



Schneider-Electric Abstract Modeling Framework

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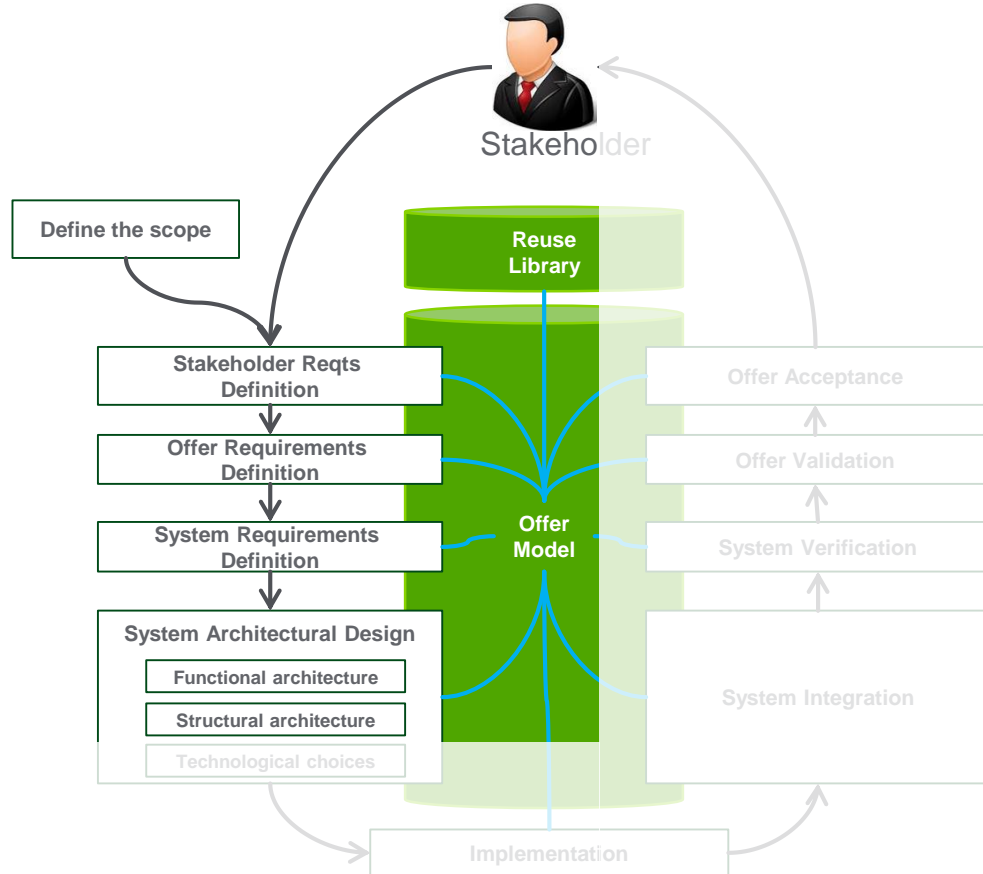


SPONSORS






Abstract modeling framework


System modeling
without consideration of
technological choices




Abstract modeling framework

Requirement management  

Configuration management 

Change management 

Test management 


Abstract model edition
(Data definition and traceability)

- Data Model
- Template
- HMI customisation
- Consistency verification
- Collaborative works

