Boosting
Digital Transformation

Simulation architecture definition for complex systems design: A tooled methodology

Jean-Patrick Brunet (IRT SystemX)
Henri Sohier, Mouadh Yagoubi, Mathieu Bisquay (IRT SystemX)
Pascal Lamothe (PSA Groupe)
Pascal Menegazzi (Valeo)

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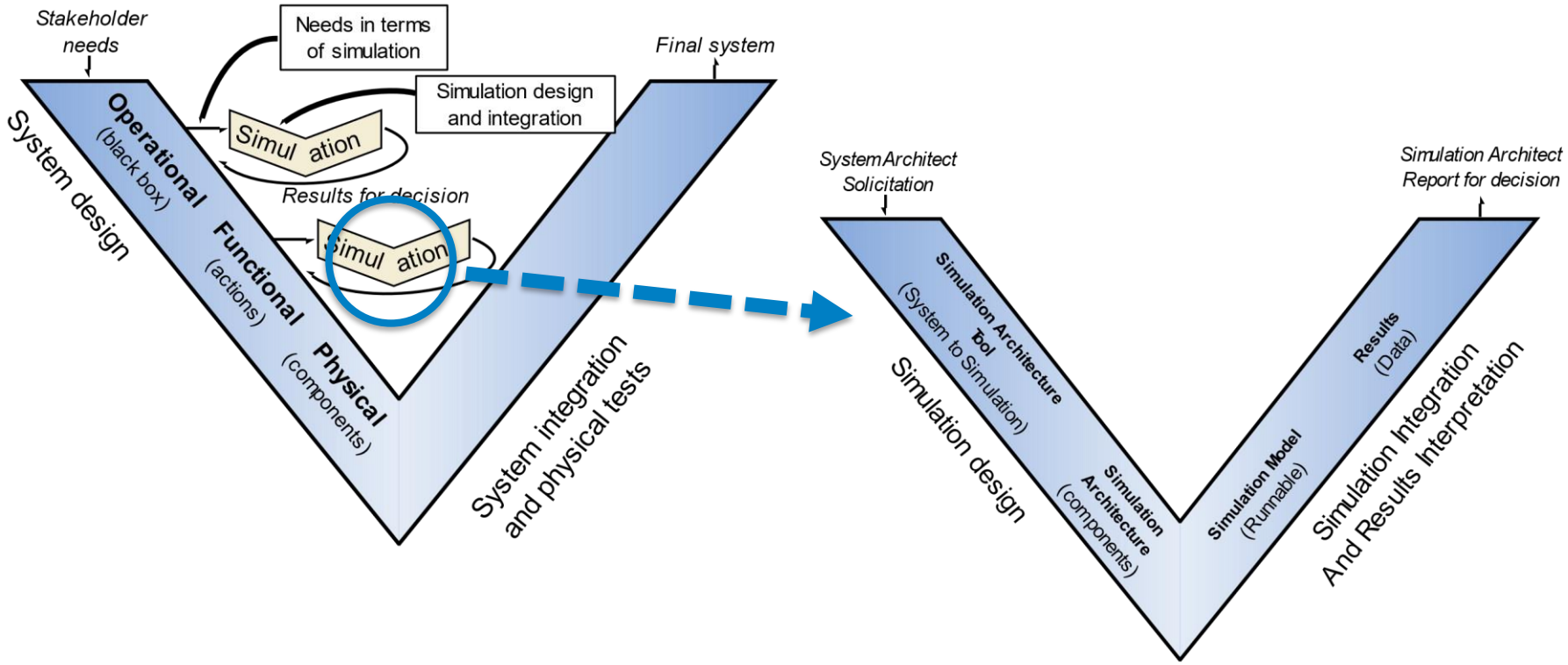
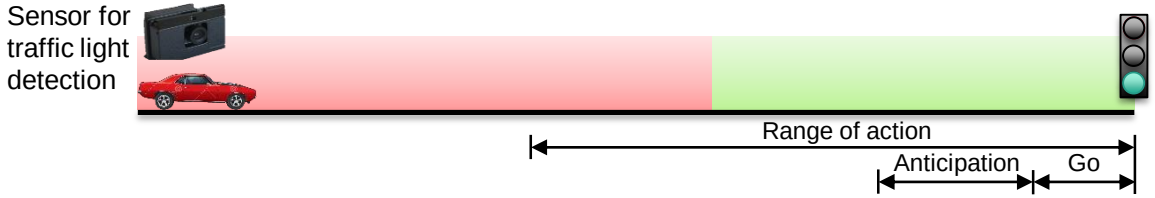
Plan

