

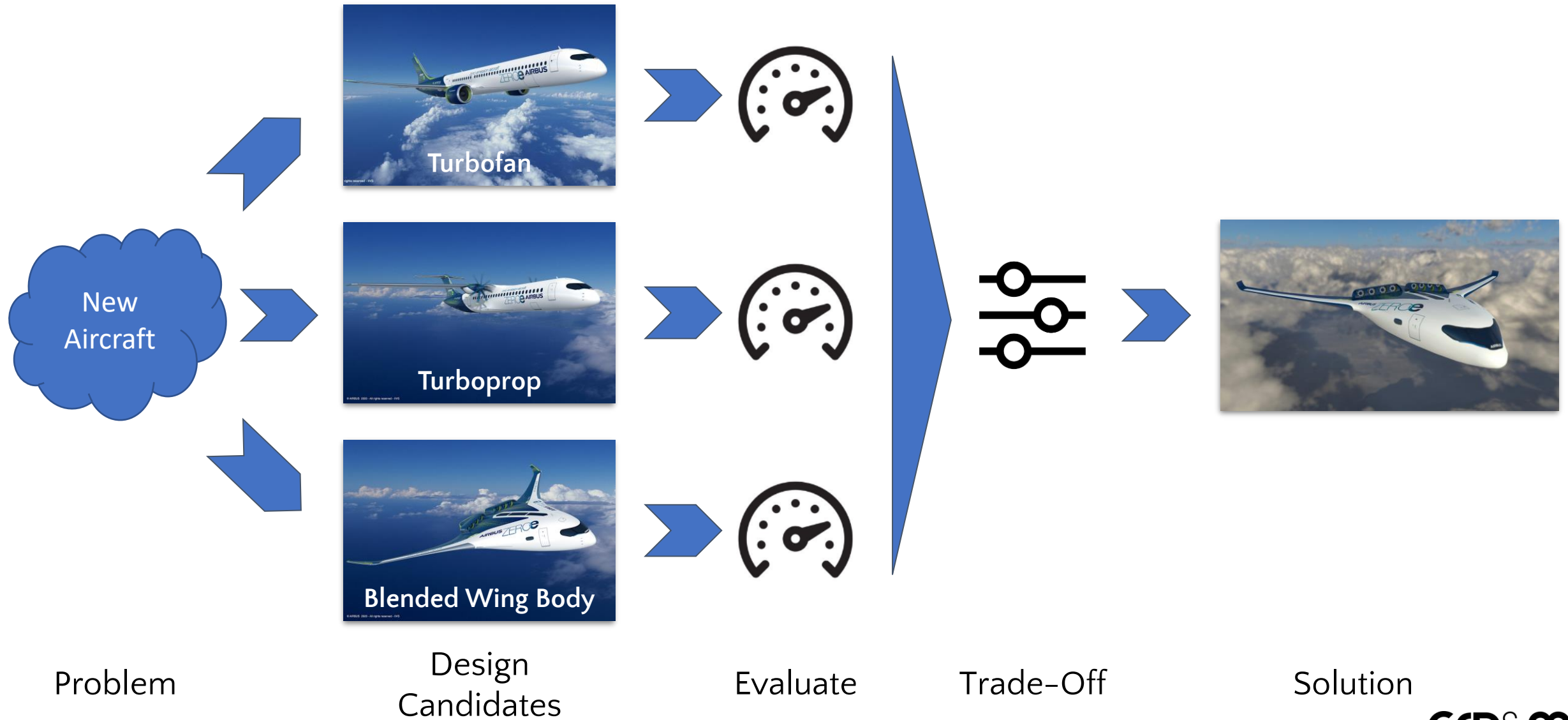
Enabling multidisciplinary-analysis of SysML models in a heterogeneous tool landscape using Parametric Analysis Models

