openETCS SSRS Working Group

Kick off

DB Netz AG

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I.NVT 321

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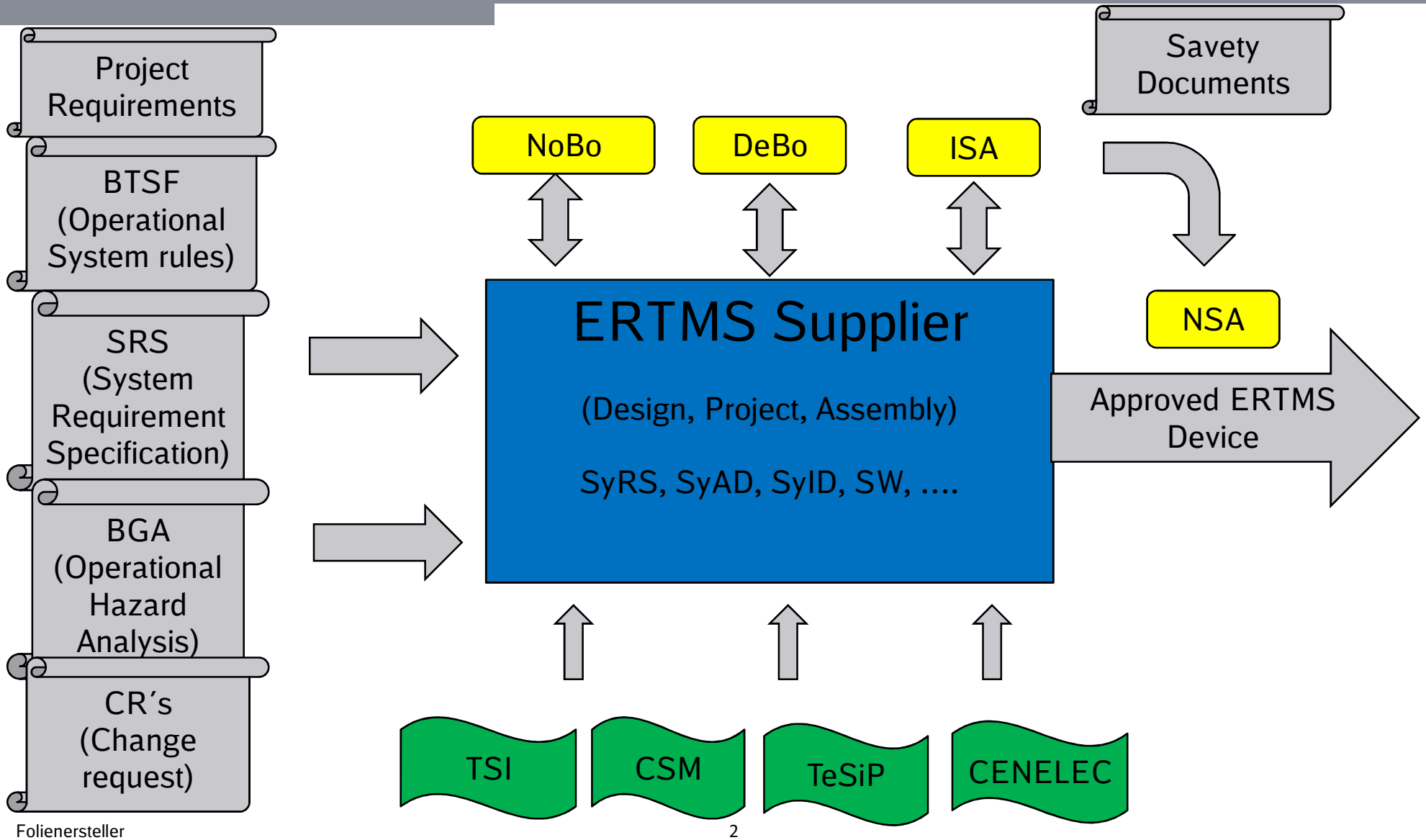
