



Sioux Technologies | Hot-or-Not

The Future of System Engineering

Tools

in context of system complexity

Wednesday June 9, 2021

16:30 hrs opening by Arend-Jan Beltman, Sioux



Google 'Tools'



Google 'Creation Tools'

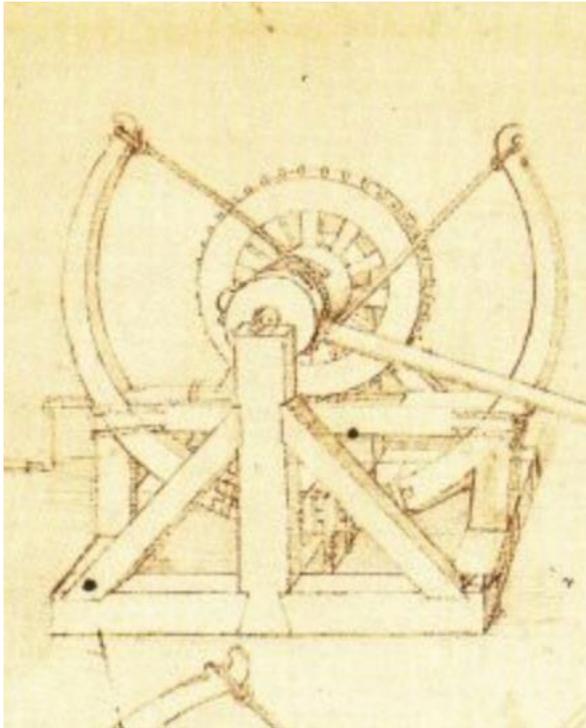
Best

**Content
Creation**

Tools



Describe every detail (digital transformation!)