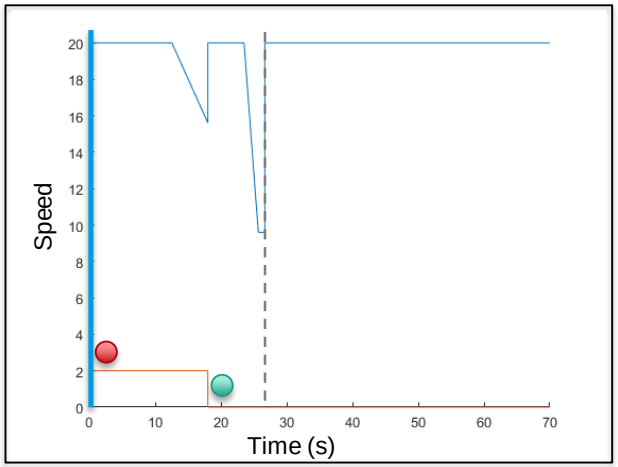
- **Context and challenges**
- **Industrial design problem**
- **Tooled methodology**
  - Agility in complex conception cycle
  - Simulation architecture & models library
  - Decision making
- **Conclusion**

Context and challenges



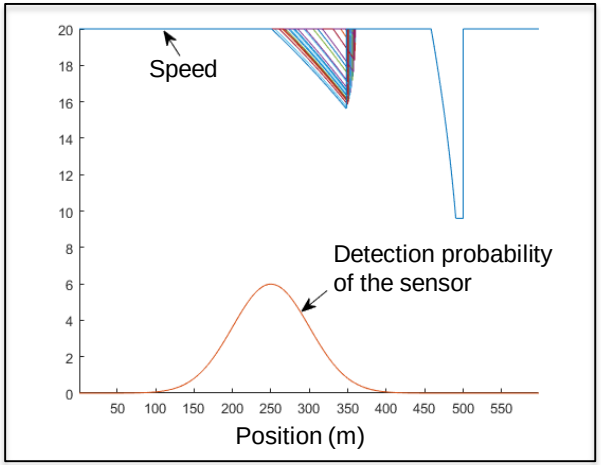
