

SMART RAIL WP4: Whole Life-Cycle Cost Calculation Tools

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Structure

- **Task 4.1.** Identification of construction techniques and technologies from other WPs and preparation of modeling process and structure (ZAG, UCD, MAV, IGH, ADAPTRONICA, IK, RODIS, FEHRL-CDV, EURNEX-RTU)
- **Task 4.2.**
LCA analyses for selected typical railway rehabilitation systems (FEHRL-TRL, ZAG)
- **Task 4.3.**
WLCA for selected typical railway rehabilitation systems (FEHRL-TRL, ZAG)
- **Task 4.4.**
Development of multi decision tool(ZAG, FEHRL)

Participants and deliverables

Participants		
NUID-UCD	FEHRL	EURNEX
IGH	ZAG	RODIS
IK		

Deliverables	Lead beneficiary	Delivery
Report of the LCA model	FEHRL	20
Results of WLC model	ZAG	24
Report on LCA and WLC models for ageing rail networks	ZAG	30

Milestones	Lead beneficiary	Delivery
Web-based LCA tool for network operators	ZAG	24
Web-based WLC tool for network operators	ZAG	30



The overall scope

- To make sure that proposed solutions are sound with respect to cost and environment
- In other words – we want to ensure sustainable solutions.
- How?

Task 4.1.

- Identification of construction techniques and technologies from other WPs and preparation of modeling process and structure
 - Analyses of data from WP 2 and WP 3
 - Establishing “typical” unit process (functional unit predefinition, e.g. “1 km of track”)
 - Recognition of performance factors (e.g. terrain, power source,...)
 - Definition of functional unit
 - Assembling the LCI
 - Recursion to (1) and refinement

The goal is to get clear picture what is compared and how it is constructed.

Task 4.2.

- LCA analyses for selected typical railway rehabilitation systems Analyses of data from WP 2 and WP 3
 - Calculation of “midpoint” indicators (GWP, AP,...) from the LCI
 - Interpretation of the results
 - LCIA estimation

The goal is to get a set of indicators for track evaluation and to assess importance of these indicators in different regions.

Task 4.3. and 4.4.

- WLCA for selected typical railway rehabilitation systems
 - The goal is to perform the WLCA
 - The results will be interpreted regarding the goal and scope of study
 - Analyses of major contributions will be done
 - Sensitivity analyses will be done
- Development of multicriteria tool
 - Integration of the results into multicriteria tool

Issues to be discussed in WG

- Errors in the Annex I ?
 - Real work distribution (task leaders)
 - Task 1: ZAG but really strong cooperation will be needed
 - Task 2: ZAG
 - Task 3: TRL
 - Task 4: ZAG but strong cooperation with TRL and FEHRL is needed (both in calculation model and in verification of the tool)

Multidecision tool

- General idea is to make a tool, possibly MS Excel based (to be discussed)
 - Tool should be simple
 - It will have integrated data from the LCA
 - It will still require entry of specific data
 - It will (probably) not include parametric studies

	EPD a1	EPD a2	EPD a3	EPD a4	EPD a5	EPD a6
a1	GWP a1	GWP a1	GWP a1	GWP a1	GWP a1	GWP a1
a2	APa1	APa1	APa1	APa1	APa1	APa1
a3	NREa1	NREa1	NREa1	NREa1	NREa1	NREa1
a4	TMRa1	TMRa1	TMRa1	TMRa1	TMRa1	TMRa1
a5						
a6						

opis
stavbe,
scenariji,
ocene,...

EPD, generični podatki, LCA študije...