1500



1900



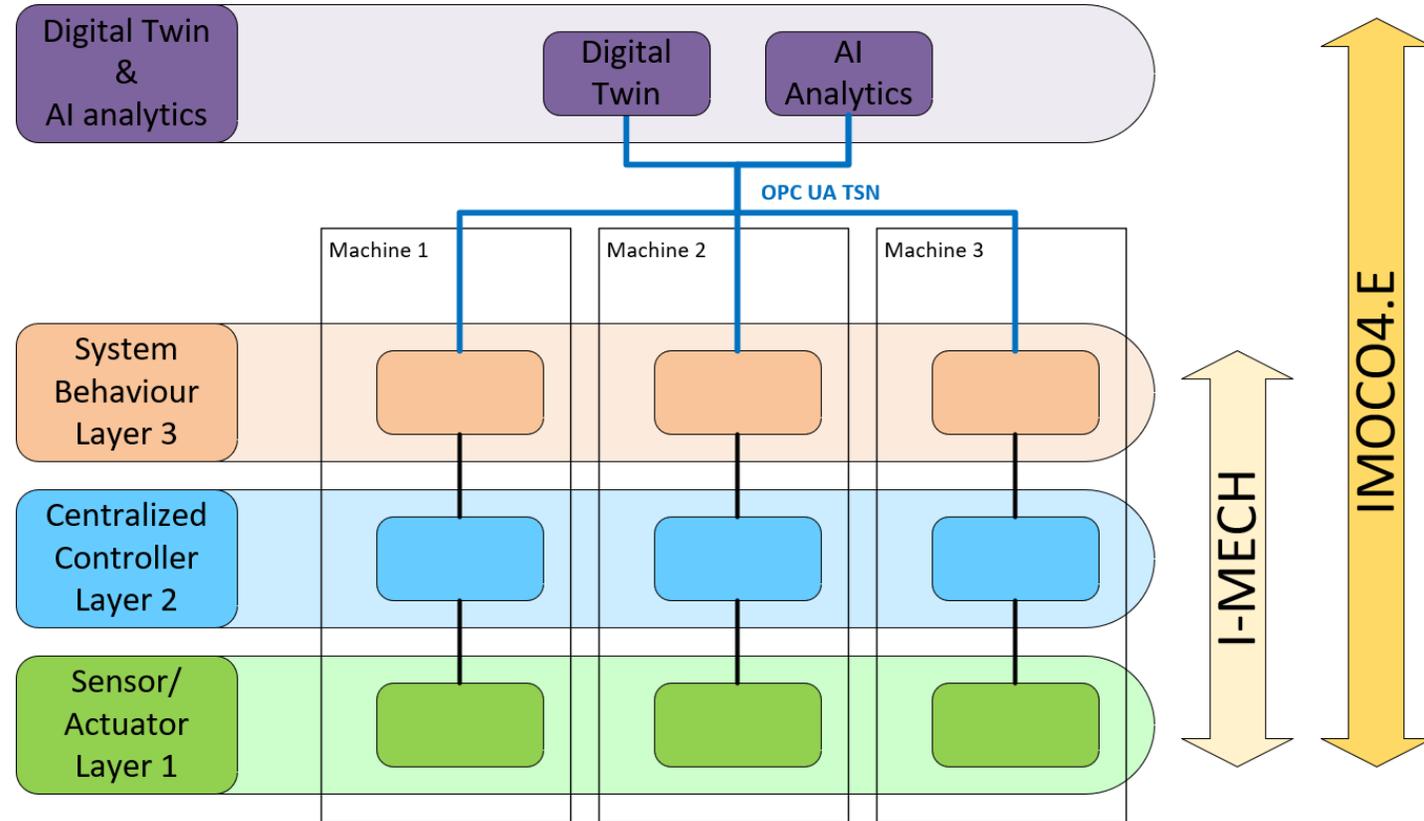
2000



2050

How to get there?

- Mo(o)re tools to (virtually) represent:
 - The looks of it!
 - Behavior
