

# **Comparative Assessment of a Collaborative ModelOps Platform**

Henri Katvio

# Definition

- ModelOps = resemble DevOps and MLOps, but is specific as regards integrating modelling and operations
- ModelOps platform = a software platform aiming to service continued development, deployment and usage of models

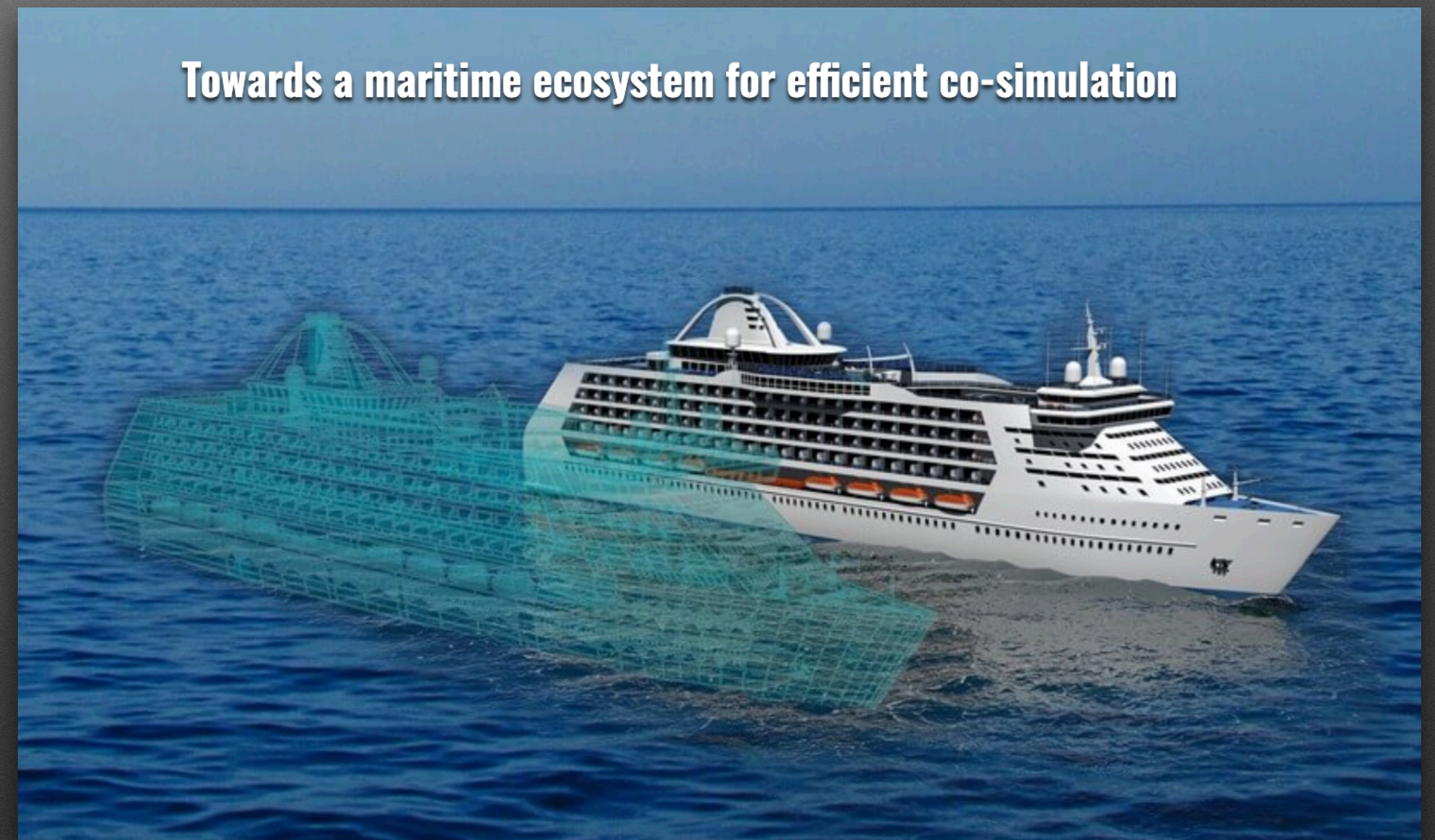
**Existing platforms, a.k.a. motivation**