Philipp Helle, Gerrit Schramm, Sönke Klostermann, Sergio Feo-Arenis

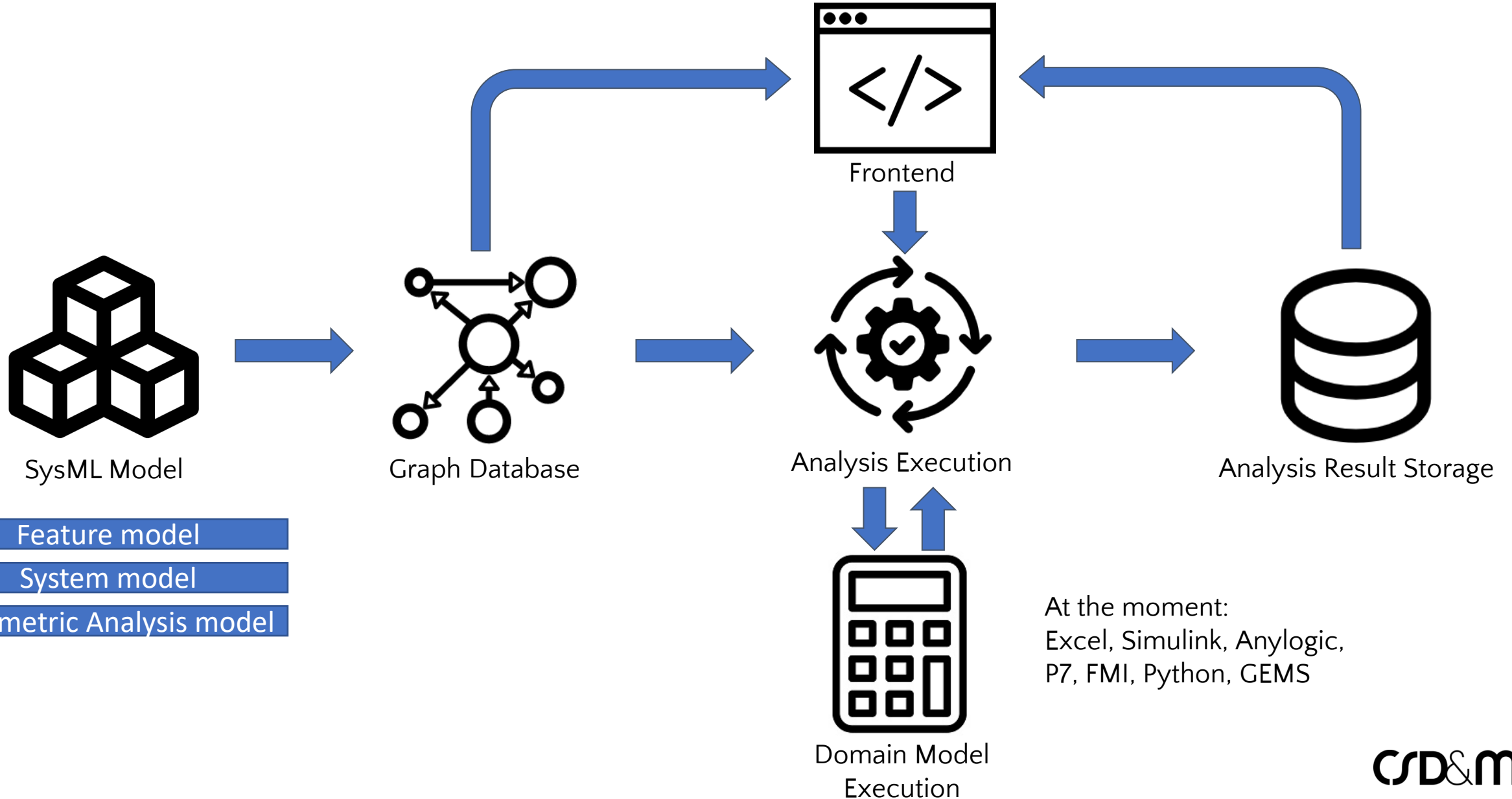
Airbus Central R&T – Virtual Product Engineering