 - of the Application
 - of the Physics



“Supervise controlled interaction with physics”

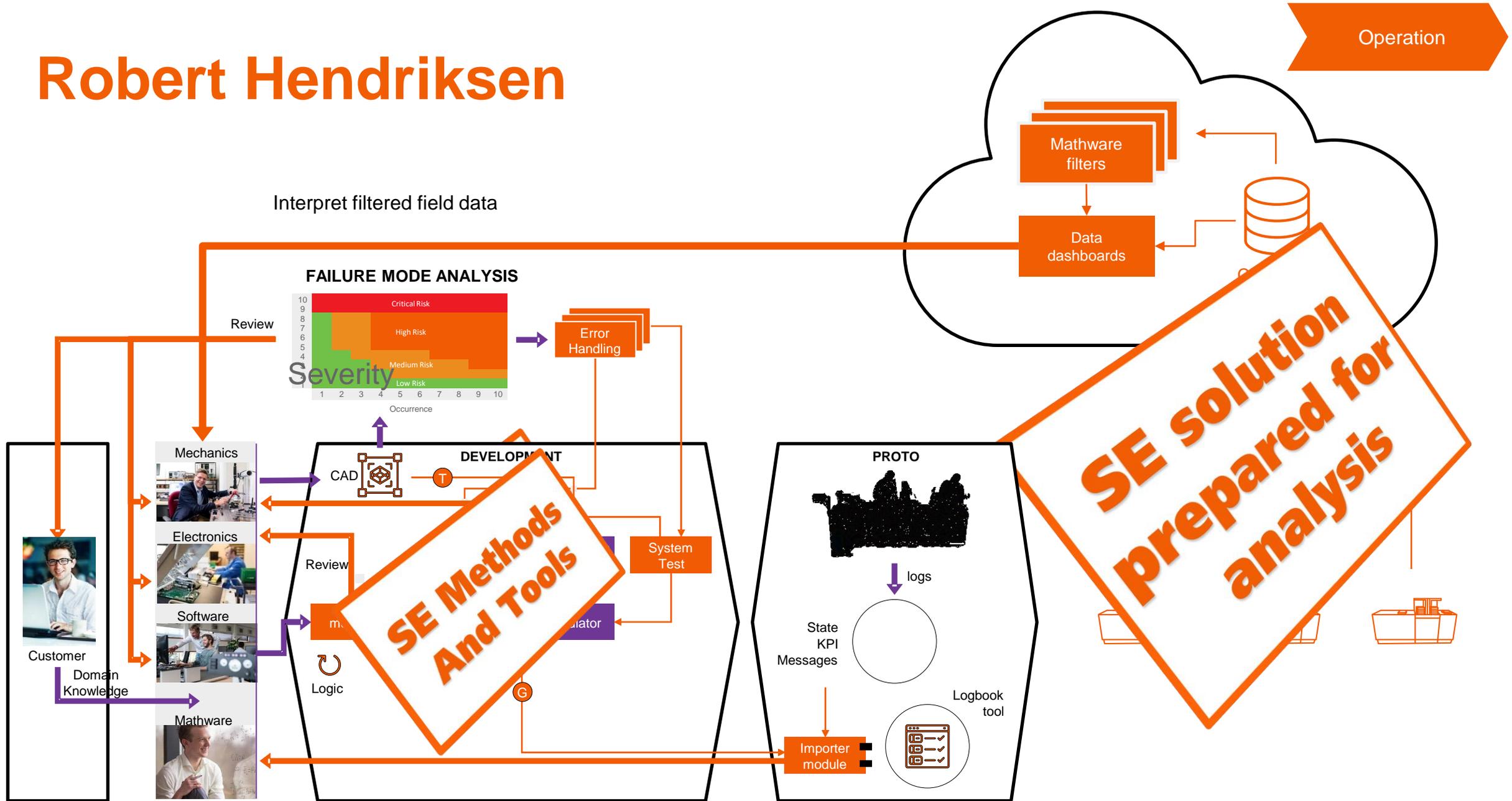
Once you've made it virtual!