# Functional Mockup Interface

- Free standard and specification to package models
- Modelica Association project
- Packaged models are called Functional Mockup Units (FMUs)
- Essentially a container of XML files, binaries and C-code
- Different interfaces for different purposes

# Open Simulation Platform

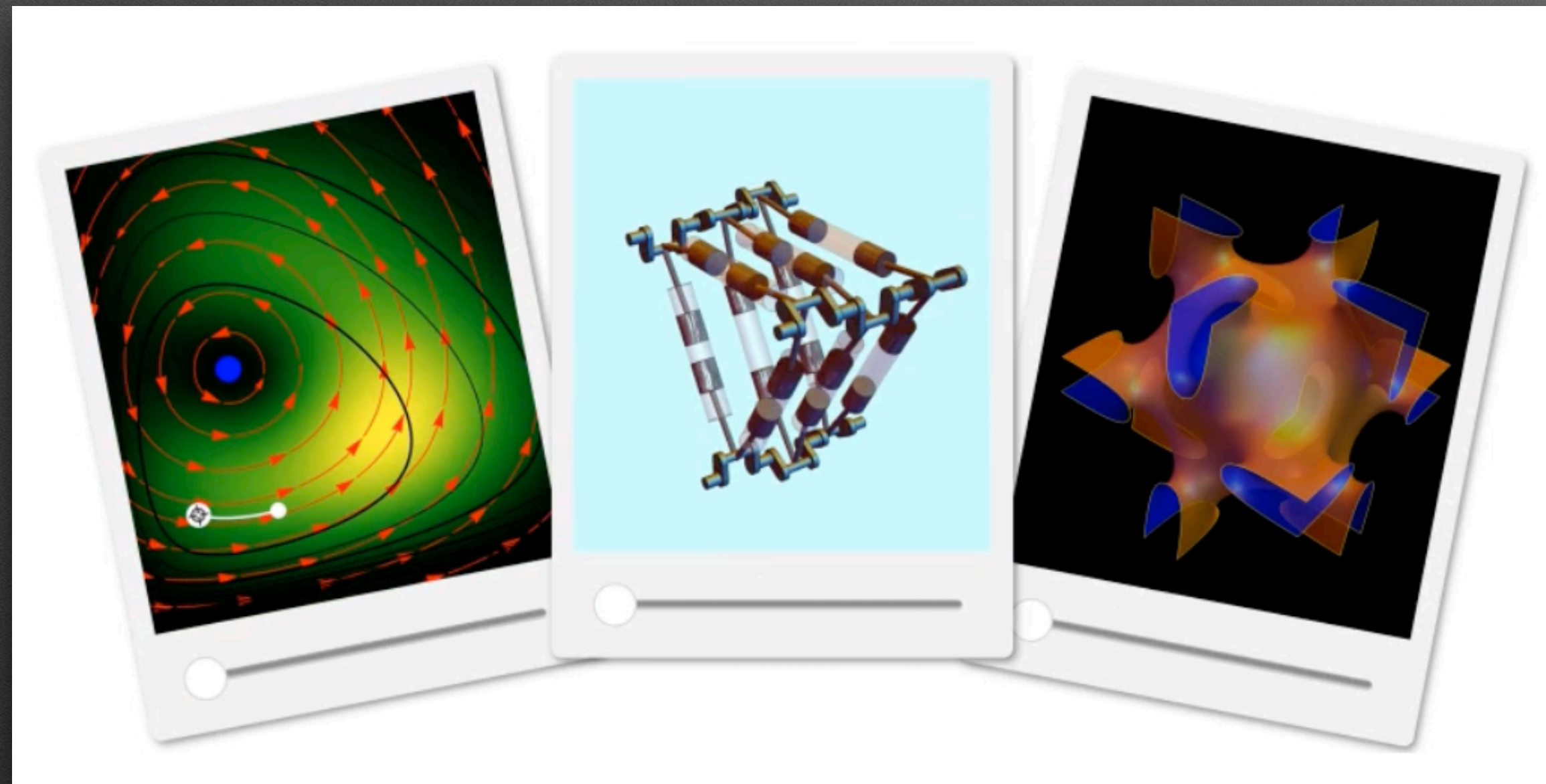
- More a library than a platform
- Aimed at the maritime industry
- Helps to create a Functional Mockup Unit
- Co-simulation capability main feature
- <https://opensimulationplatform.com/>



