Rail to Digital automated up to autonomous train operation

WP5.1 – Documentation of use cases for automating functions

Annex 1: Task 5.1 Use Case Template

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1   USE CASE TEMPLATE

Within task 5.1 below use case template has been used. This template has been adopted from the TAURO project as described in document 'TAU-T1_4-T-AZD-003-01'. Based on the version from TAURO, task 5.1 has made some minor changes to the template as was used in TAURO. When comparing both versions, the following changes have been made:

- Use case group

  This was originally in the TAURO template but is not included in the task 5.1 template.

- Applicability

  Was not mentioned in the TAURO template but is included in the task 5.1 template. This field provides information to which certain topics such as geographical level, system level and operational category the use case is applicable to.

- Assumptions

  This was originally in the TAURO template but is not included in the task 5.1 template.

- Flow of events

  This was originally in the TAURO template. In the task 5.1 template this has been split in the sections; 'Termination outcome(s)', 'Condition affecting termination outcome' and 'Use case scenario'.

- Safety relation

  This was originally included in the TAURO template but is not included in the task 5.1 template. The topic is not in scope for WP5.

- AI involvement factor

  This was originally included in the TAURO template but is not included in the task 5.1 template. This topic is not in scope for WP5.

- Open topics/consideration

  In the task 5.1 use case template, this has been renamed to 'Use case notes'

- Use case summary

  In the TAURO template, there was no field for a short summary of the use case. This has been included in the task 5.1 template.

The use case template as used in task 5.1 can be found below. The text in red refers to the information that needs to be included in the columns of the 'Use case index'. The use case index can be found in **Erreur ! Source du renvoi introuvable.**.

1. UC.5.X.XXX: *[Chapter of the UC] + [name UC]*

General context

In order to get more precise analysis and feasibility and applicability studies of environment perception technologies different sets of use cases (UC's) shall be elaborated. Creation of UC's is convenient method to define all possible operational situations and events. UC's help to better understand operational context and relationship between operational environment and developed system itself.

Operational definitions

In this chapter operational definitions may be provided, to build upon in the Use Case description table.

Use case field	Description	
ID	UC.5.*[# of task].[# of UC]* (COL. A. in Index)	
Use case name	*[Name of the UC.]* (COL. G in Index)	
Main actor	*Actor that initiates the UC*	
Other actors	*List of all actors that play any role during UC scenario in any event of the UC.*	
Use case summary	*[General summary]* (COL. H in Index)	
Applicability	*Provide a description to which topics the use case is applicable. Provide information on the below fields.* (COL. I, J and K in Index) • *Geographical (national level, which countries? / European level)* • *System level (for which system(s) is the UC applicable?)* • *Operational category: passenger, freight, urban, regional, mainline and inspection vehicles*	
Main goal	*Description of the UC main goal – what operational scenario (concept) is provided.* *Example: "ensure train end of operation procedure including inspection everything is performed properly".*	
Preconditions	*[Describe the minimum previous conditions to carry out the UC.]*	
Termination outcome	**Successful outcomes**	• *[Outcome 1: Successful outcome of the UC.]*

	Unsuccessful outcomes	• [Outcome 2: Unsuccessful outcome 1 of the UC.] • [Outcome 3: Unsuccessful outcome 2 of the UC.] • [Outcome 4: Unsuccessful outcome 3 of the UC.]
Condition affecting termination outcome	Outcome 2	[Explanation and post-conditions for unsuccessful outcomes.]
Use case scenario	Step 1	[Step 1 to be followed to achieve the UC.]
	Step 1.1	[Branch from Step 1 to unsuccessful outcome X.]
	Step 1.1.1	[Branch from Step 1 to unsuccessful outcome X.]
	Step 2	[Step 2 to be followed to achieve the UC.]
	Step 3	[Step 3 to be followed to achieve the UC.]
	Step 3.1	[Branch from Step 3 to unsuccessful outcome X.]
	Step 3.1.1	[Branch from Step 3 to unsuccessful outcome X.]
	…	…
	Step n	[Step n to be followed to achieve the UC.]
	Step 6	[Use Case successfully ends.]
Postcondition	*Defines all conditions that have to be fulfilled when the UC is successfully completed.* *Example: "specific system is switched off, some actor is in specific operational status".*	
Use case notes	[Notes and comments.]	

Table X: Use case "Use case name" description