- You can Simulate
 - Behavior
 - Better comprehension (!!)
 - Domesticate it (=control)
- You can Visualize
 - Mechanical interaction
 - While it is in motion
 - Assembly process
 - Support sales and their customers! [Servitization red.]



Robert Hendriksen

Operation



Prof. Jan Bosch

Business Evolution

● : Commodity functionality

● : Differentiating

Business models:

Systems Engineering 2.0

1. Build it in **software** unless you really, really can't
2. Build it in **hardware** and keep it flexible (FPGAs instead of ASICS) unless you really, really can't
3. Build it in **mechanics** if you HAVE to and keep it modular, easily replaceable and simple

What is Systems Engineering?

Definition of Competence:

“Demonstrates **skills**¹ **methods**² to handle **technology**³ and **manage**⁴ the **domain(s)** specific **complexity** with appropriate **tools**”

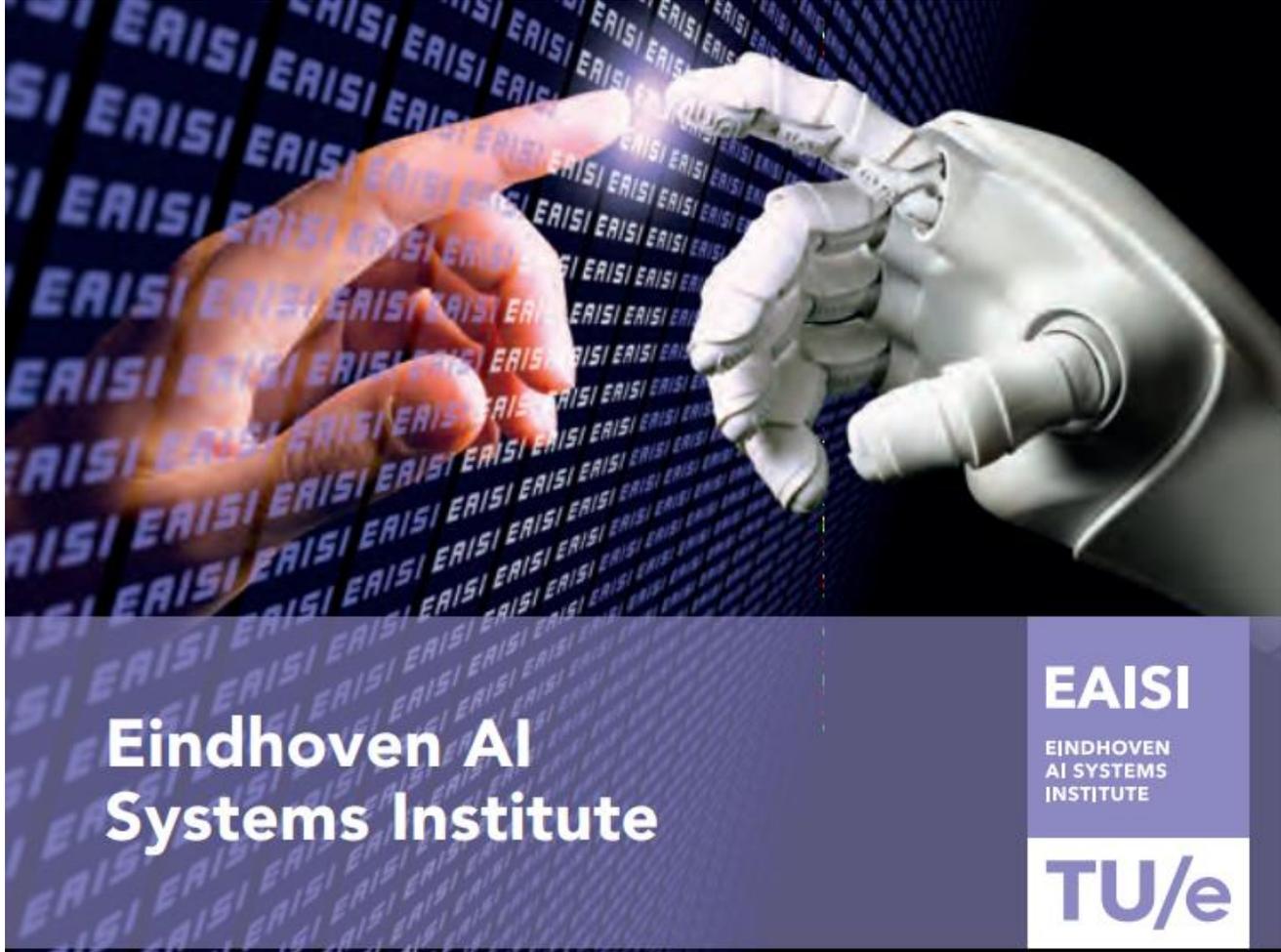


Nov. 2020 episode on:

Skills & Methods



Georgo Angelis



“AI FOR THE REAL WORLD”

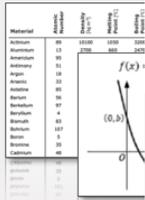
High-Tech

Georgo Angelis

Growing design challenges

Artificial Intelligence is a technology platform to deal with bigger datasets and complex models

Contribute to a flourishing ecosystem: Student teams



Feb. 2021 episode on:

Management



Wouter Leibbrandt



“EMBEDDING SYSTEMS THINKING”

Wouter Leibbrandt

System thinking managers

3. Daarius methodology

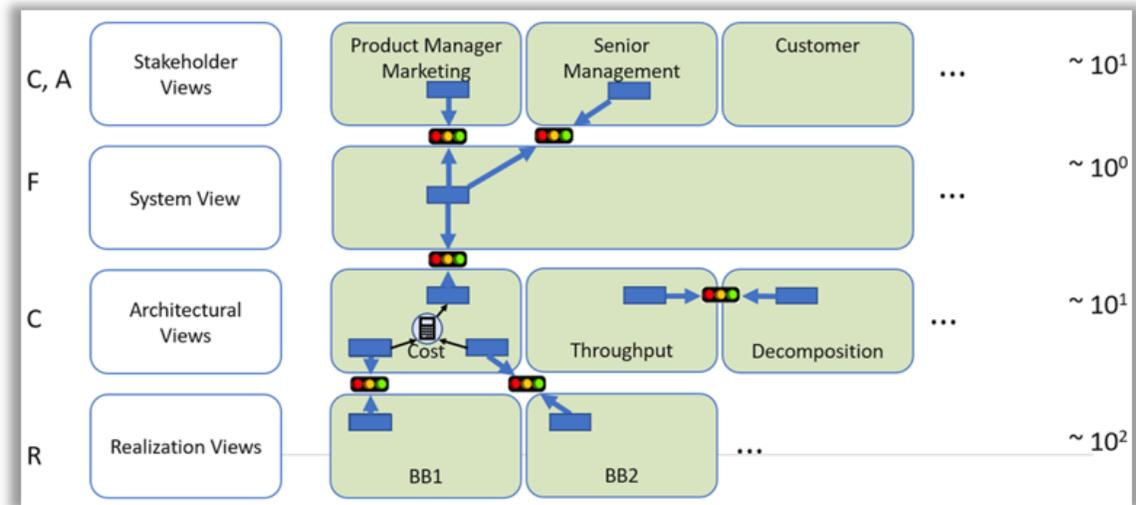
Daarius is a structured, scalable, and team-based system design methodology providing traceable underpinning for key design decisions and leveraging the abundance of simple executable models in systems engineering.

