Beyond “Pure” Systems Architecting: Collaboration Based on MBSE to Empower Projects

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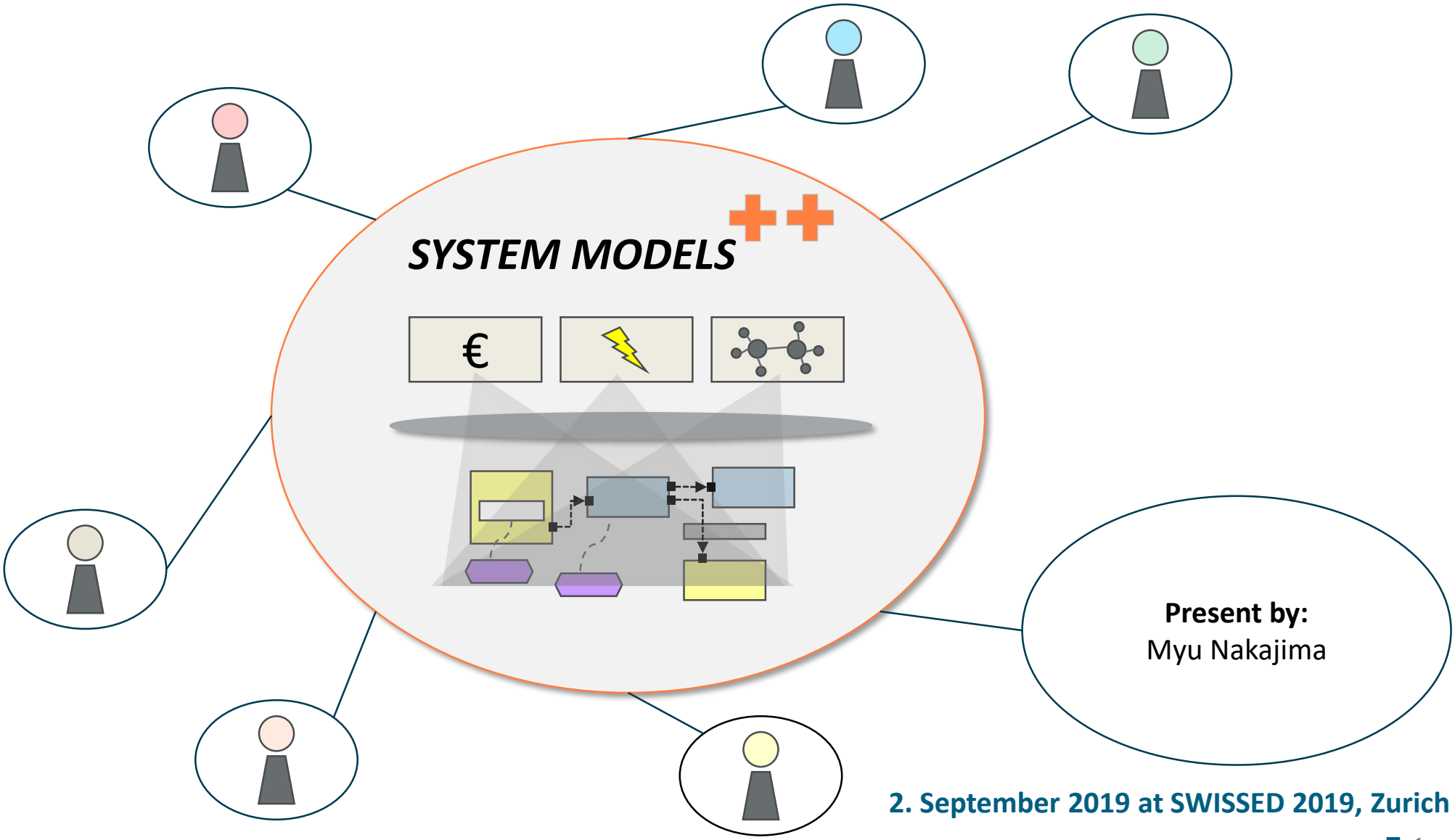
MODEL-BASED SYSTEMS ENGINEERING



Present by:
Myu Nakajima

2. September 2019 at SWISSED 2019, Zurich

Two Pillars – Boost Up Your Engineering!

Company Overview

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MODEL-BASED SYSTEMS ENGINEERING

Established in June 2018

- ..as a joint venture between Fraunhofer-Association and Information Services International-Dentsu (ISID).

Company name: “Two Pillars”

- Architecting + Project Management
- Germany + Japan
- Fraunhofer + ISID

Location

- Paderborn, Germany

Business activities

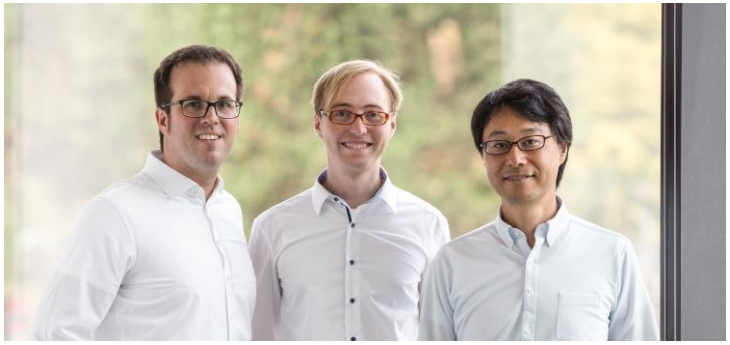
- Development, Distribution & customer support of our Product **iQUAVIS**: An MBSE-Modeller integrating Project Management, Complexity and risk analysis with system architecture
- Professional consultation service for engineering.