Industrial design problem





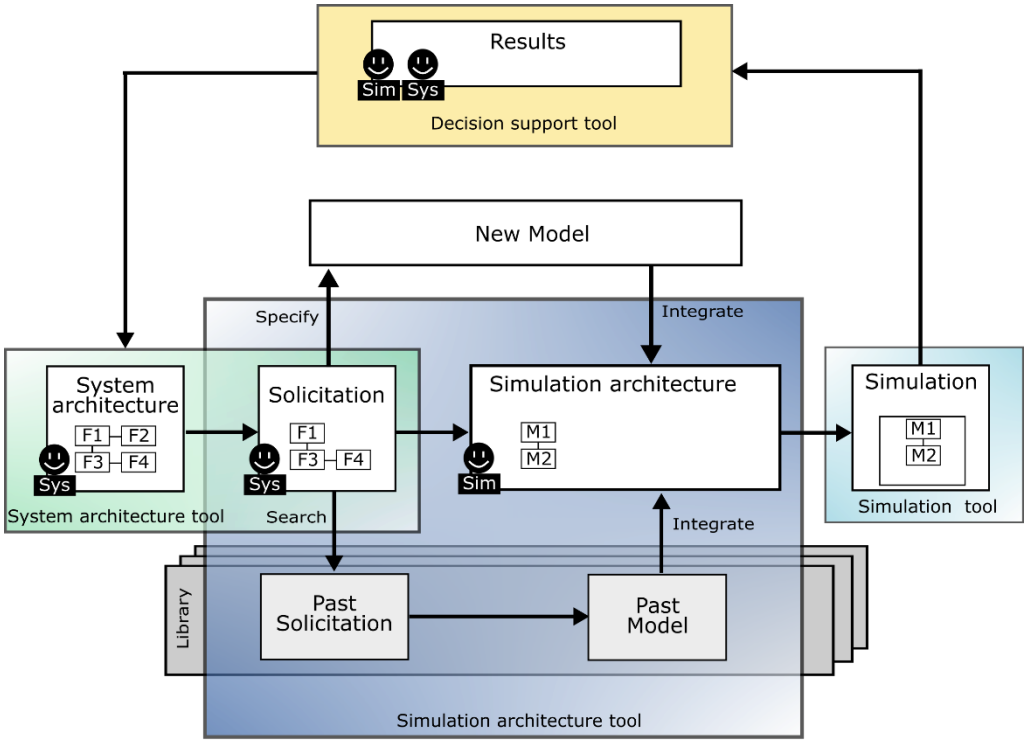
2 sensor parameters

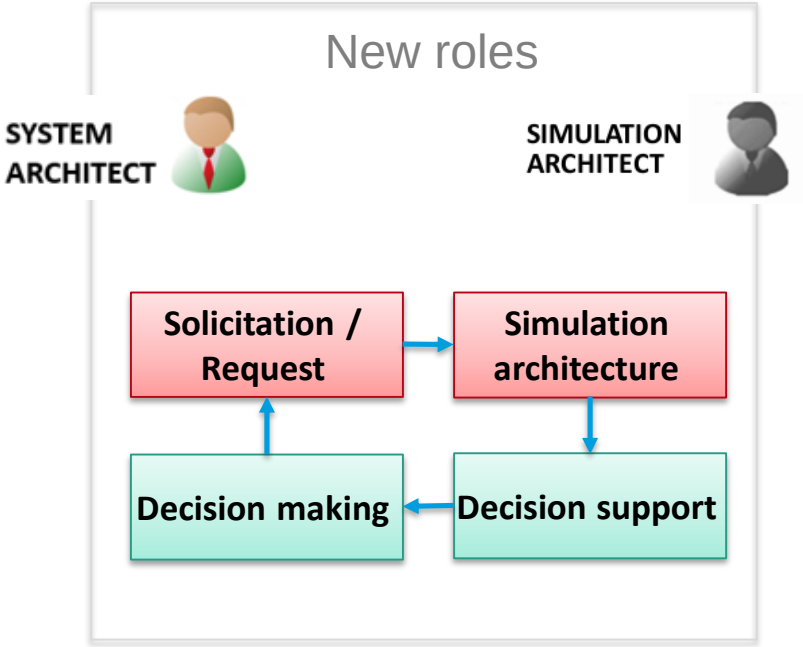
2 control parameters



<u>System Architect solicitation:</u> What are the best control and sensor parameters to minimize both the energy consumption and the sensor cost?