# Insight Maker

- Free, open-source web-based software for creating dynamic and agent-based models
- Models are called Insights, which are easy to share and collaborate on
- All created Insights are public by default
- Limited by its usage of browser and JavaScript
- <https://insightmaker.com/>

# Mathematica and Wolfram Demonstrations Project



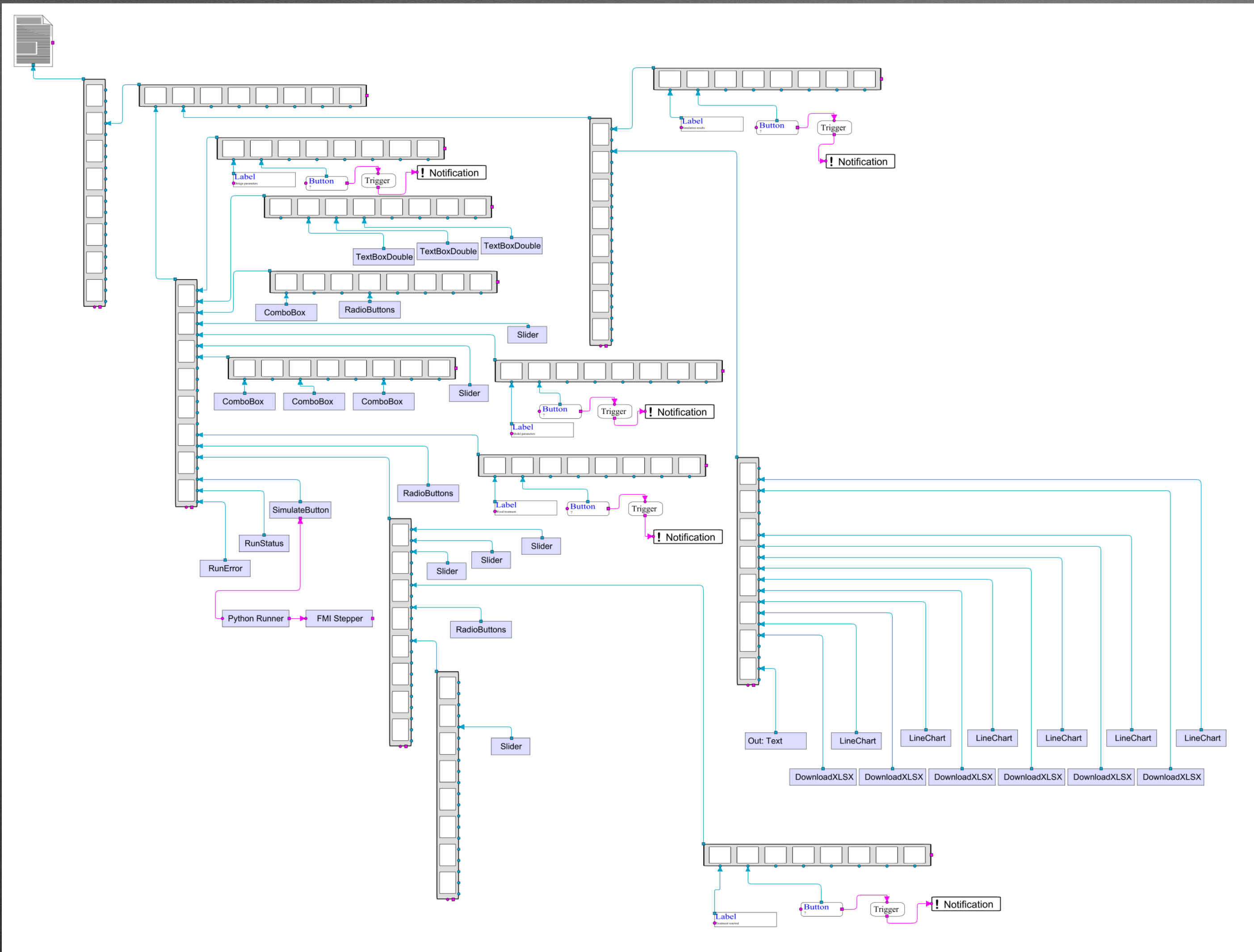
- A symbolic computation program, Wolfram's flagship product
- Available for over a decade, aims to implement every known model, method and algorithm
- Wolfram Notebooks use the same technologies as Mathematica
- Wolfram Demonstrations Project is a collection of interactive Notebooks called Demonstrations
- <https://demonstrations.wolfram.com/>

