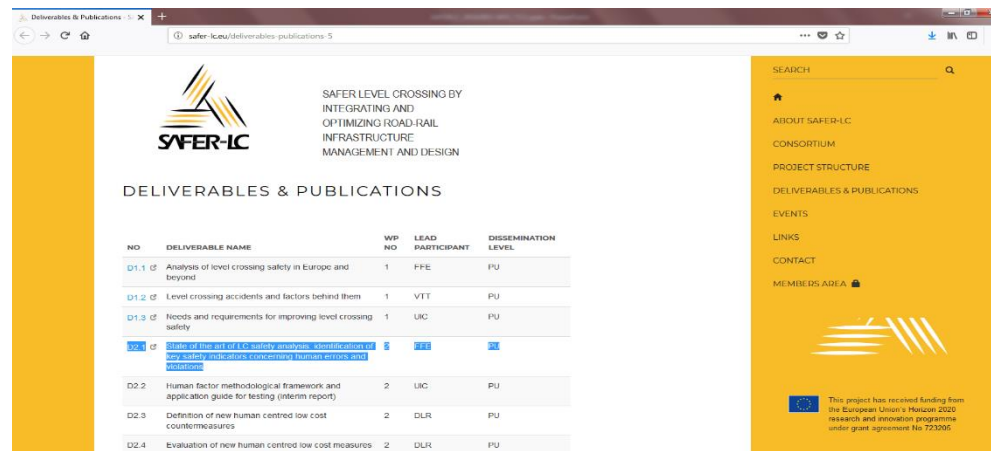


Work package 2 overview



Progress and results to date

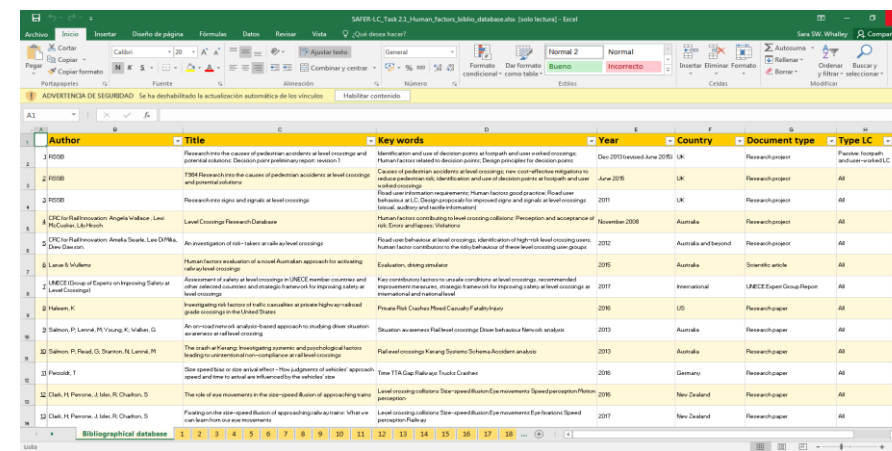
- ▲ **Task 2.1:** Deliverable 2.1. State of the art of LC safety analysis: identification of key safety indicators concerning human errors and violations published on www.safer-lc.eu and a human factors bibliographic database accessible to all project partners on the SAFER-LC extranet.
- ▲ **Task 2.2:** Human factors methodological framework and application guide for testing – Working document.
- ▲ **Task 2.3:** Workshop: Human Centred Safety Measures to Enhance LC-Safety.



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DELIVERABLES & PUBLICATIONS

NO	DELIVERABLE NAME	WP NO	LEAD PARTICIPANT	DISSEMINATION LEVEL
D1.1	Analysis of level crossing safety in Europe and beyond	1	FFE	PU
D1.2	Level crossing accidents and factors behind them	1	VTT	PU
D1.3	Needs and requirements for improving level crossing safety	1	UKC	PU
D2.1	State of the art of LC safety analysis, identification of key safety indicators concerning human errors and violations	2	FFE	PU
D2.2	Human factor methodological framework and application guide for testing (interim report)	2	UKC	PU
D2.3	Detection of new human centred low cost countermeasures	2	DLR	PU
D2.4	Evaluation of new human centred low cost measures	2	DLR	PU



Author	Title	Key words	Year	Country	Document type	Type LC
1	PS08	Research into the causes of pedestrian accidents at level crossings and potential solutions. Decision point performance analysis?	Dec 2015 (revised June 2016)	UK	Research project	Passive, footpath, pedestrian, violator
2	PS08	TSM Research into the causes of pedestrian accidents at level crossings and potential solutions	June 2016	UK	Research project	All
3	PS08	Research into signs and signals at level crossings	2011	UK	Research project	All
4	CECIS Rail Innovation: Angela Valdez - Lisa McCulloch, Limerick	Level Crossings Research Database	November 2008	Australia	Research project	All
5	CECIS Rail Innovation: Angela Valdez - Lisa McCulloch, Limerick	An investigation of risk-takers at rail level crossings	2012	Australia and beyond	Research project	All
6	Lewis S. Mulvane	Human factors evaluation of a novel Australian approach for activating rail level crossings	2015	Australia	Scientific article	All
7	EMEE (Group of Experts on Improving Safety at Level Crossings)	Assessment of safety at level crossings in EMEE member countries and other selected countries and strategic framework for improving safety at level crossings	2017	International	EMEE Expert Group Report	All
8	Hakken, K.	Investigating factors of rail accidents at private high-speed rail grade crossings in the United States	2016	US	Research paper	All
9	Selimon, P., Patel, G., Young, K., Valdez, G.	An on-road research, analysis-based approach to studying driver situation awareness at rail level crossings	2013	Australia	Research paper	All
10	Selimon, P., Patel, G., Dawson, N., Lewis, M.	The crash at Kewang: Investigating systems and psychological factors leading to a fatal rail level crossing accident	2013	Australia	Research paper	All
11	Finckel, T.	How can we reduce the risk of collisions at level crossings?	2016	Germany	Research paper	All
12	Clark, H., Penrose, J., Mori, R., Chaffin, S.	The role of eye movements in the detection of approaching trains	2016	New Zealand	Research paper	All
13	Clark, H., Penrose, J., Mori, R., Chaffin, S.	Flashing the side-spread of approach: implications for level crossing safety	2017	New Zealand	Research paper	All

THANK YOU FOR YOUR ATTENTION.

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