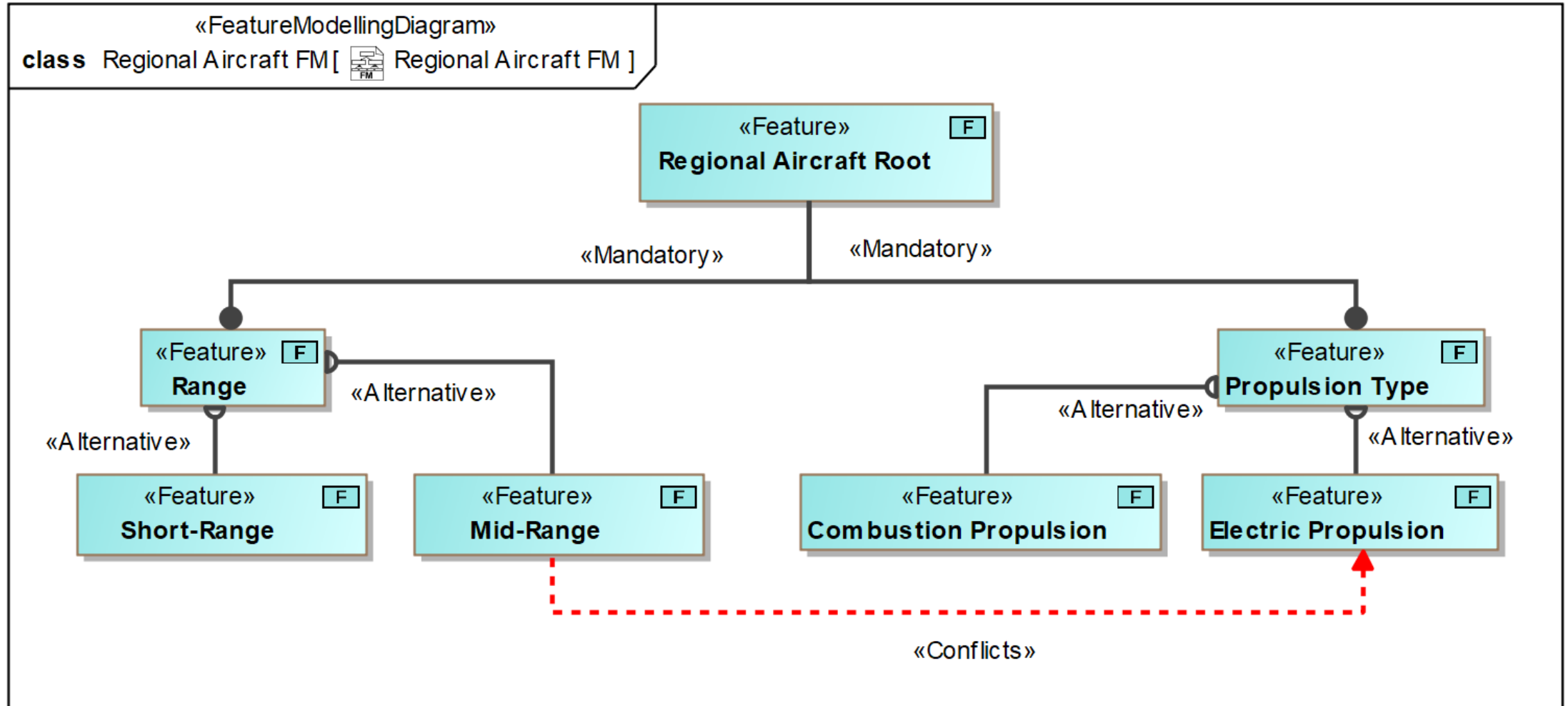
Systems Engineering Process

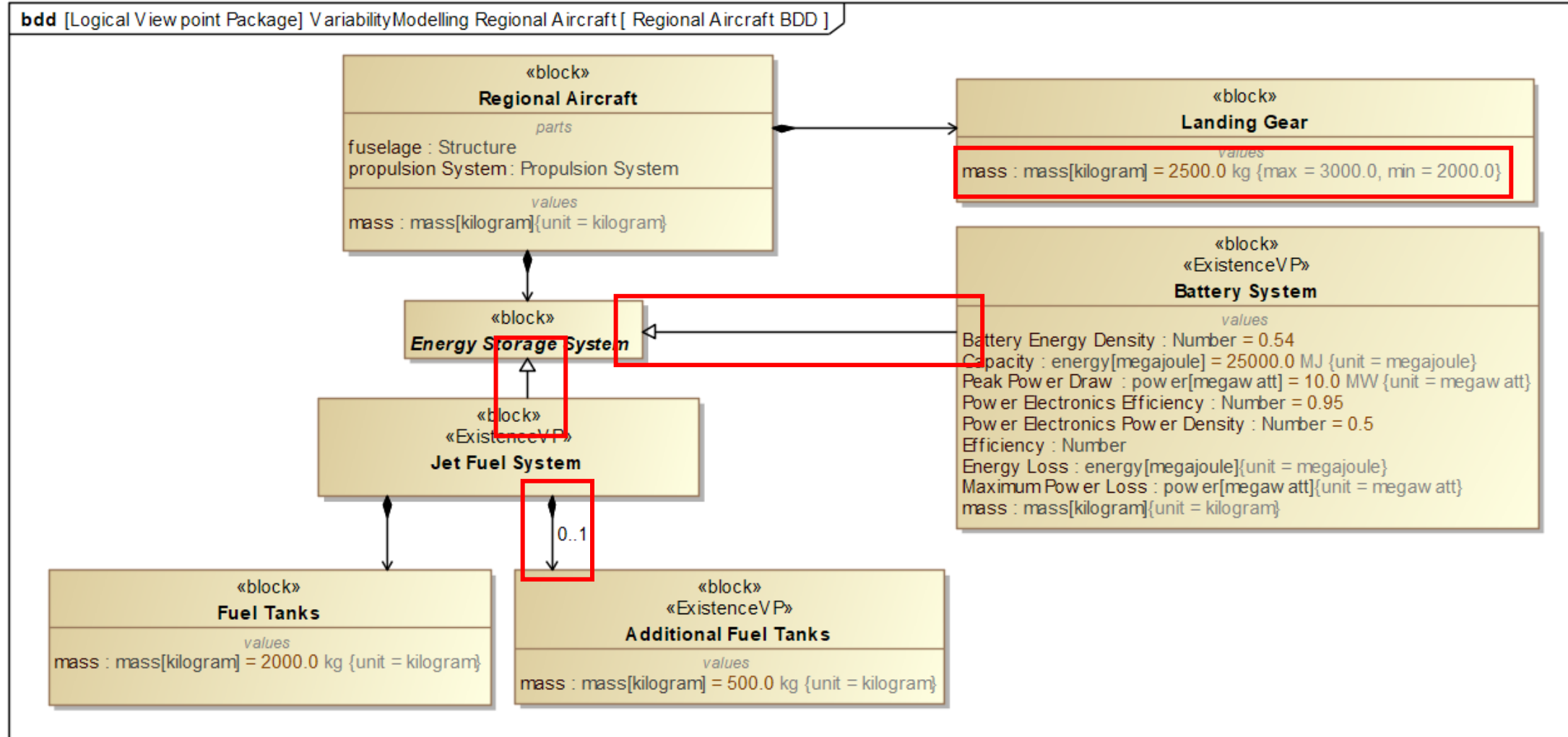
AIRBUS

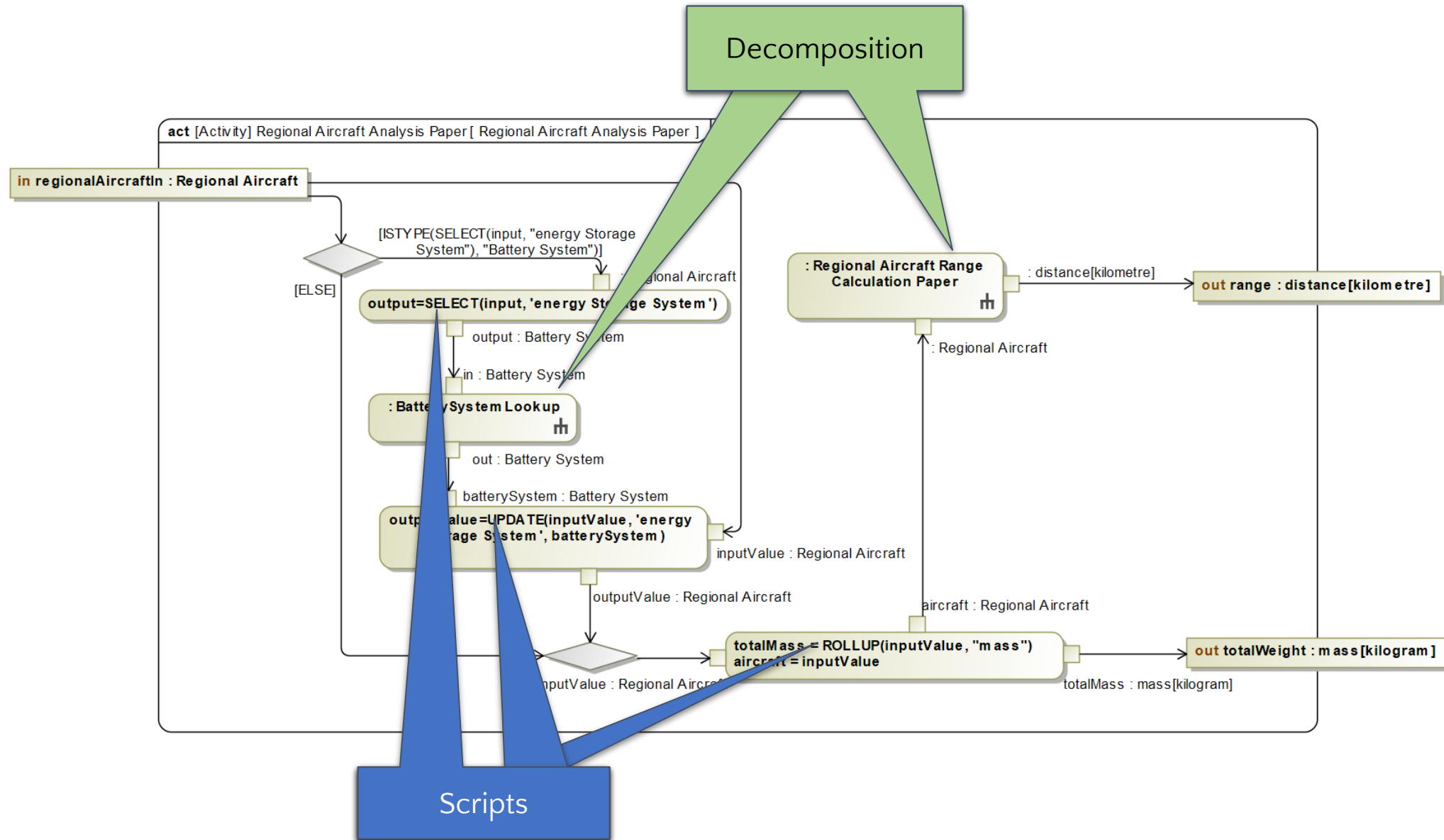