- Team-architecting (replacing super-hero architect)
- Dilemma handling
- Trade-off handling
- Communication across organization

CAFCR based solution space analysis

Allows to stepwise fill and track solution space

- First: criticals
- Then: essentials
- Finally: others



Apr. 2021 episode on:

Technologies & Trends



One of the initiators 'Servitization Community'



Ed J. Nijssen

prof.dr.

Hoogleraar, Industrial Engineering and Innovation Sciences, Innovation
Technology Entrepreneurship and Marketing

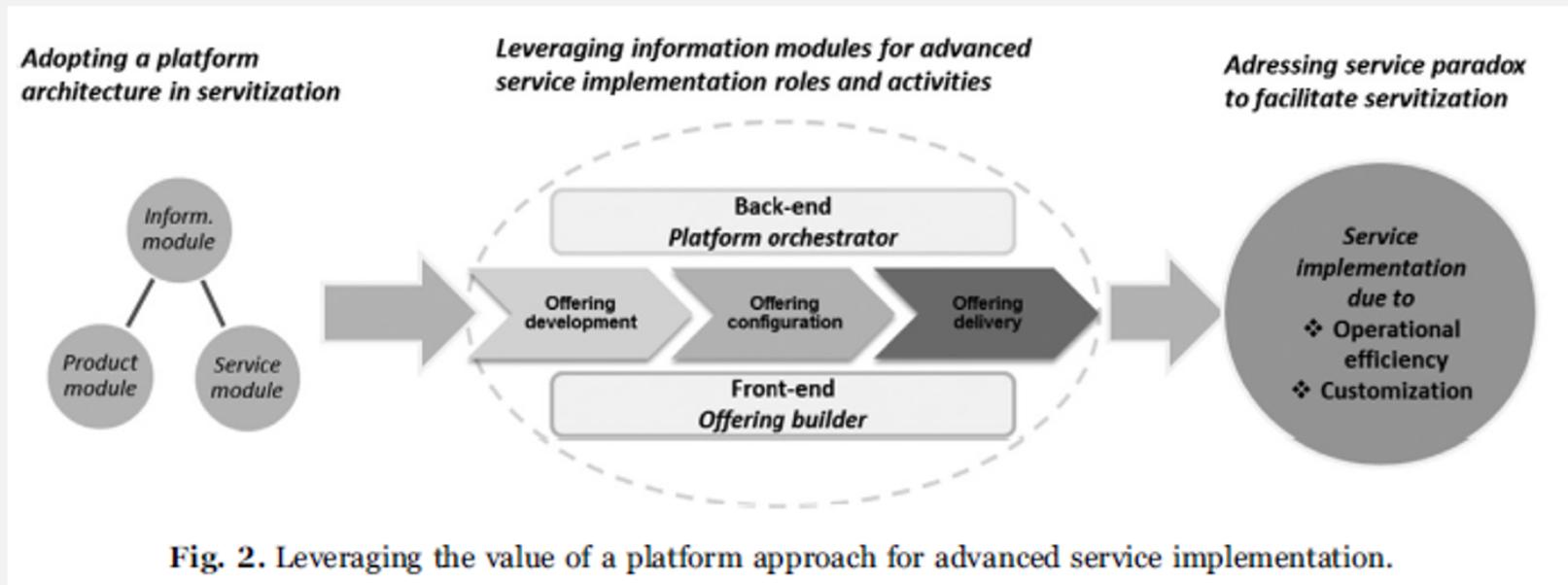
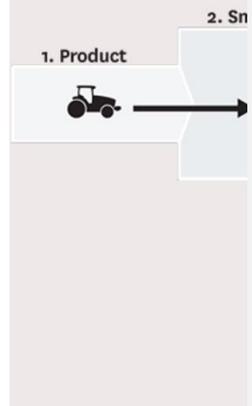
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Ed Nijssen