Contact information

- mail: christian.tschirner@two-pillars.de
- web: www.two-pillars.de

Strategic Investors

Fraunhofer IEM x iSiD IT Solution Innovator



Managing Directors:
Dr.-Ing. Christian Tschirner, Christian Bremer, Atsushi Yoshida

Systems Engineering as means to involve stakeholders in developing concrete solution

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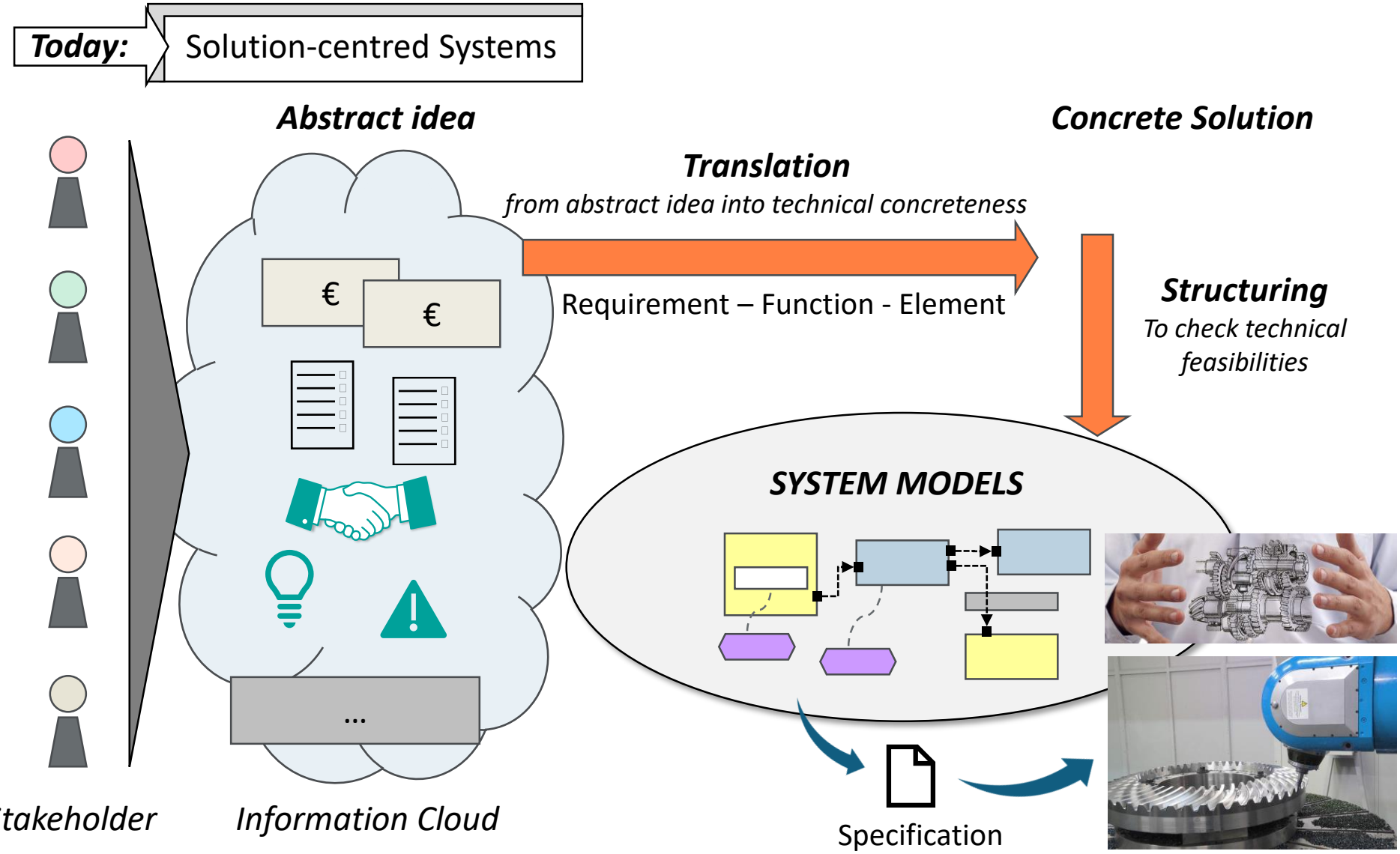

What are the “System Models”?

