



Research drives

We have three drivers in our research activities.

Return on modelling effort

During system development several models are created for many different purposes. The creation of these models takes time and effort, in other words, costs money. How can these investments be put to good use? How to increase the return on investments put into models? In other words, how to achieve *return on modelling effort* (RoME)?

These questions drive us to look at the different roles models may have:

- Provide insight.
- Provide guidance.
- Act as a steering/regulative instrument.
- Act as a common frame of reference.
- Be executable.

and study ways to improve the ability for models to play these roles:

- Develop strategies to mine and visualise models in order to gain insight.
- Develop techniques to use models to guide people/actors in their work.
- Develop techniques to be able to execute models as soon as possible in the system development life cycle.

Quality of modelling

When increasing the *return on modelling effort*, it also becomes relevant to study the quality of models and the modelling processes leading up to these models. What is the quality of a model? What is the quality of a modelling process? How to influence these qualities during a modelling process?

What is to be regarded as a high quality model will differ from one situation to another. For example, depending on the specific situation, the requirements with regards to:

- What should be in-/excluded in the model?
- How explicit should the model be?
- Should the model be executable?

are likely to differ.

The act of modelling

Being able to understand the quality of models and associated modelling processes, also leads to a strong interest into a fundamental understanding of the act of modelling. In practice, models are not created by people in isolation, but rather in the context of groups of people. The creation of models typically involves a collaborative process in which different actors will play a role, where each actor will bring their own stakes, goals and abilities to the table. What happens when people create models? What cognitive processes are at play? How can models be created in a collaborative setting? How can a shared understanding, agreement and commitment be warranted?