Risk Register

The risk register is an instrument for recording the risk management process dedicated to identifying risks'. Its purpose is to facilitate ownership and management of each risk. At the same time, it is used to generate a record of the risks that have been identified. Furthermore, it serves as a record of the control activities that are currently undertaken or will be used to improve the control of the particular risk. The risk register will cover the significant risks facing the organisation/project and record the results of the system risk assessment. Following tables describe the risk register and its different components. The content on each column describes a generic example based on the ASSISTANT project.

Artefact and item description

Update	Description of Item						
Date*	ID*	Linked ID*	Item*	Mode/Phase/Process*	Component & Ethics*	Subsystem*	System*
2021-22-9	4-1-25-2	4-1-23-1	AI-tolerance limit	Operational	DNN predictor - Robustness	Modeler	WP4

The Linked ID helps to understand that this is an update or some linked information between IDs. The item is a soft description for understanding the component; the Mode/Phase/Process is a description of the system functionality before the failure mode takes place; the component, subsystem, and system are linked to the description of components previously mentioned in this document

Failure Mode

Description of Failure		Effects of Failure						
Failure Modes*	Description of Failure*	Local*	Subsystems*	System*	Global*	Severity (S)	System status at the failing condition*	Additional Comments on effects*
Side Effects	Tolerance auto settings do not reach a value within the expected one for safety considerations	X System will not be able to predict a correct model	X Error will be passed to Y components that will produce …	N.A.	N.A.	Moderate (7)	Idle	

The first column is the Failure Modes Name. The column Description of Failure covers a thorough description of the failure mode that can be used to understand the different stakeholders involved in the risk management process. The previous columns are used for a general description of the failure mode. The following columns are used to understand the effects of failure. The local, subsystem, system, and global columns are used to understand the effect over each component (local), subsystem, and system linked hierarchically to a failure mode (i.e. bottom-up).

Analysis

Cause of Failure			Current controls for prevention / detection			Risk Priority Number	Recommendations and actions			KPIs	
Failure Causes*	Item Causing	Occurrence (O)	Detection Method*	Detection description*	Detection Probability (D)	S*O*D	Recommended Actions*	Correction Responsibility*	Actions made?*	Previous	Actual/during failure mode
Data quality / data curation / incorrect data source	Poor control	Moderate (6)	Model Performance RMSE	The models RMSE over periodic runs	Almost certain (1)	42		WP4	Yes	RRS=0.85	RRS = 0.4

Focuses on a post-analysis of the description of the failure mode. It includes the Causes of Failure that describe, under the analyses performed, a broad understanding of the failure mode and its root causes (e.g. use root cause analysis tools). The item causing is a soft description of the processes or conditions that links to the failure mode.

Criticality Analysis

Criticality Analysis										Remarks	
Severity Class	Failure Probability or Failure Rate Data Source	Failure Effect Probability (β)	Failure Mode Ratio (α)	Failure Rate γ	Factors Under Considerations for Failure Rate (πi)	Operating Time (T)	Failure Mode Critical Number	Item Critical Number (summation of the item overall critical numbers)	Linked ID	Remarks on Criticality Analysis*	Overal Remarks for FMEA/FMECA

describe the content of the risk register to be used in case a criticality analysis is desired to be performed.