Means to visually and objectively explain a system

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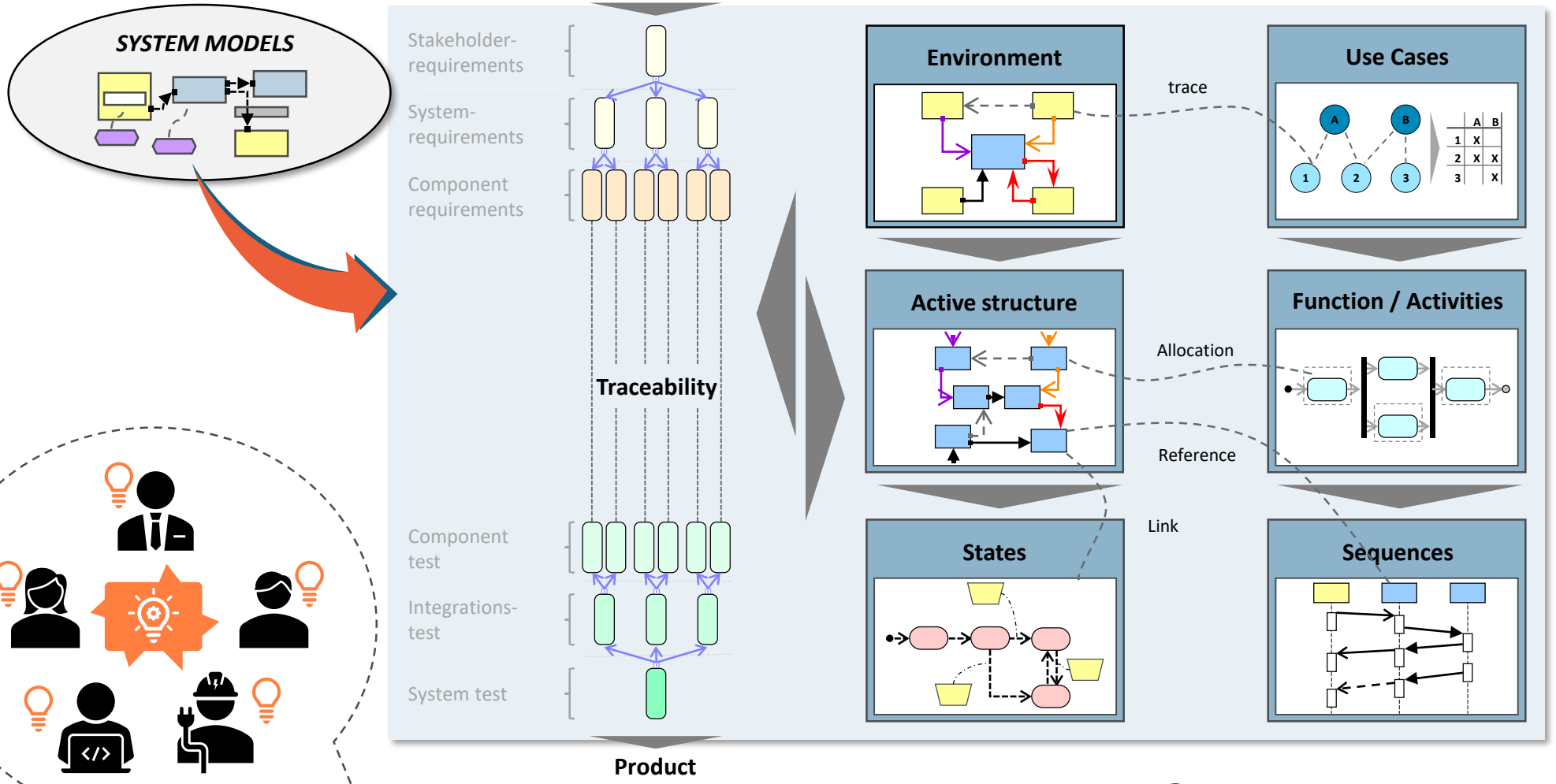

Key for successful communication using System Models

Use “simple language” easy to understand for all stakeholders!!

Our view on Systems Engineering

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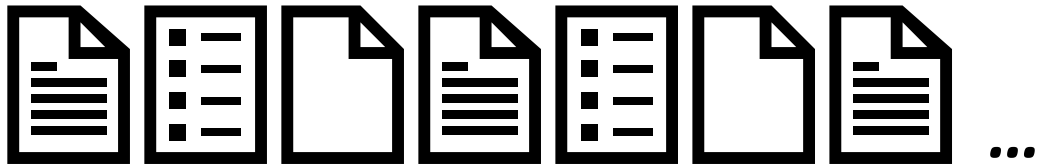
Conventional style
Document oriented

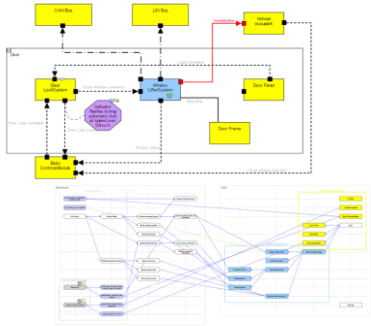
Conceptual Phase → Design Phase → ...