Example: impact of digitalization

Important to align front and back office activities



Cenamore et al (2017)

June 2021 episode on:

TOOLS



Ton Peijnenburg

Deputy-director VDL ETG T&D / Research Fellow at TU/e HTSC (part of EAISI)



Dialogue session

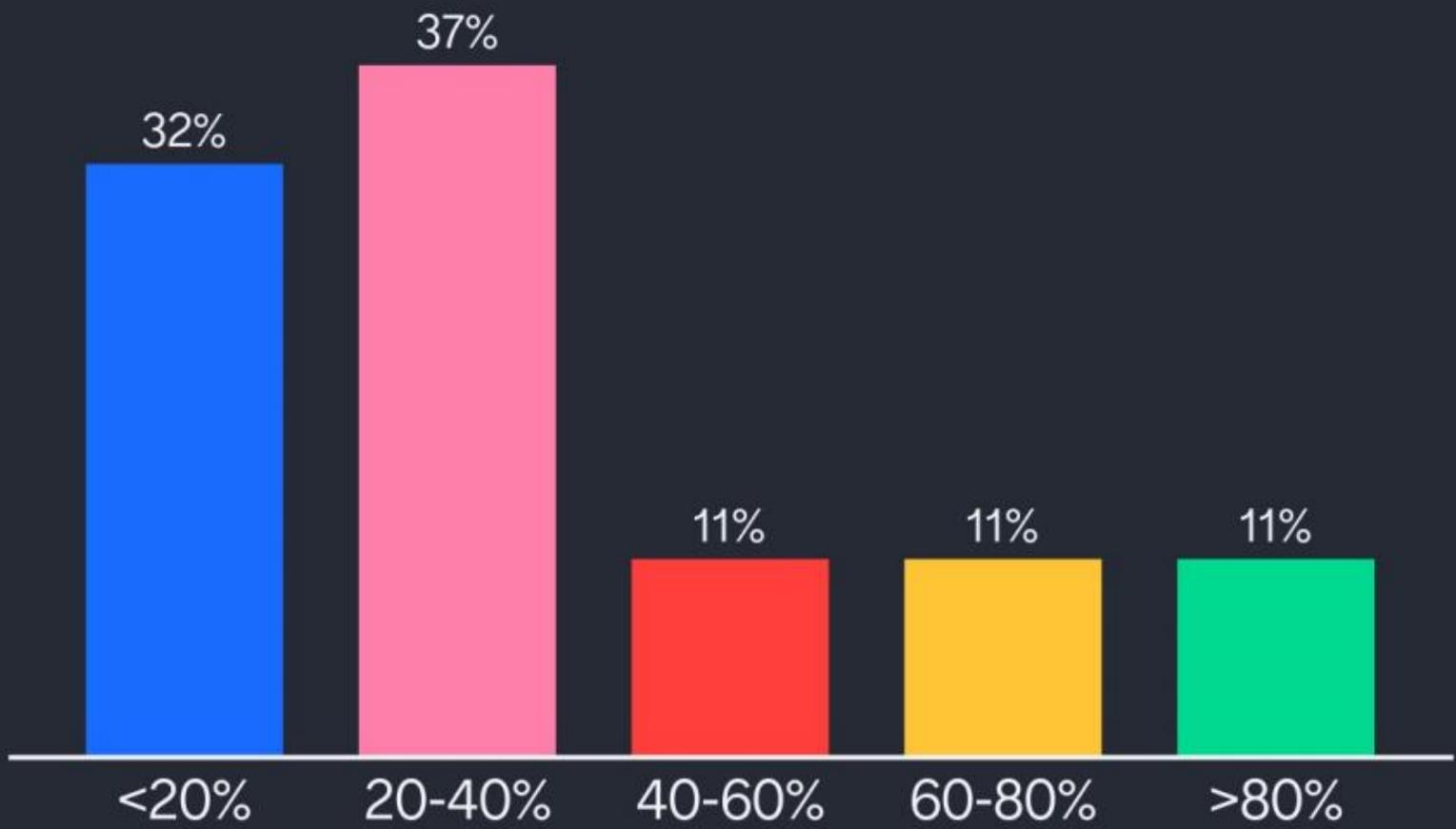
Questions

- What is the “secret sauce” of Brainport?
- What’s the percentage of your projects, applying Model Based Design methods?
- How many different design tools (incl. Microsoft Suite) do you use for PCP?
- How many of them are ‘interoperable’?