# Modelling Factory



# Features and Technologies

- Generic integration and publishing platform for computer models
- Assists in creating a web-based GUI and an API for the simulation application
- Model management, version control system, co-simulation, scalability
- Based on GitLab, CI/CD pipelines, Helm charts and containerisation
- Simantics Platform provides one possible publishing pipeline
- <https://modellingfactory.org/>



**Design parameters** ?

Width (mm) 80.0    Height (mm) 160.0    Length (mm) 3000.0

Strength class  Method 1: Reduction of material properties  
 Method 2: Reduction of cross-section

Design life (years)

**Model parameters** ?

Yearly dose

Decay type     Shade     Dose model

**Wood treatment** ?

Untreated     User-defined treatment

Treatment durability (years)

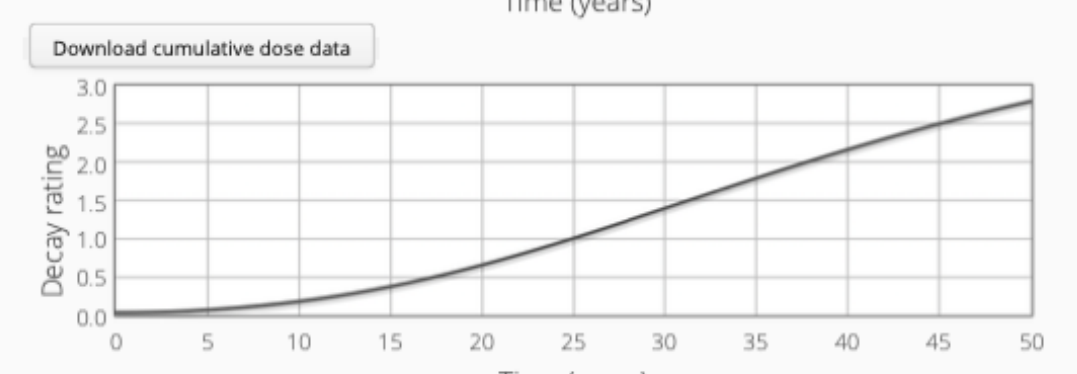
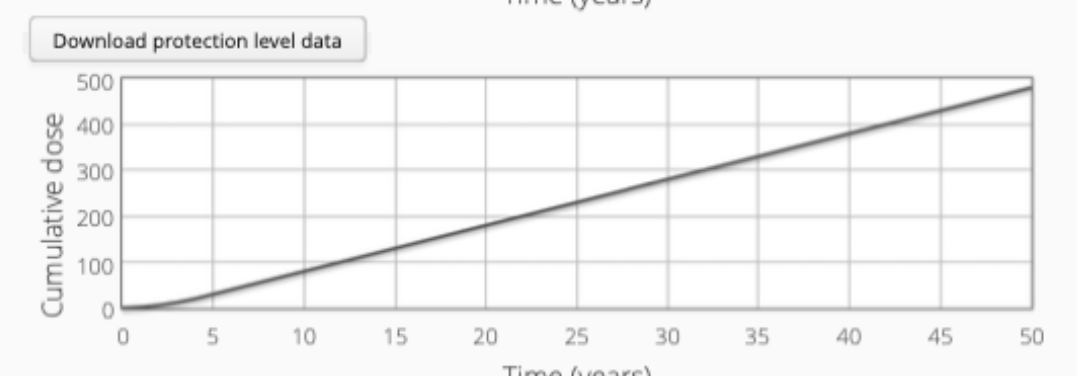
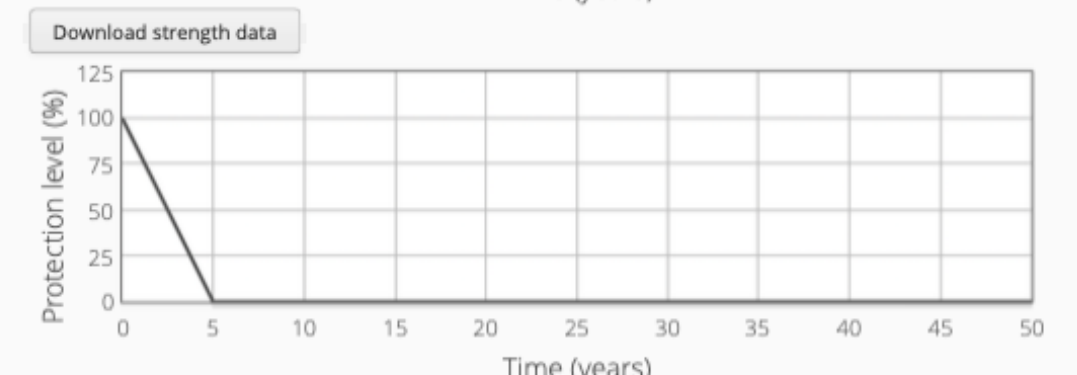
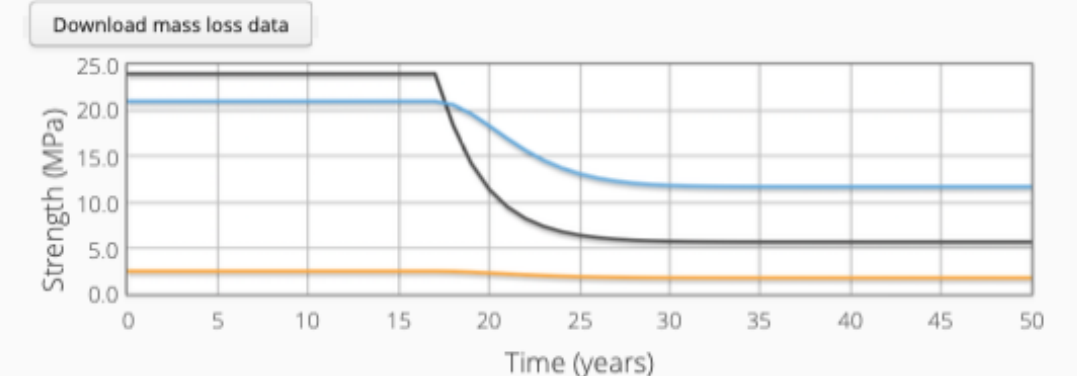