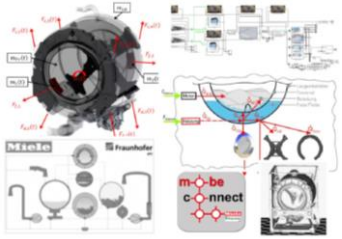
- Inconsistent among documents
- Lack of precision
- Difficult to maintain & reuse information

Model Based

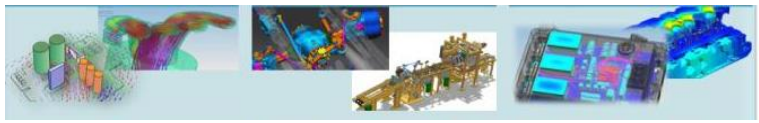
MBSE



MBE (Model Based Engineering)



CAE (Computer Aided Engineering)



Model enables a clear and concise communication.

Extend usage of data more than typical Systems Engineering artefacts

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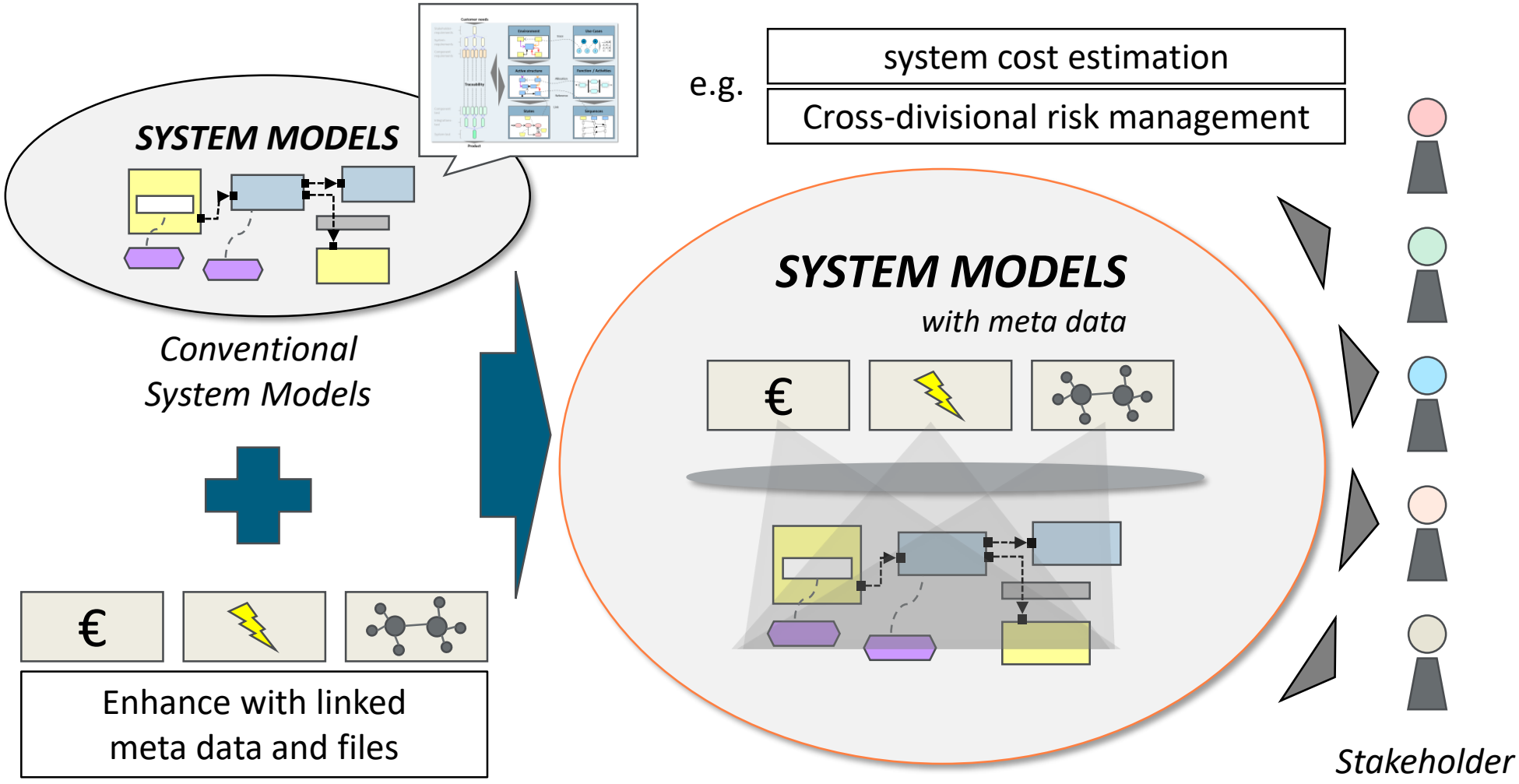

Adding meta data and files to system models
expands benefits for Stakeholders, and empowers projects.