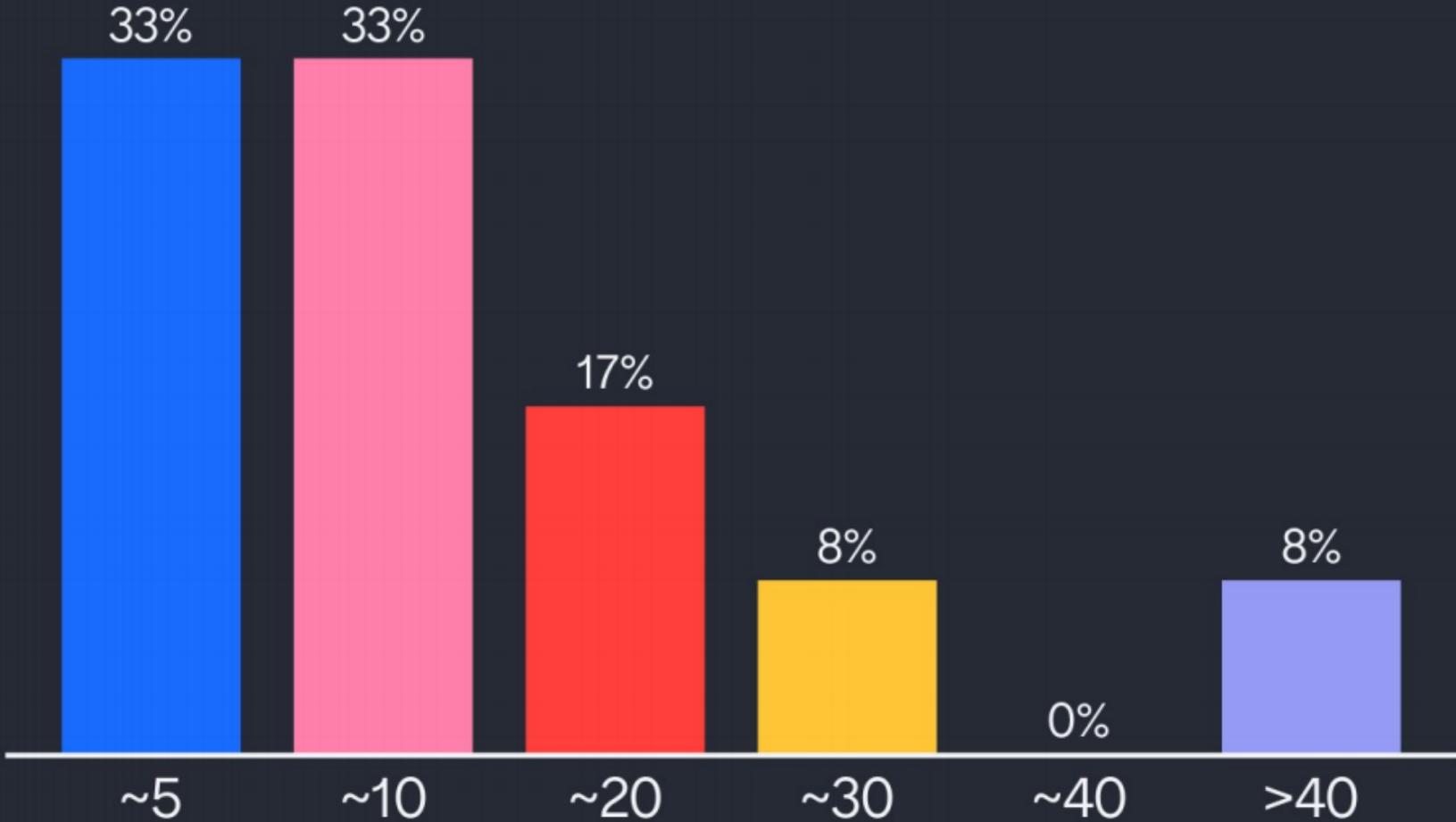
What is the "secret sauce" of Brainport?