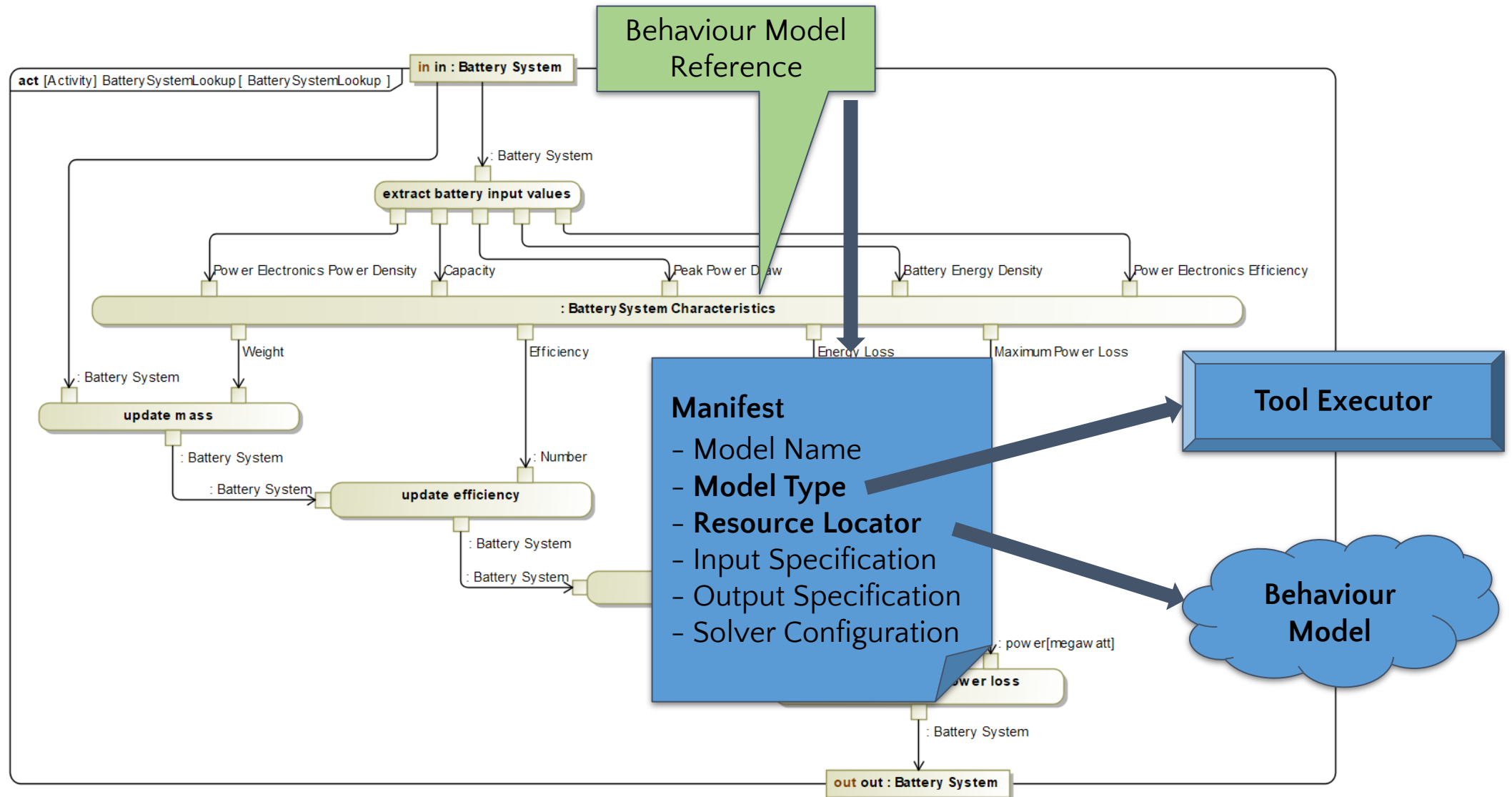
- Model the system, its variability and the analysis process using SysML
- Integrate calculation results from models from different disciplines in different tool formats
- Automate the analysis in a scalable asynchronous execution environment