Examples use cases for extended usage of system models

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Collaborative Requirement Development

Re-usage of data

QFD

Function based cost estimation

FMEA

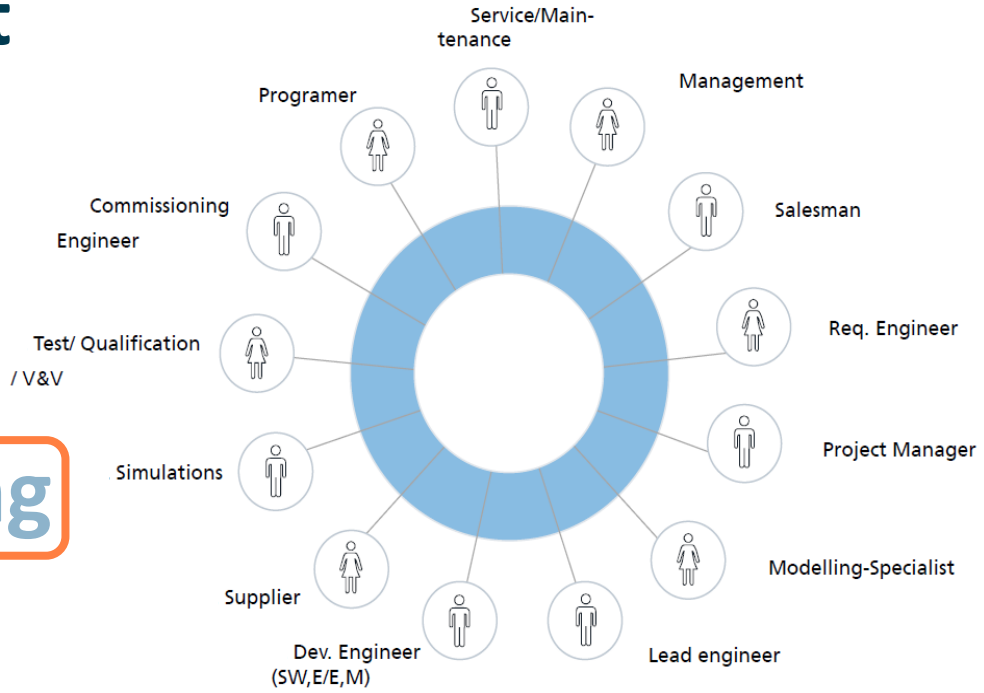
Keep track of production status

Test planning

Deliverable management

OPC-UA Planning

Cross-divisional library for models and risks



What is your idea?

Using the System Model for additional benefit (i)

Function-based Cost Estimation

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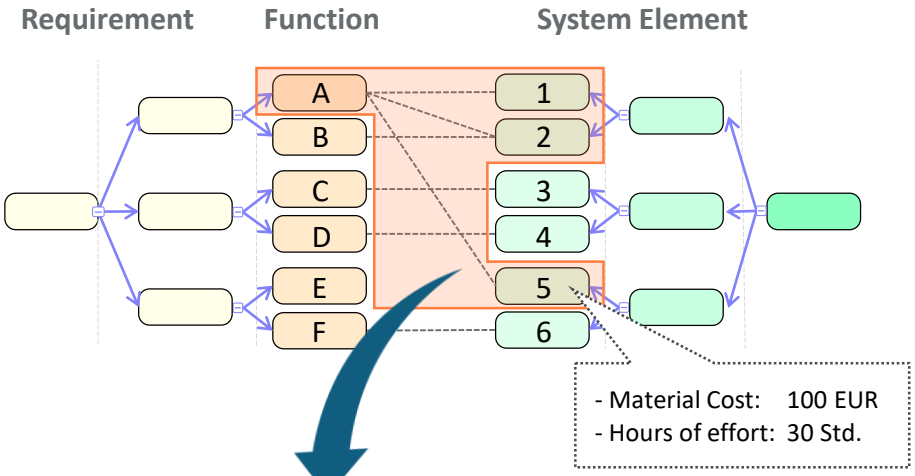
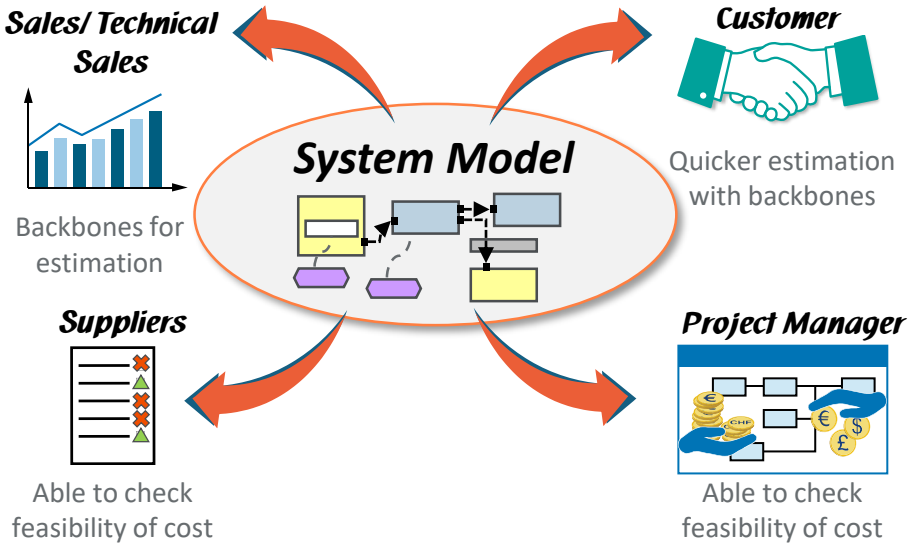
WHAT is it about?:

Conduct a quick estimation of a system in very early stage by using the system model; aggregate costs of system elements that are necessary to implement functions requested by a customer.