Tooled methodology : Agility in complex conception cycle





Sys Sim Responsibility of the system architect or simulation architect

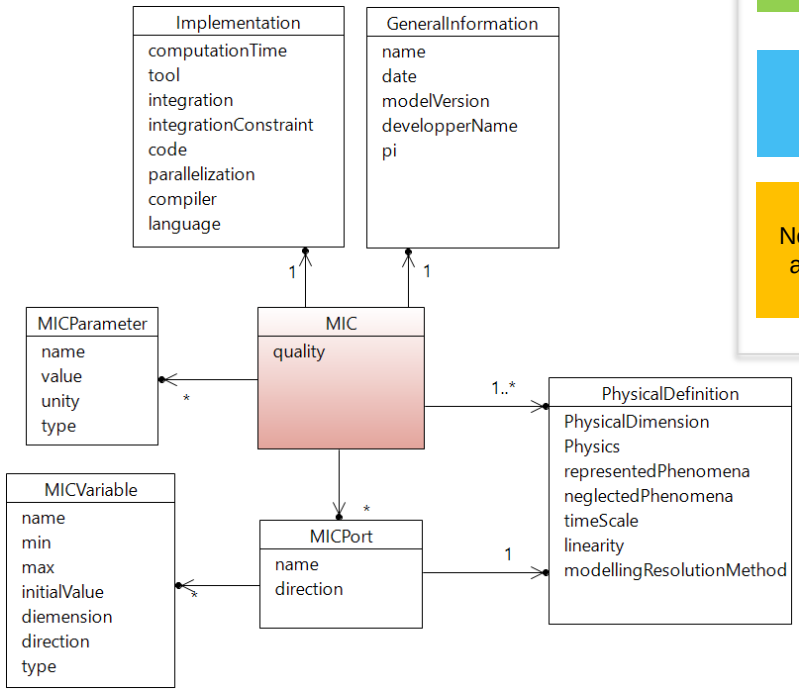
Tooled methodology : Simulation architecture & models library

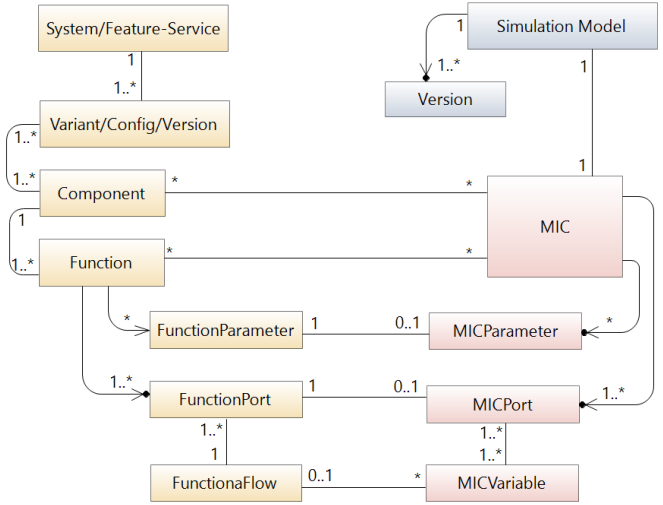
Model Identity Card

Specification MIC
New Simulation model
(Innovation projet)

Capitalization MIC
Already realized simulation model

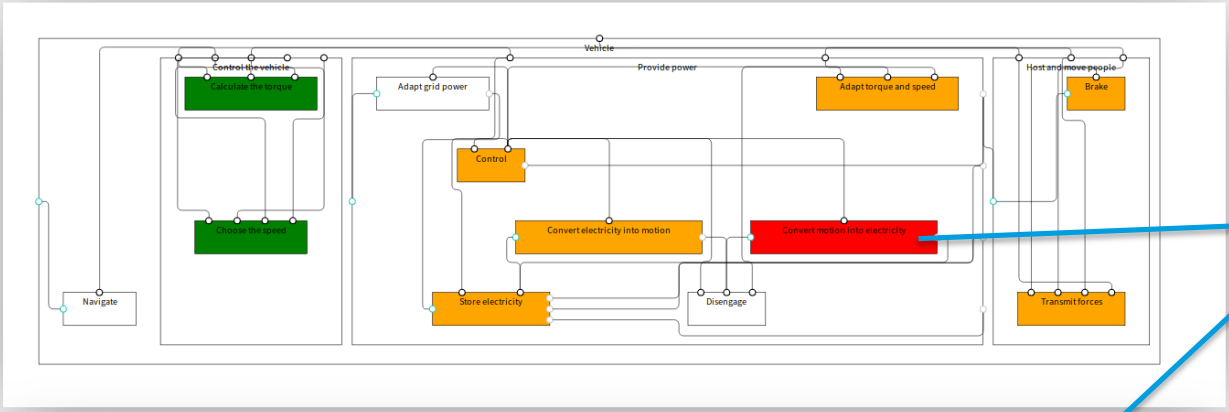
Negociation MIC
New simulation model based on an already realized simulation model