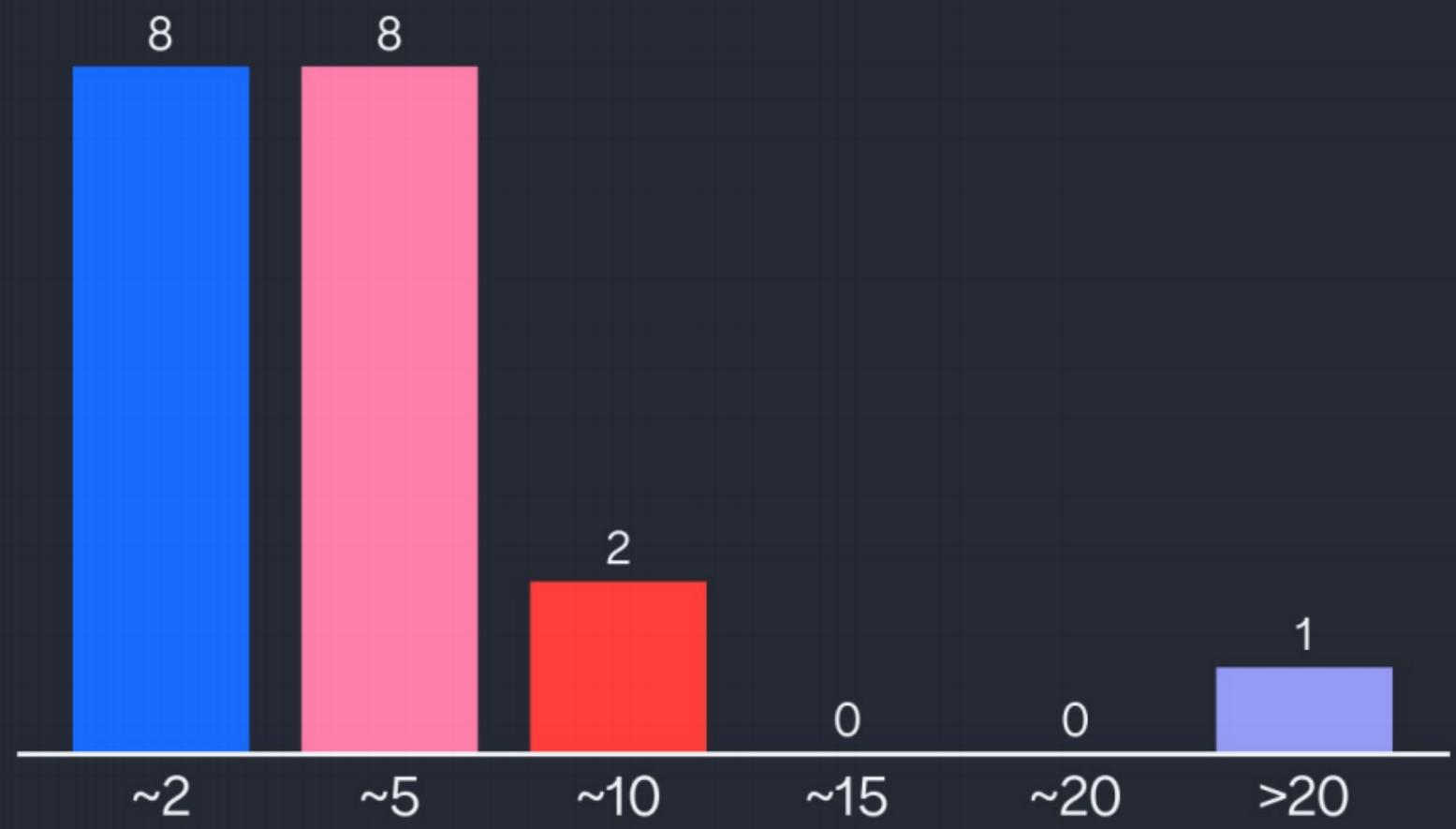
What's the percentage of your projects, applying Model Based Design methods?



How many different design tools (incl. Microsoft Suite) do you use for PCP?



How many of them are 'interoperable'?



The future at Sioux Technologies?



Express your interest to follow-up!



**Thank you for being with us,
let's keep connected!**