Mockups




Multi disciplines



Docs generation



Files generation

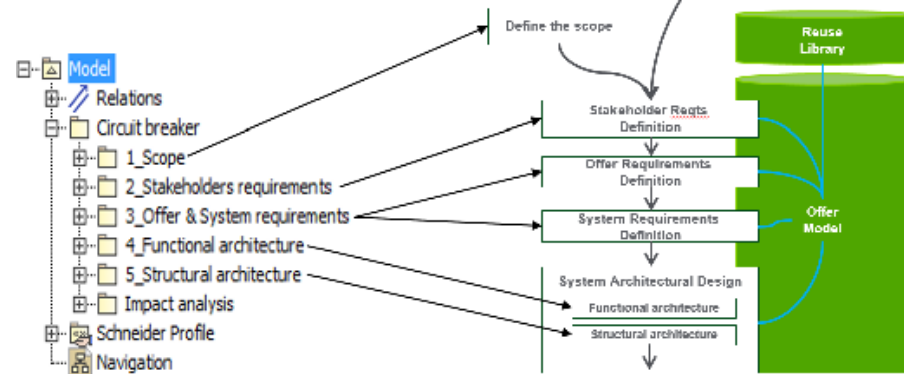
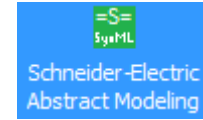
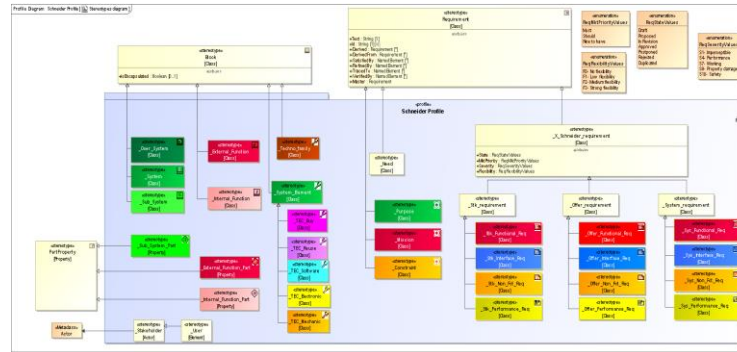



- Discover abstract modelling and mock-ups
- Abstract modeling advanced : Use cases
- Abstract modeling advanced : Systems requirements
- Abstract modeling advanced : Functional Architecture
- Abstract modeling advanced : Structural architecture

Data Model & Template

Data model : stereotypes to uses the usual objects in developpment phases.

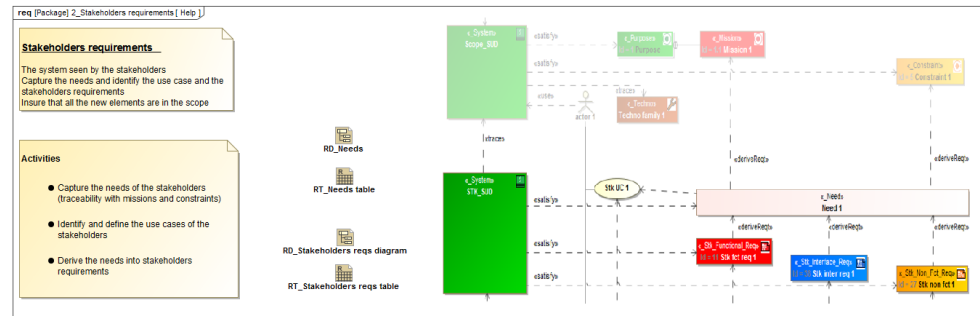
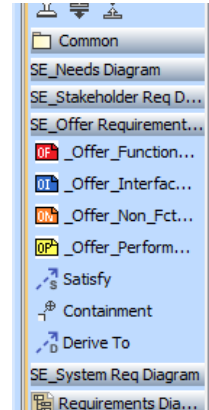
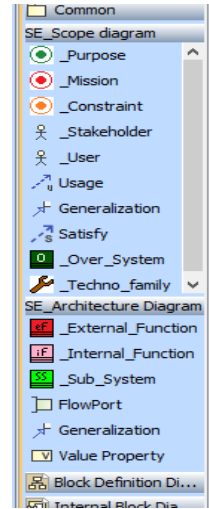
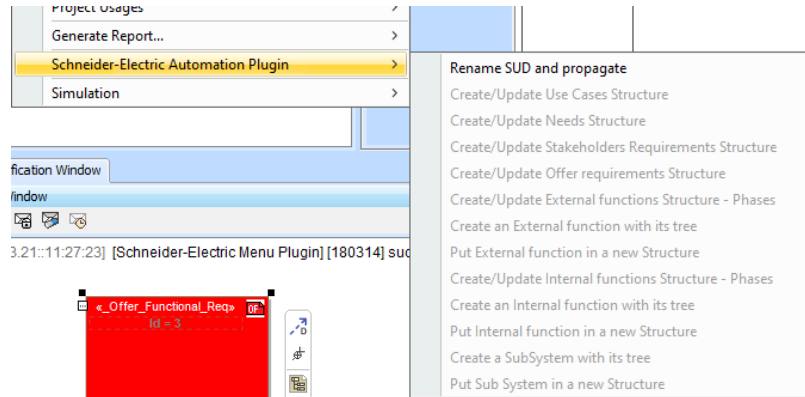
The template is organized using packages reflecting the abstraction levels of Systems Engineering.