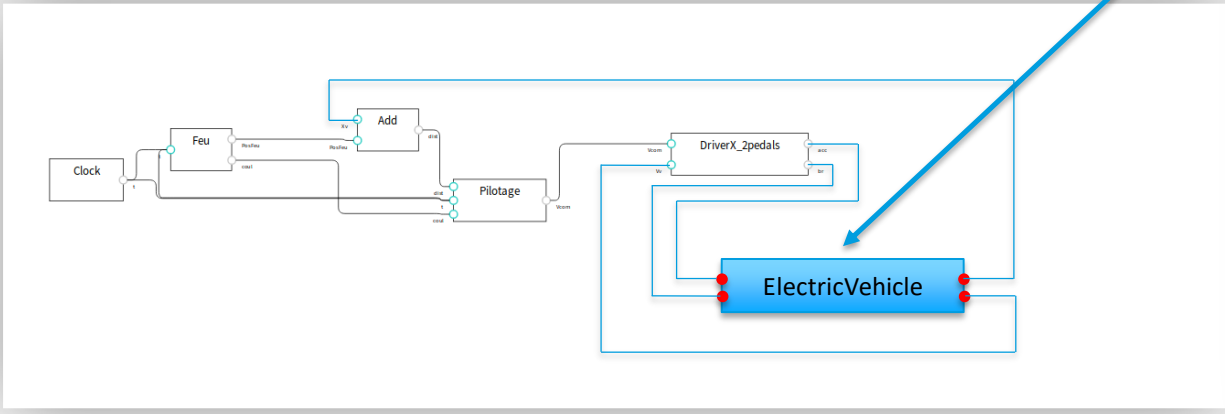


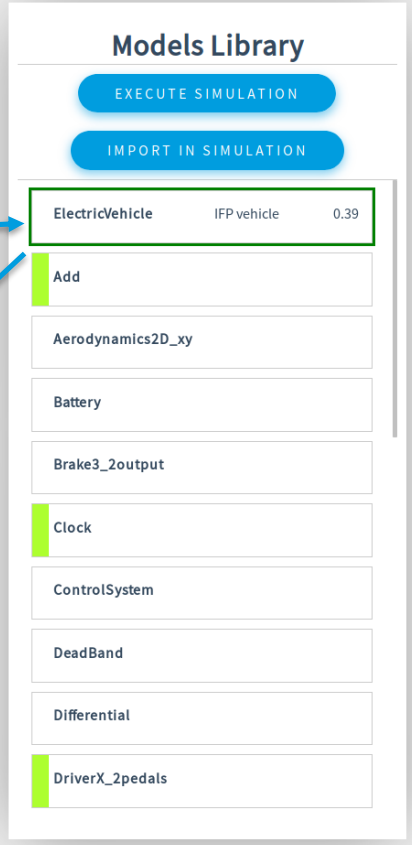


Relation between Functions/MICs/Simulation Models