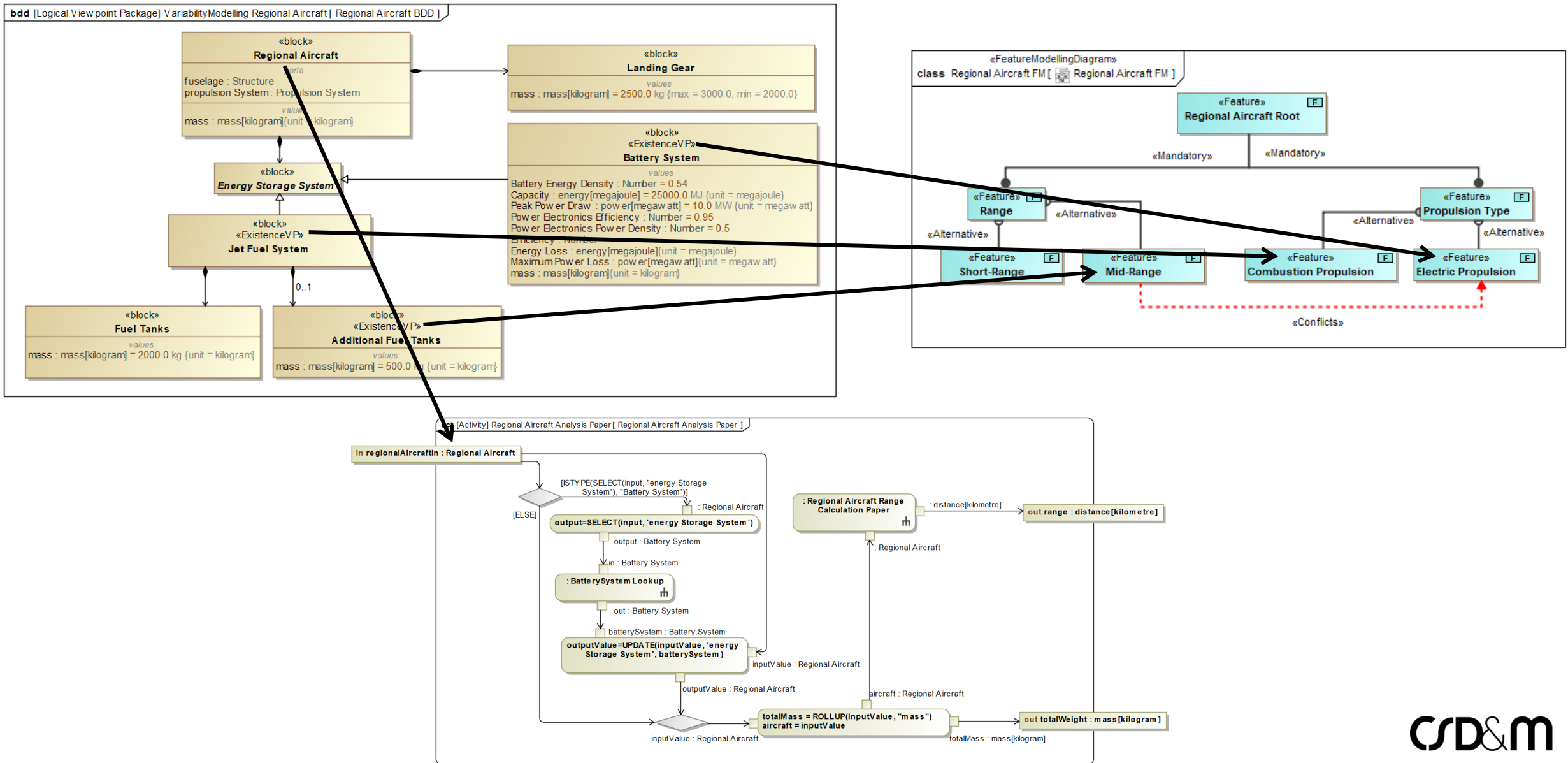












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Central R&T - Disruptive Industrial System Modeling

Home

Parametric analysis

Data Types

Feature Modelling

View data

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Show graphs in Protege

DISM Homepage

XRV Homepage

Parametric analysis model

ID: 9f9df5e5-451e-44de-91e1-26abb2796ad0

Name: Regional Aircraft Analysis Paper

Diagram

Inputs

Parameter	ID
regionalAircraftIn	50aa6718-f152-473b-90a29f51948e0

Outputs

Parameter	ID
range	dc896ae7-d504-4339-b12e-d2fd51507f25
totalWeight	a2fcbab4-434a-4cd4-a238-dca9522e709e