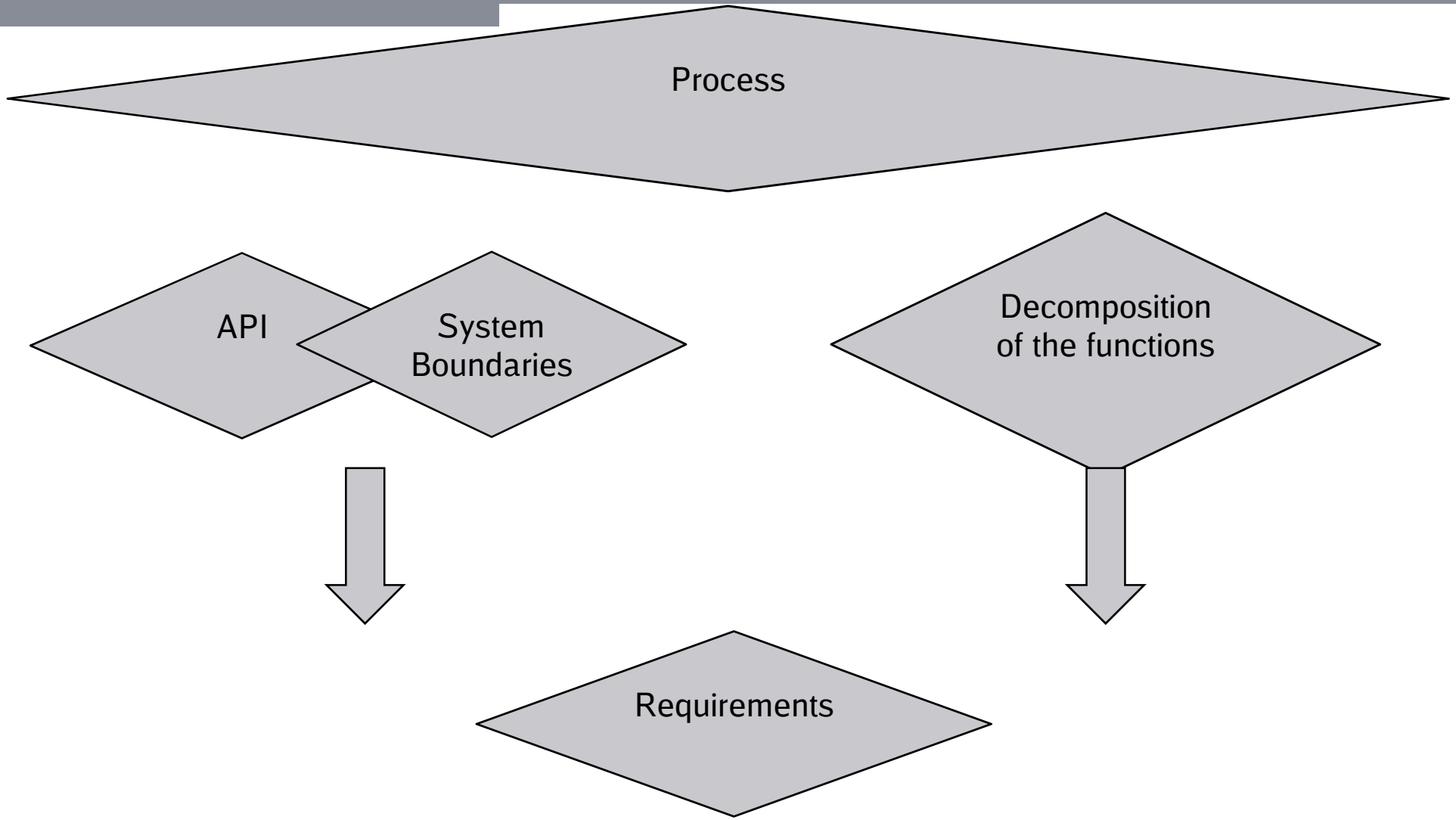
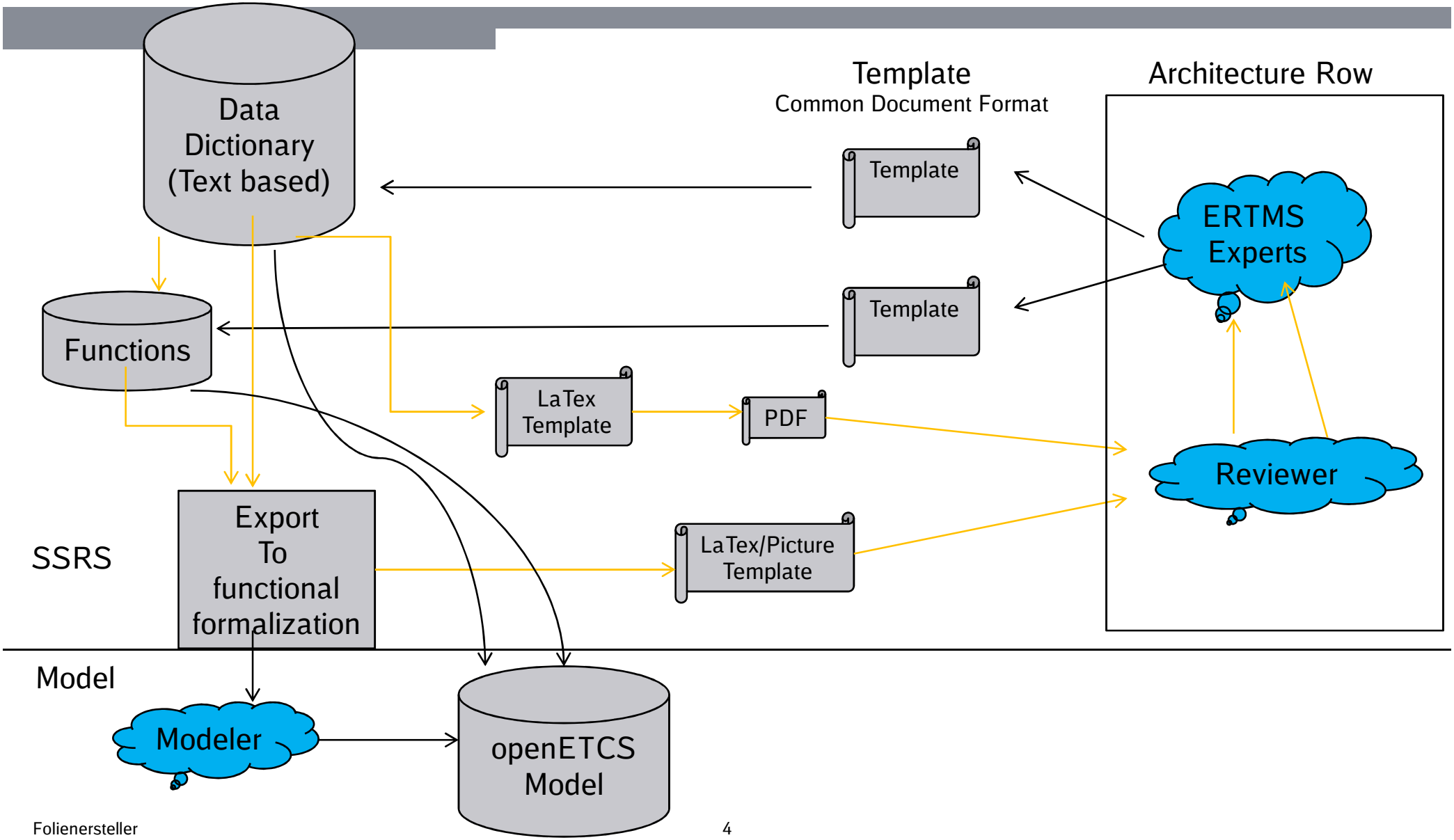
Process of OBU Project at the DB