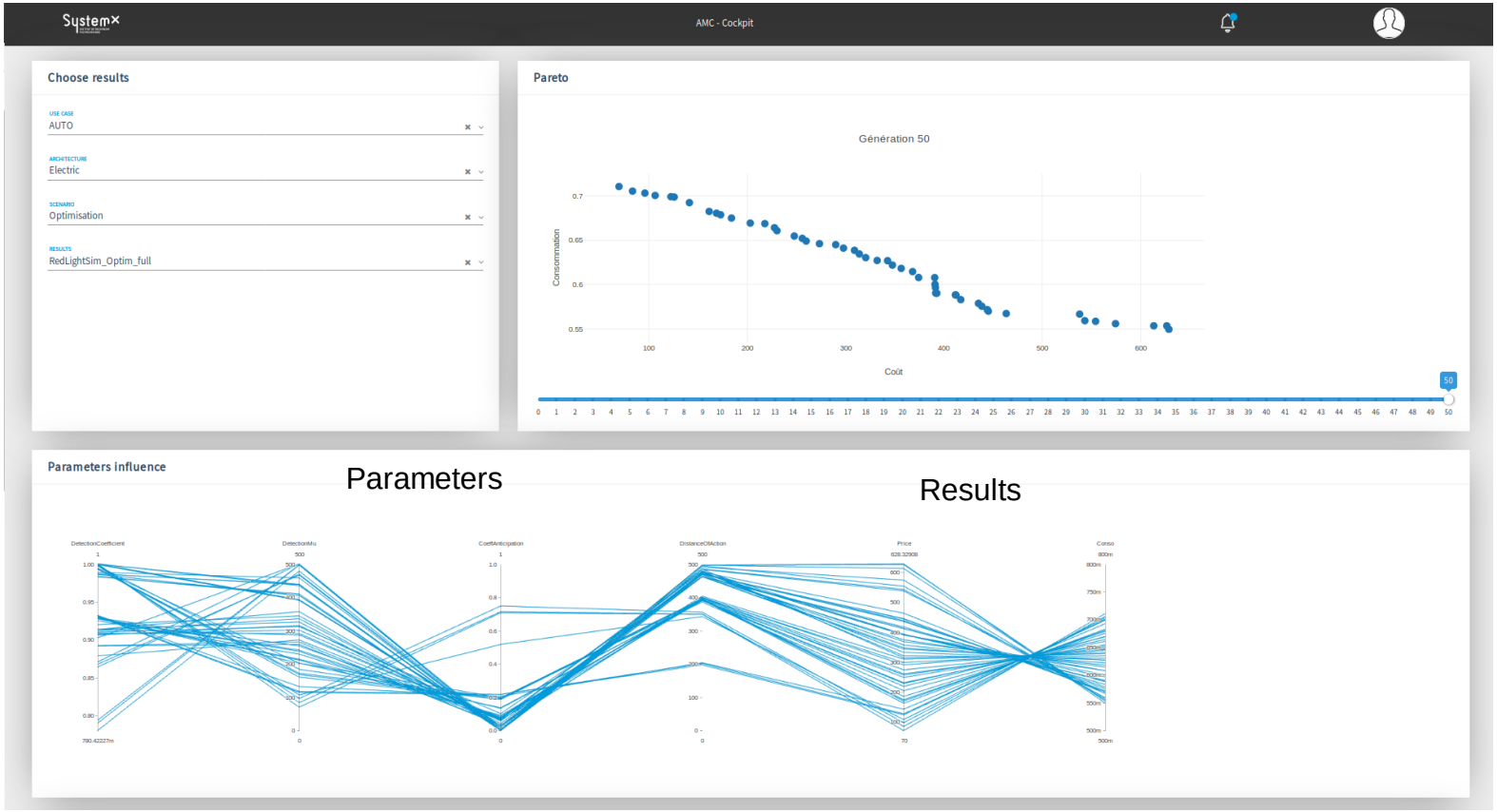
Tooled methodology : Simulation architecture & models library