Executor Status

Running DoEs and VAs

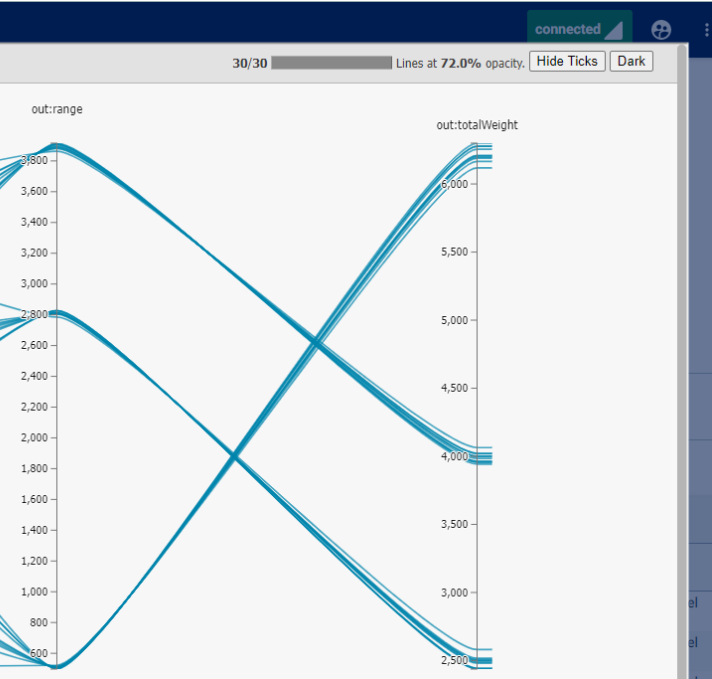
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Regional Aircraft Analysis Paper	9f9df5e5-451e-44de-91e1-26abb2796ad0	f54309c9-e989-4bba-8434-ac39042d2f01	VARIANTANALYSIS	a few seconds ago	f54309c9-e989-4bba-8434-ac39042d2f01