WHO will benefit?



Using the System Model for additional benefit (ii)

Cross-divisional library for models and risks

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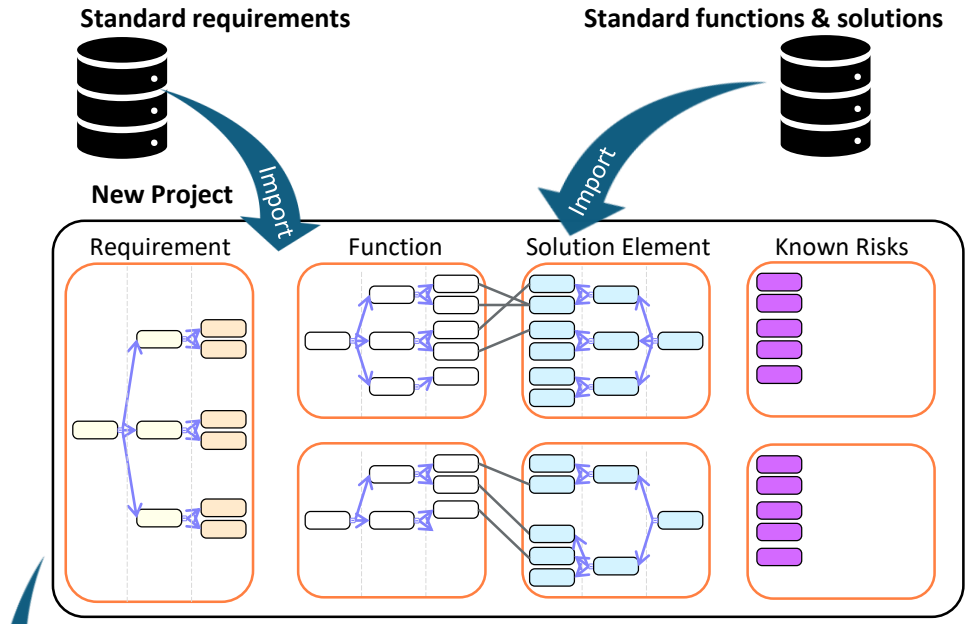
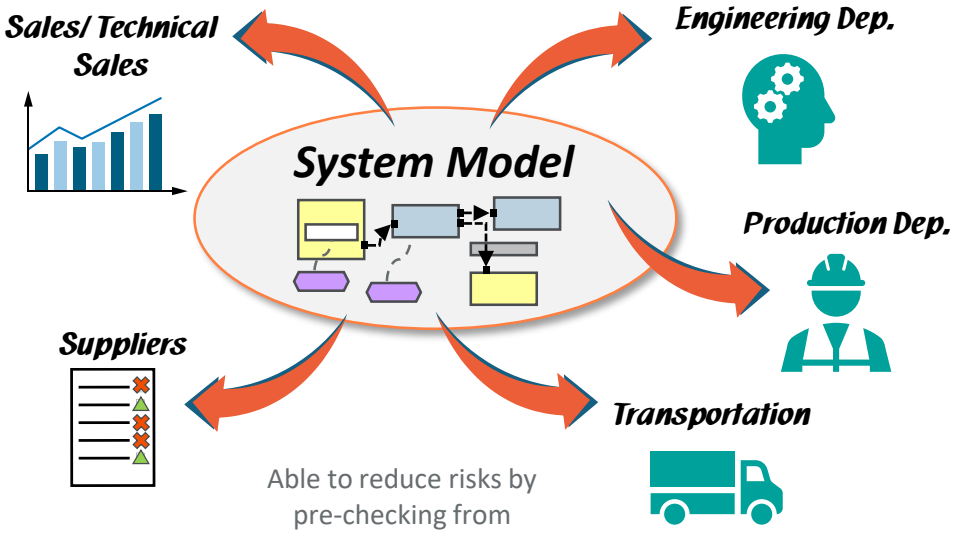
WHAT is it about?:

Import standardized requirements and modules from the library, and utilize it in new development projects. Include risk analysis information from various stakeholders into the library to systematically minimize risks.



WHO will benefit?