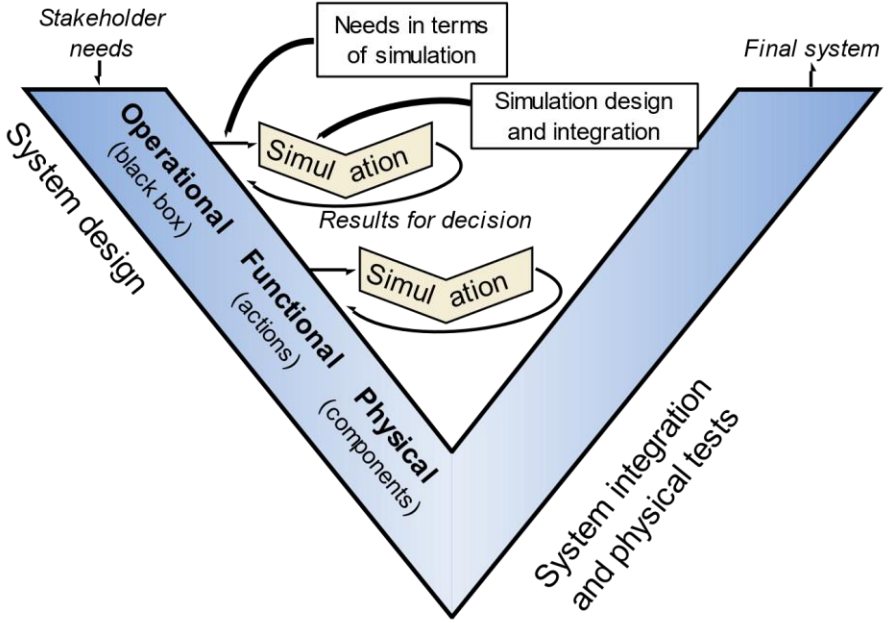


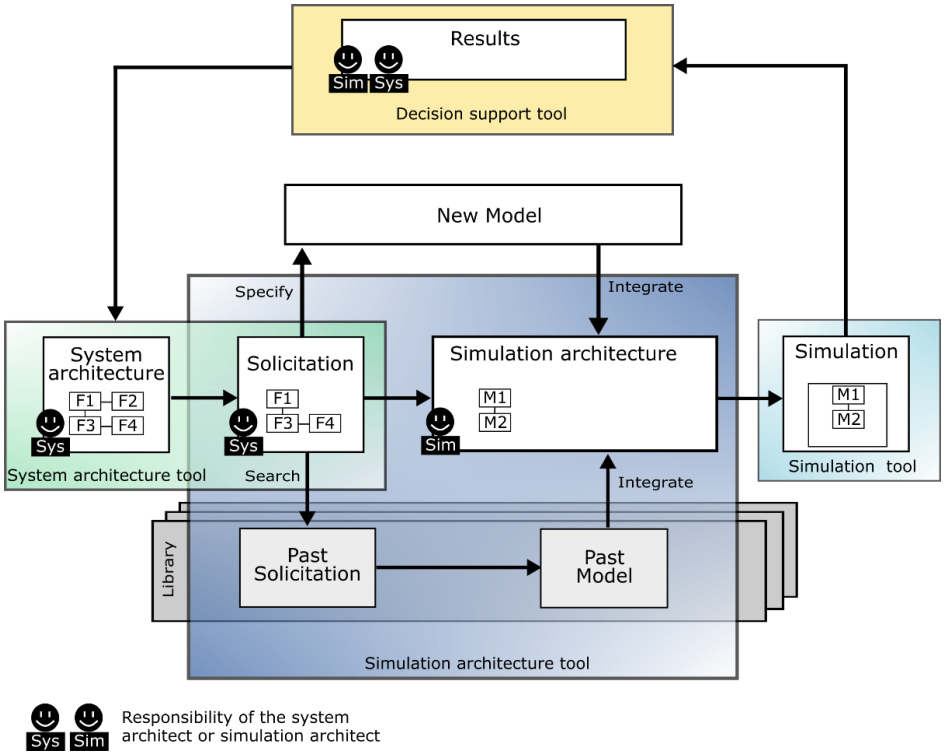


Tooled methodology : Decision making



Conclusion


Stakeholder needs
Needs in terms of simulation
Final system
Simulation design and integration
Simul ation
Results for decision
Simul ation
System design
Operational (black box)
Functional (actions)
Physical (components)
System integration and physical tests


Results
Sim Sys
Decision support tool
New Model
Specify
Integrate
System architecture
F1 F2 F3 F4
Sys
Solicitation
F1 F3 F4
Sys
Simulation architecture
M1 M2
Sim
Simulation
M1 M2
System architecture tool
Search
Integrate
Simulation tool
Library
Past Solicitation
Past Model
Simulation architecture tool
Sys Sim
Responsibility of the system architect or simulation architect

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Questions?

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