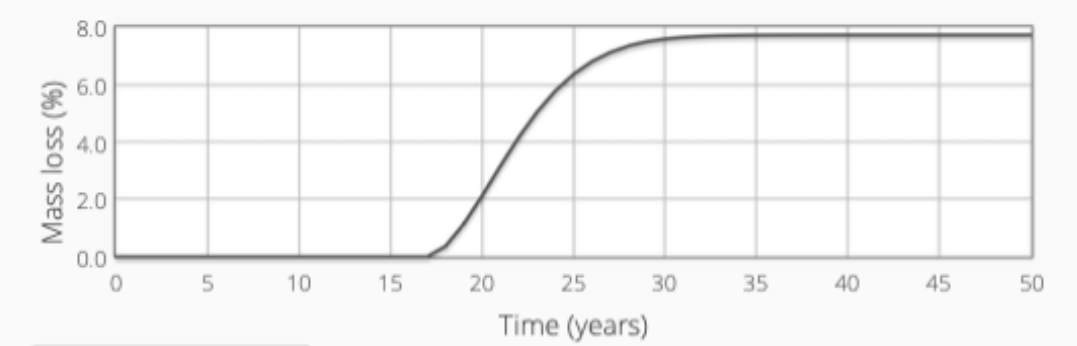
Treatment degradation rate (%/year)

Treatment maximum protection (%)

**Treatment renewal** ?

No     Yes

**Simulation results** ?



**Download decay rating data**  
 Emissions caused (kg)  
 -18.150001525878906

# Evaluation and Comparison

- A versatile platform to quickly deploy computer models, static and dynamic
- If the model can be transformed into an FMU, it will work with Modelling Factory
- Not meant to be used with computationally extremely large or heavy models
- If the model is not self-contained, it can present challenges in the deployment
- Most other services are domain or technology specific, comparison is therefore difficult
- No other service exactly like it

# Conclusion

- ML models are ever more popular, but traditional computer models will stay
- The disconnect between the modeller and the end user is real
- Popularity through accessibility, Modelling Factory might be able to help

**Thank you! Questions?**