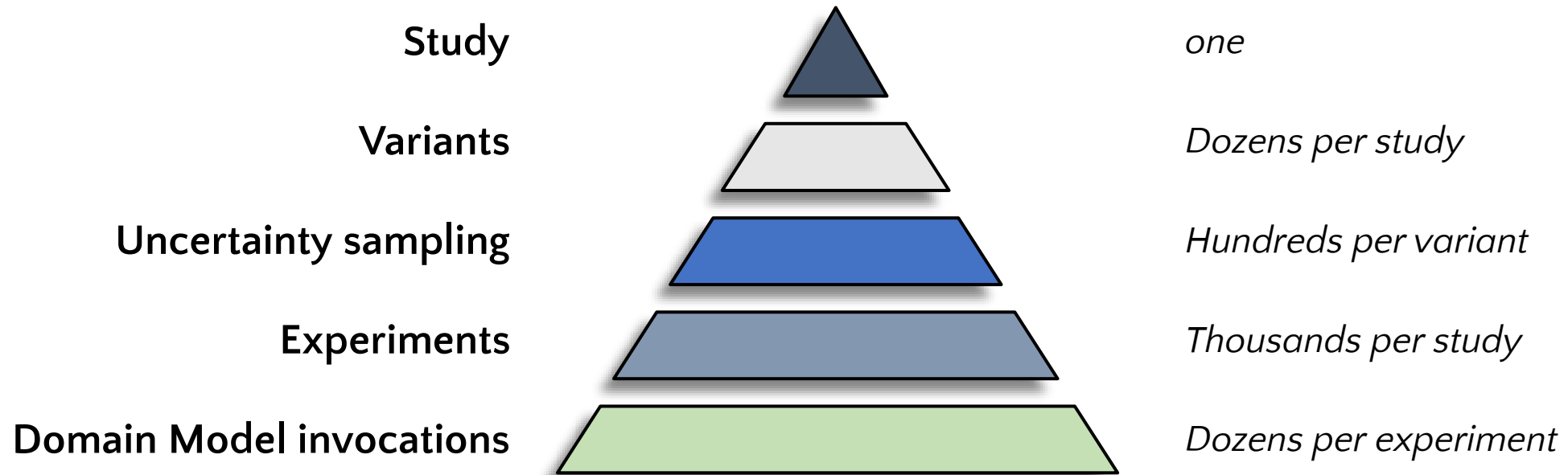
Running experiments

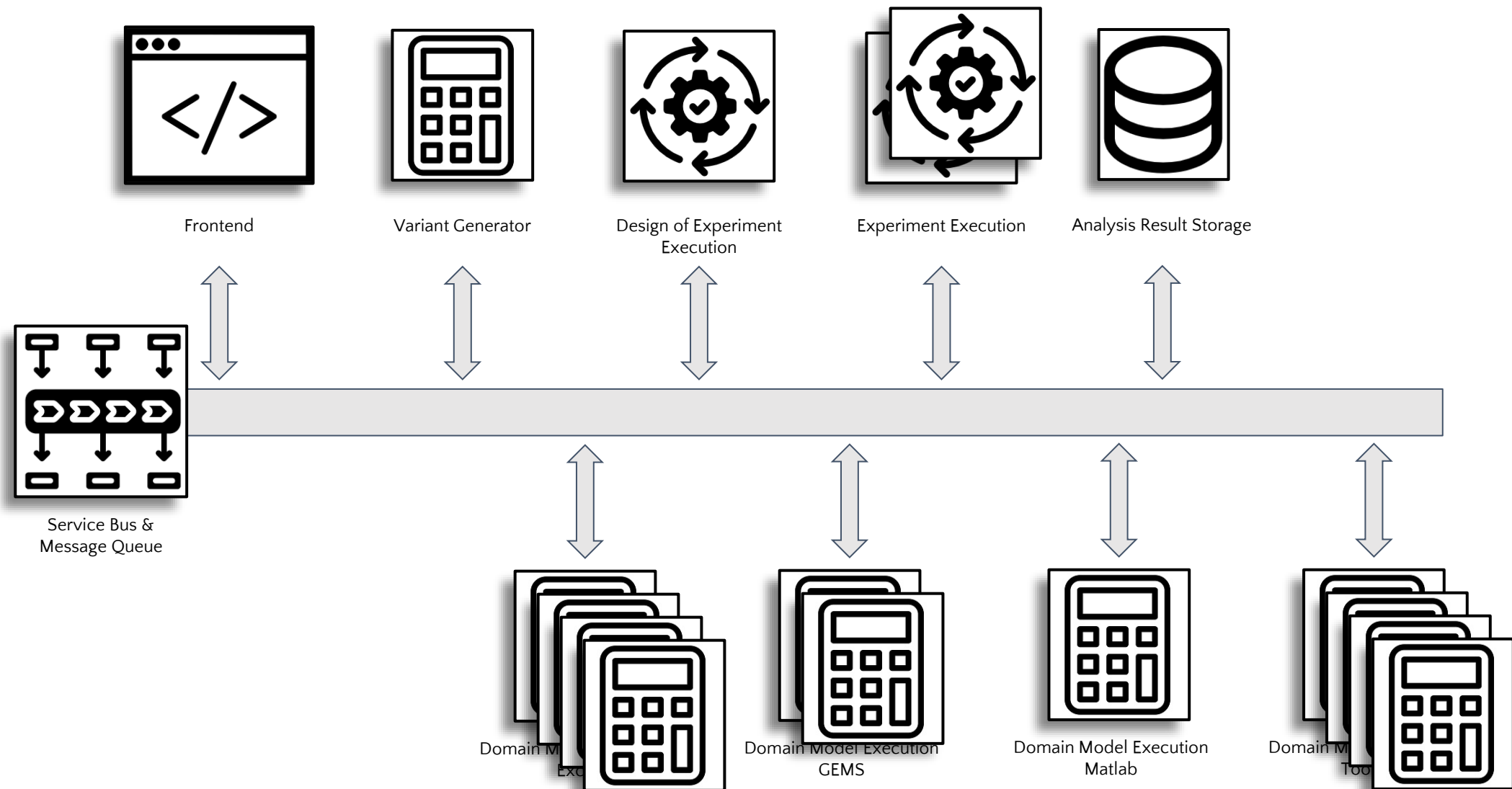
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Regional Aircraft Analysis Paper : variant...	9f9df5e5-451e-44de-91e1-26abb2796ad0	101d2fd5-348a-44a5-bea4-4d867161c76e	a few seconds ago	101d2fd5-348a-44a5-bea4-4d867161c76e	SAMPLED
Regional Aircraft Analysis Paper : variant...	9f9df5e5-451e-44de-91e1-26abb2796ad0	522b5b1f-d3b6-450c-a19e-ad4f0385174c	a few seconds ago	522b5b1f-d3b6-450c-a19e-ad4f0385174c	SAMPLED
Regional Aircraft Analysis Paper : variant...	9f9df5e5-451e-44de-91e1-26abb2796ad0	f5dd4049-228a-4cb3-a3dd-a64a227d7890	a few seconds ago	f5dd4049-228a-4cb3-a3dd-a64a227d7890	SAMPLED
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Running tasks

ID	Experiment ID	Start time	Type
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aa9da273-461a-4574-a7f1-fb671e3210ef	f5b7d91b-97d4-4008-888b-550820c6251e	a few seconds ago	GEMS
f5c68f38-bacf-40f1-9b44-f0af4ef0bf87	f5dd4049-228a-4cb3-a3dd-a64a227d7890	a few seconds ago	GEMS
e43fee58-f5bb-4594-8037-5b732a131931	1c6e4a2d-3984-4efd-87f3-06b86d88b4bd	a few seconds ago	GEMS
c6422a91-a503-4380-ab4e-16b95e78771b	522b5b1f-d3b6-450c-a19e-ad4f0385174c	a few seconds ago	GEMS
0f9bdd52-5874-4990-b877-3a6fa139bbb2	101d2fd5-348a-44a5-bea4-4d867161c76e	a few seconds ago	GEMS
9ead22db-ebab-4422-be6a-94e4d7c2556b	675a9dbf-6331-490f-b768-030844d0f5cd	a few seconds ago	GEMS







- Using the same tool and language for modelling a system, its variability and the analysis ensures consistency
- Meaningful analysis requires integration of data from different disciplines
- Scalability needs to be built into the execution environment from the beginning
- SysML v2 will have Analysis case and Trade-off analysis as explicit classes rooted in the metamodel



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