HMI customization

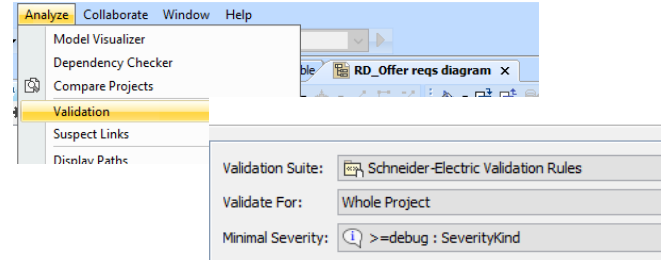
To ensure an easy use of the framework

- Optimize the menu
- Optimize tool boxes
- Add commands to create object organization
- Integrated help about the method
- Installation tool



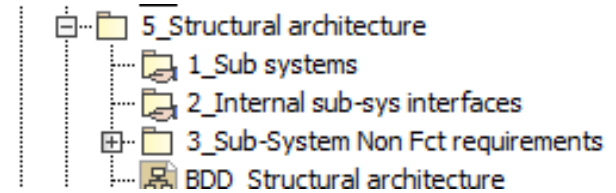
Consistency verification

Verification of the consistency / quality of the model in front of rules



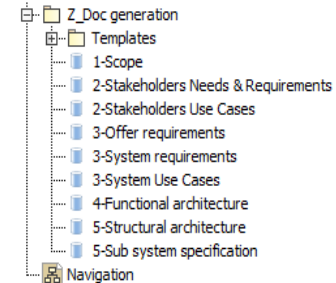
Collaborative works

Share parts of the model to create traceability in the models of the sub-systems

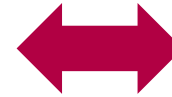


Doc generation

Generation of documents to provide a document view on the model



Interface with 'Requirement management'

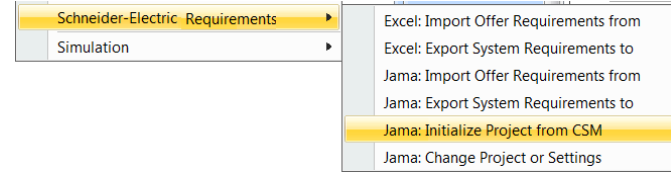


Requirement management

Ensure exchange with the requirement management activities

- Excel file with the Schneider template

- Import / Export
- Management of the change



ID	Type	Name	Documentation	State	MitPriority	Flexibility	Severity
24	Offer_Functional_Req	Permit to open close the network		Permit to open clo Draft			
23	Offer_Functional_Req	Display the current value		Display the current In Revision			
23.1	Offer_Performance_Req	precision 0.1 A		precision 0.1 A In Revision			
22	Offer_Functional_Req	Trip in case of over current		Trip in case of over Postponed			
22.1	Offer_Performance_Req	if current > 1 kA		if current > 1 kA Duplicated			
22.2	Offer_Performance_Req	Max current to break 5 kA		Max current to be Rejected			
25	Offer_Functional_Req	Display the state of the network		Display the state of Approved			
28	Offer_Non_Fct_Req	Compliant with MV electrical switchboard		Compliant with MV Proposed			
28.1	Offer_Performance_Req	Size 10x20x40		Size 10x20x40 Proposed			