Able to reduce risks by pre-checking from multiple point of views

Checklist with known risks

Solution element	Function	Risk	Root Cause	Measure	PIC	Due	Status
Element X	Function X	Risk X	Cause X	Measure X	Eng. 1	06.07.2019	OK
Function Y	Function Y	Risk Y	Cause Y				Not solved
	Function Z	Green color is not recognized					Not solved

Using the System Model for additional benefit (iii)

Test Planning with a traceability

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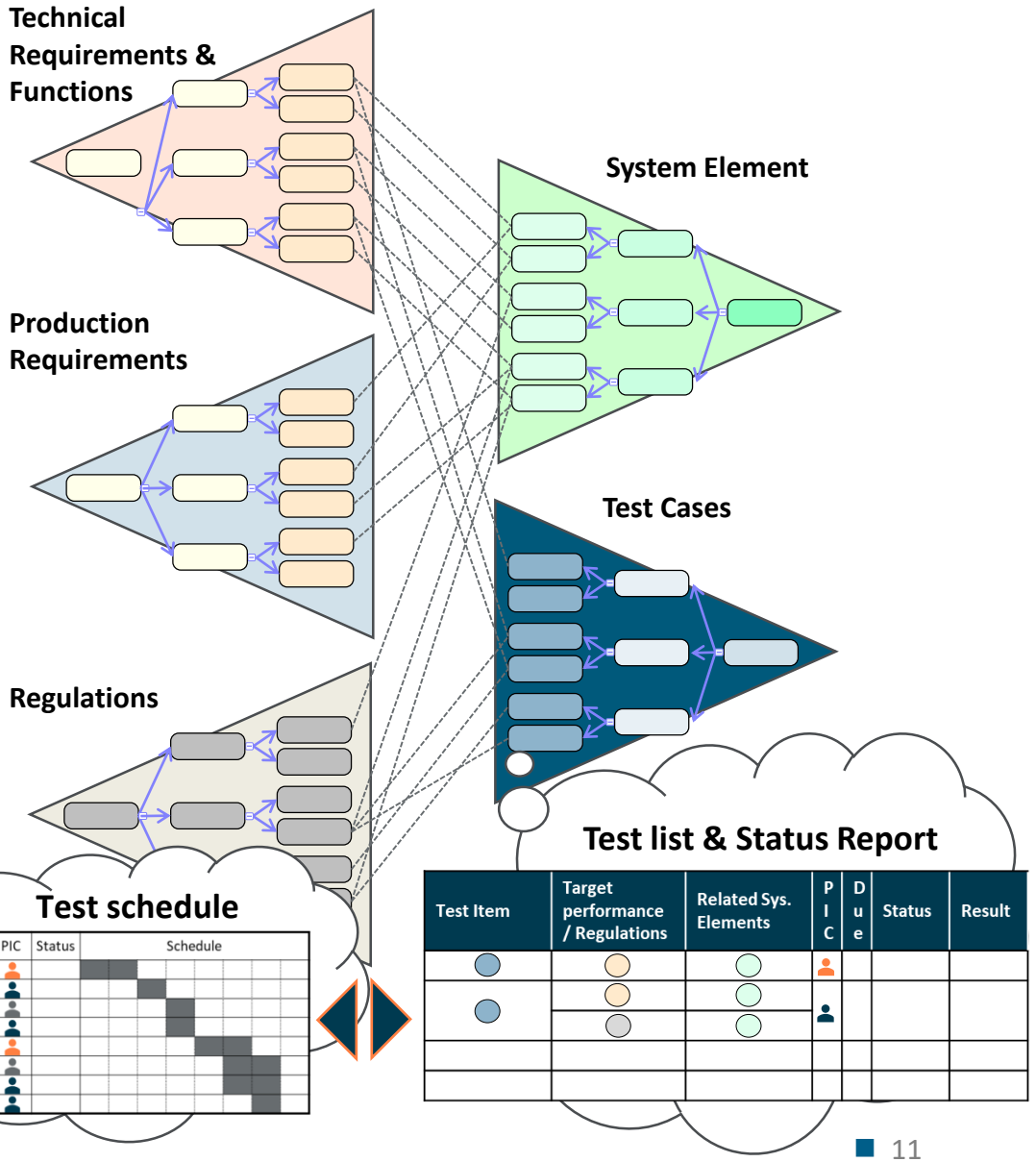
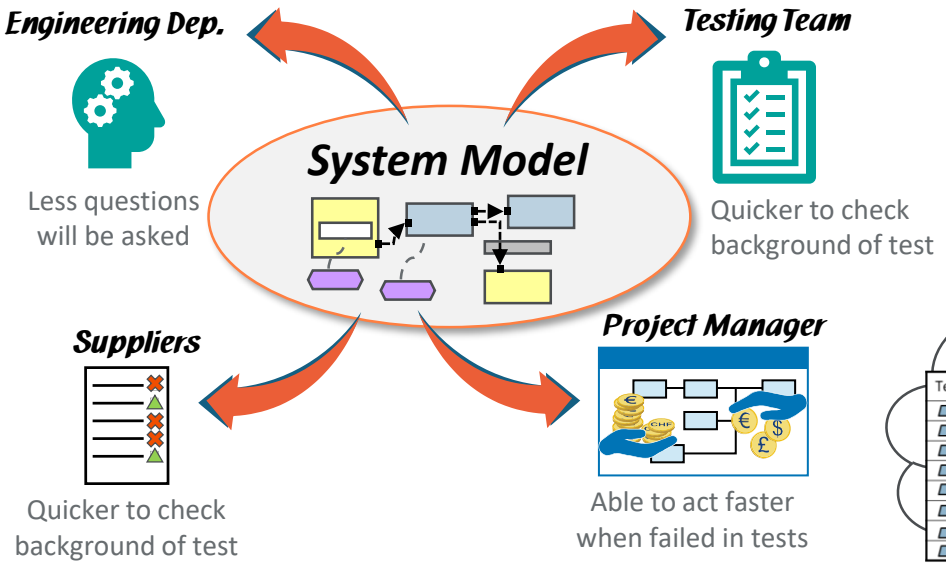
WHAT is it about?:

Test cases are derived from requirements and functions of the system. Make a clear connection of these information, and state results of the test in one database to make it easy to trace down.



WHO will benefit?



Summary:

Increasing benefits by enriching system models to empower projects

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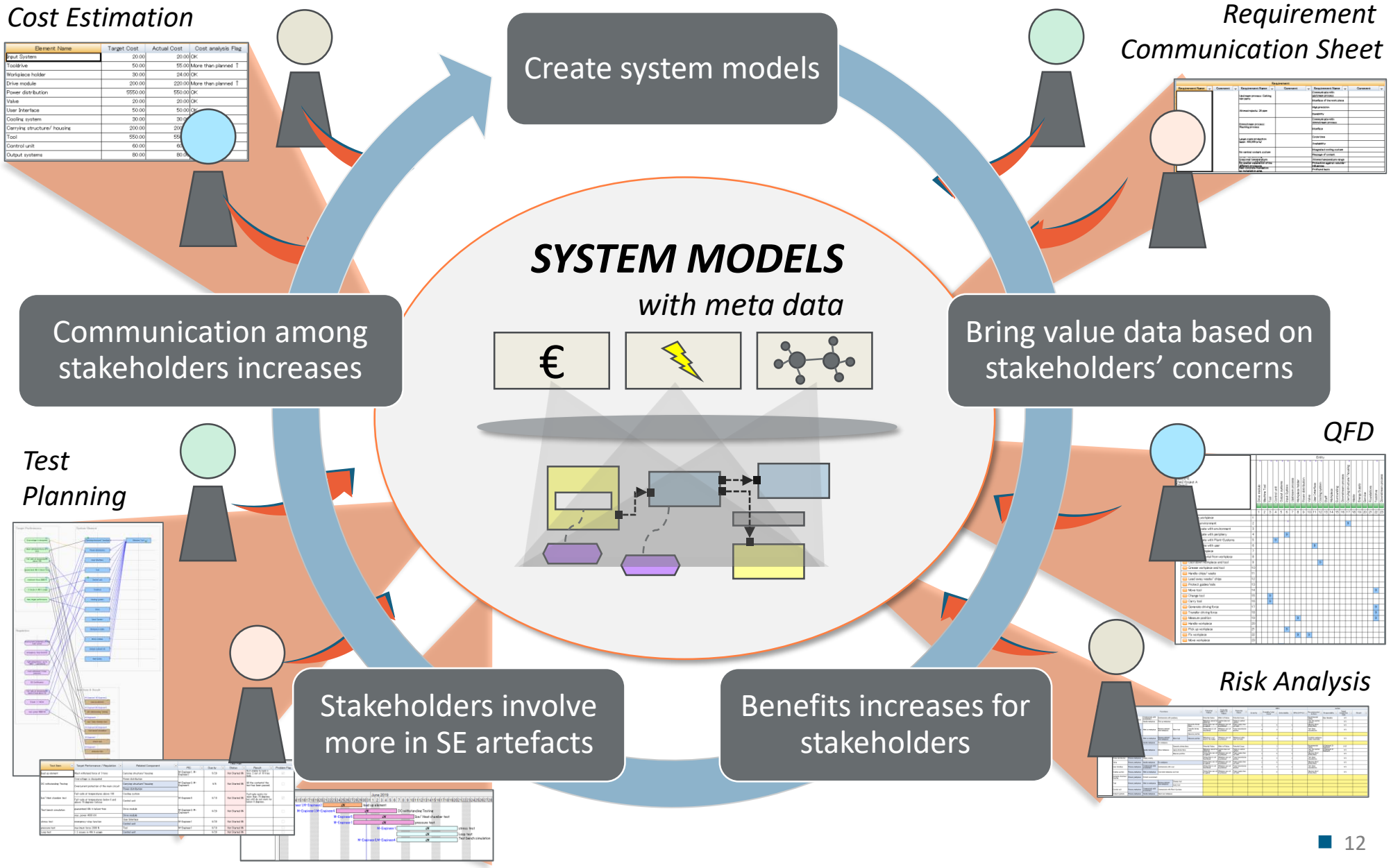

Meet us at booth 9 (1st floor)

Connect with us

@_2Pillars

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Thank you for your kind attention!

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