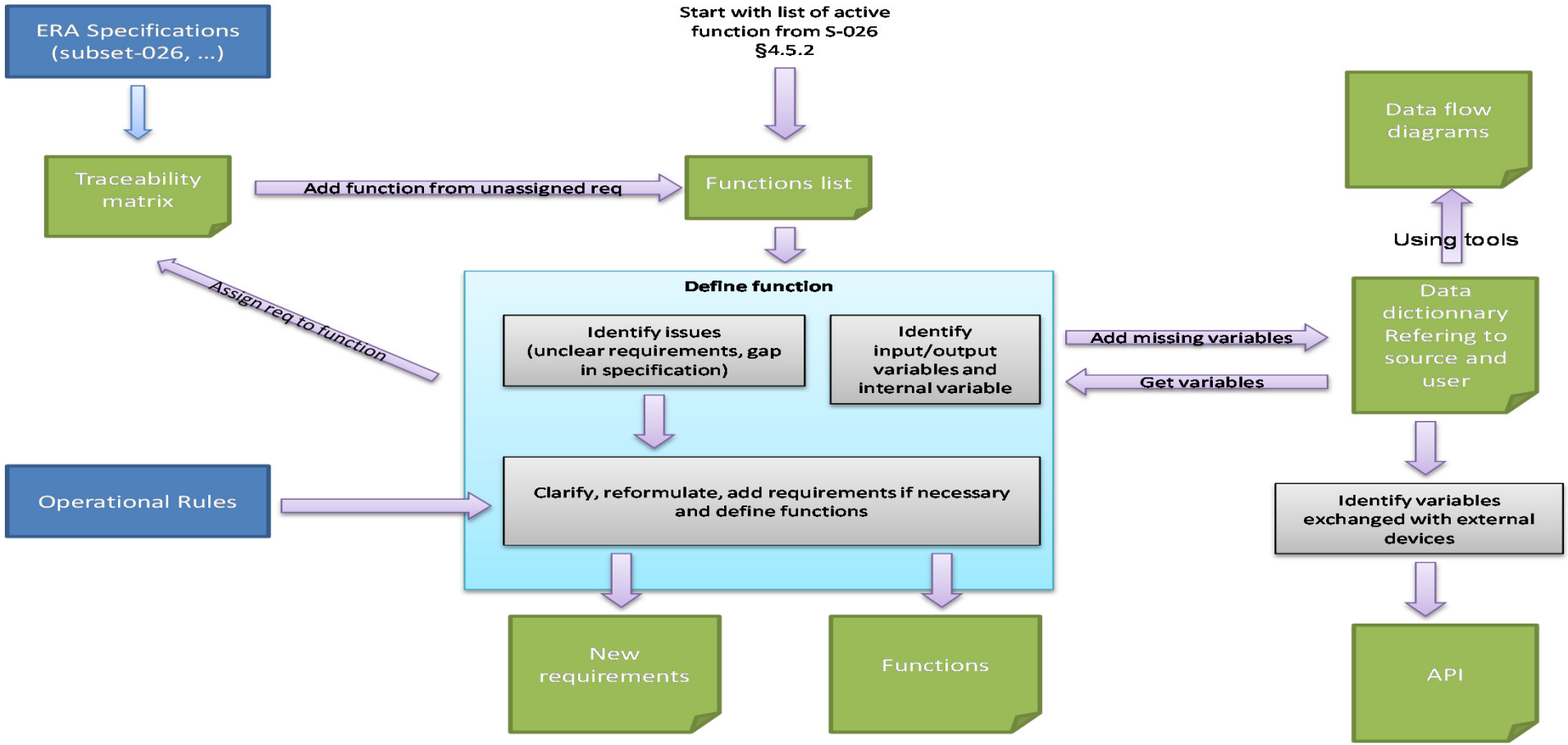
Process


Process
API
System Boundaries
Decomposition of the functions
Requirements

Overview SSRS process



SSRS process



Example: Roll_Away_Protection_ID_Input_variables

Document Source	Subset-026						
Unique Function Identifier	**4.5.2.1 table - Roll Away Protection**						
Related SRS §	Subset-026-3.14.2						
Link to BTSF (German operation rules)	Chapter 6.2 Ablauf 79						
Variable Name	**description**			**Source**	**Range**	**Source Assumed**	**Comment**
Input Variables (unique name)	**description**	**ETCS language reference**	**Version**	**source of requirements information**	**possible values (Range)**	**Refering to other Functions:**	**remark**
Direction Controller		Subset-034-2.5.2	3.0.0	TIU	forward/backwards/neutral		value 'not available' is not foreseen
MOTION_DIRECTION		97E2675B-3.5.21	5-	ODO, BL2 informative Specification	stationary cab A leading cab B leading unknown		Remark: Reference to API chapter: 3.2.5.1
OCCUPIED_CABIN		can be derived from inputs described in: Subset-034-2.5.1 Subset-027-4.2.4.38	3.0.0 3.0.0	TIU	Cab A active Cab B active Cab not active		Remark: Reference to API chapter: 3.2.10
D_NVROLL		Subset-26-A3.2	3.3.0	SRS	National Values		
POSITION	Assumption: Distance travelled since power-up related related to Cab A moving forward (positive direction)					Assumed: ODO	Remark: Reference to API chapter: 3.5.2 Remark: Not to be mixed up with the Subset-027-4.1.2.4.5 TRAIN_POSITION which refers to the distance to the LRBG (LastRelevantBaliseGroup)
Variable not defined RapBrakeRevocation		Subset-026-4.7.2 table - Ackn for Roll Away Protection	3.3.0	SRS	No values defined, proposed: Revoked NotRevoked	Function:BrakeCommandHandling (Subset-026-3.14.1.5)	

Example: Roll_Away_Protection_ID_Input_variables

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Unique Function Identifier	**4.5.2.1 table - Roll Away Protection**						
Related SRS §	Subset-026-3.14.2						
Link to BTSF (German operation rules)	Chapter 6.2 Ablauf 79						
Output Variables (unique name)	**description (ETCS language reference)**		**Version**	**source**	**possible values**		**remark**
Variable not defined: Symbol in DMI RapBrakeActivation	Brake intervention due to Rollaway protection	Subset-026-3.14.2.6	3.3.0	SRS	IsCommanded IsNotCommanded		
Variable not defined: Message to be acknowledged on DMI	rollaway protection indicated to the driver	Subset-026-3.14.2.6	3.3.0	SRS			
Proposals							
When is the rollaway protection (re-) initiated? (Subset-026-3.14.2.7)							
error direction controller not available	if dircon is not available in one of the modes where roll away protection is required then…… (see Subset-026-3.14.2.1)						
Is RAP responsible for relasing the brake?							
A tool needed for data dictionary!							