- Jama tool with the Schneider data model

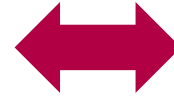
- Import / Export
- Management of the change



3.3_System Requirements

ID	Last Activity Date	# of Updates	# of Closes	Title
SPRJ3-FLD-163	03/20/2018	0	0	Operation
SPRJ3-FLD-164	03/20/2018	0	0	Protect on over Current
SPRJ3-ASYS-317	03/22/2018	1	1	Trip in case of over current
SPRJ3-ASYS-328	03/22/2018	0	0	if current > 1 kA
SPRJ3-ASYS-329	03/22/2018	0	0	Trip in less 20 ms
SPRJ3-FLD-165	03/20/2018	0	0	Permit control
SPRJ3-FLD-166	03/20/2018	0	0	inOpenCloseDemand
SPRJ3-ASYS-320	03/22/2018	1	0	inOpen Close order from user

Interface with 'Configuration management'



Configuration
management

Configuration management for the models

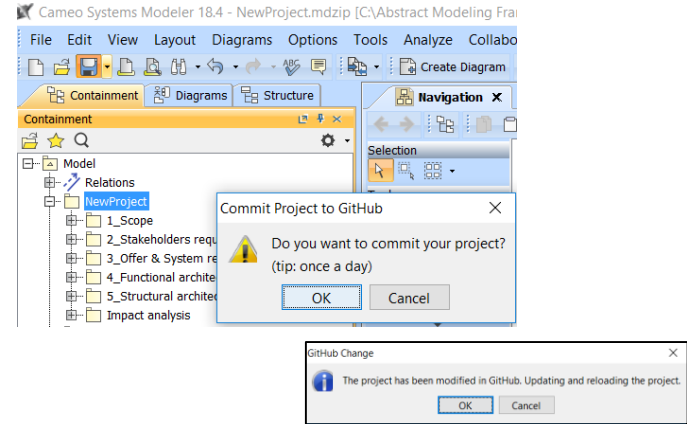
● Basic with GitHub



- Management of the versions

● Advanced with Cameo Teamwork

- Versions
- Branch, merge, ...



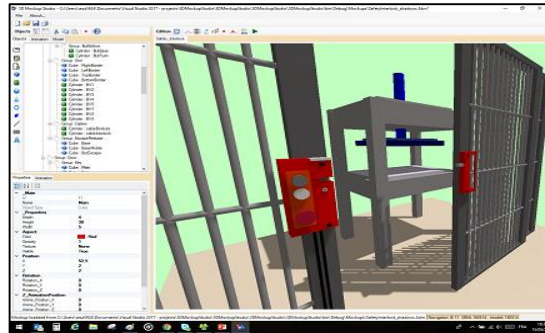
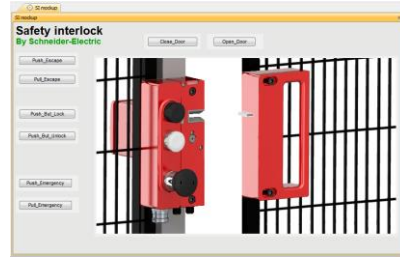
Launched with a
contractor

Mockups 1/2



To facilitate the validation by the stakeholders

- 2D mockups
- 3D mockups
- Standalone mockups



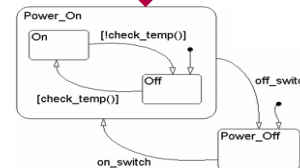
2D : Improvements proposed to No Magic

Standalone : On going


3D : on going



Simulation



Conclusion

- AMF created by
 - Xavier DOREL (Schneider-Electric)
 - Olivier CASSE (Olivier Casse Consulting)
 - Jean Luc DROUOT (Kaizen Solutions)
- 40 days to obtain a first solid and usable version.
 - Thanks to the developpers and to Cameo 
- Used in several POC (Proof of Concepts) projects