Example: Roll_Away_Protection_ID_Input_variables

Variable Name	Description	**ETCS reference**	**Version**	Source (O)	Range	User (Multiple) (I)
Direction Controller		Subset-034-2.5.2	3.0.0	TIU	forward/backward s/neutral	3.14.2 Roll Away Protection
MOTION_DIRECTION		97E2675B-3.5.21 (BL2)	5-	ODO	stationary cab A leading cab B leading unknown	3.14.2 Roll Away Protection
OCCUPIED_CABIN		can be derived from inputs described in: Subset-034-2.5.1 Subset-027-4.2.4.38	3.0.0 3.0.0	TIU	Cab A active Cab B active Cab not active	3.14.2 Roll Away Protection
MaxRollAwayDistance	derived from D_NVROLL and Q_SCALE 7.5.1.17	subset26 7.5.1.17		3.18.2 National/ Default Values	0,..,327000km	3.14.2 Roll Away Protection
POSITION	Assumption: Distance travelled since power-up related related to Cab A moving forward (positive direction)			ODO		3.14.2 Roll Away Protection
RapBrakeRevocation		Subset-026-4.7.2 table - Ackn for Roll Away Protection (Subset-026-3.14.1.5)	3.3.0	3.14.1 BrakeCommandHandling	Revoked NotRevoked	3.14.2 Roll Away Protection
RapBrakeCommand				3.14.2 Roll Away Protection	IsCommanded IsNotCommanded	3.14.1 BrakeCommandHandling DMI function
D_NVROLL		Subset-26-A3.2	3.3.0	MessageDecodingFunction	National Values	3.18.2 National/ Default Values

Example: Roll_Away_Protections_ID_discussions of the requirements

Roll Away Protection			Subset-026-3.14.2
Discussion of the requirements in subset026 3.14.2:			
3.14.2.1 Information shall be available in the modes where this function is executed. Note not relevant.			
3.14.2.2 and 3.14.2.3 The actual moving direction, the current position of the direction controller and active desk have to defined in relation to input variables: -DirectionController -MotionDirection -OccupiedCabin			
3.14.2.4 The national value for the allowed roll away distance, position and the brake command have to be defined in relation to input and output variables: -MaxRollAwayDistance -RapBrakeCommand -Position			
adding to 3.14.2.4 The movement mentioned shall be referenced to a ReferenceLocation: The ReferenceLocation shall be the most far position reached in the last selected driving direction (= the current driving direction is this is different from neutral) after the last selection of this driving direction.			
3.14.2.5 is assigned to the Brake Handler			
3.14.2.6 is to be splitted in a RAP requirement and a DMI requirement			
3.14.2.7 The information to be sent to the RAP to revocate the brake has to be defined in relation to a variable: -RapBrakeRevocation			
3.14.2.7 is to be splitted in a RAP requirement, a DMI requirement and a Brake Handler requirement			

Example: Roll_Away_Protections_ID_discussions of the requirements

Roll Away Protection			Subset-026-3.14.2
variables (see DataDictionary)			
DirectionController	input		
MotionDirection	input		
OccupiedCabin	input		
MaxRollAwayDistance	input		
Position	input		
RapBrakeRevocation	input		
RapBrakeCommand	output		
ReferenceLocation: The position from which rolling is	internal variable		
functions	**functional block**	**SRS requirements**	**clarification**
At start-up ReferenceLocation shall be set equal to Position	Roll away protection	3.14.2	
If the train is driving in the selected direction and the current position is beyond the ReferenceLocation then ReferenceLocation shall become the value of Position	Roll away protection		The selected direction can be determined from the selected cabin plus the direction controller. Direction is in relation to the train orientation.
If (after executing RAP-2) the distance between Position and ReferenceLocation is more than MaxRollAwayDistance then RapBrakeCommand shall become Commanded	Roll away protection		
If RapBrakeCommand is Revoked then - ReferenceLocation shall become the value of Position - RapBrakeCommand shall become NotCommanded	Roll away protection		
If RapBrakeCommand is Commanded then the message "roll away intervention (TBD)" has to be sent to the DMI	DMI manager	3.14.2.6	
If RapBrakeCommand is Commanded then the brake shall be commanded	Brake Command Handling	3.14.2.5	