
Accelerating R&D using Digital Twins

Organized by IPU

October 11, 2018

Søren Merit



**We develop solutions for your
most complex technology
challenges**

We are an elite team of international specialists, focused on developing advanced product and process technology for leading technology based companies.

IPU specializes in and combines four core areas of expertise:

Advanced Materials & Surfaces
Technology

Thermodynamics & Energy Technology

Automation, Robotics and Autonomous
Systems

Physical Systems Modelling

Digital Twins Technology

What?

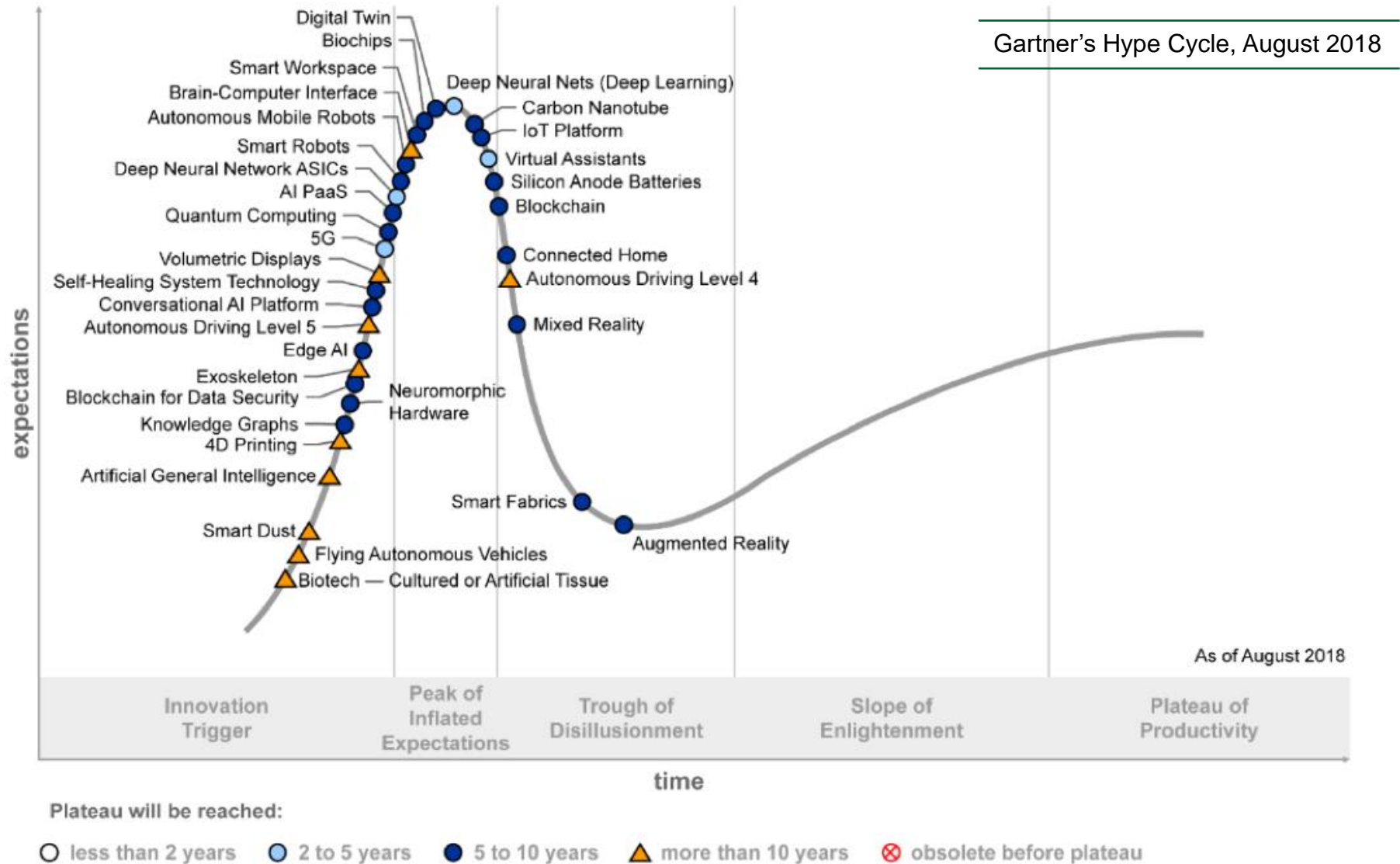
Why?

How?

Program

1. **“Digital Twins – accelerating R&D, from a business perspective”** - Søren Merit, CEO, IPU
2. **“Targeting experimental efforts using cyber-physical models”** - Jorrit Wronski, Thermodynamic Modeling Specialist, IPU
3. **“Profiting on virtual prototypes – an industrial example of scaling-up production at Haldor Topsøe”** - Matteo Lualdi, Partner & Multiphysical Simulation Manager, Resolvent
4. **“Automation of heavy machinery – development using hardware- and model-in-the loop verification”** - Kevin Rice, Senior R&D Engineer in Mechatronic Systems & Controls, IPU
5. **Q&A**

Welcome to the most hyped technology!



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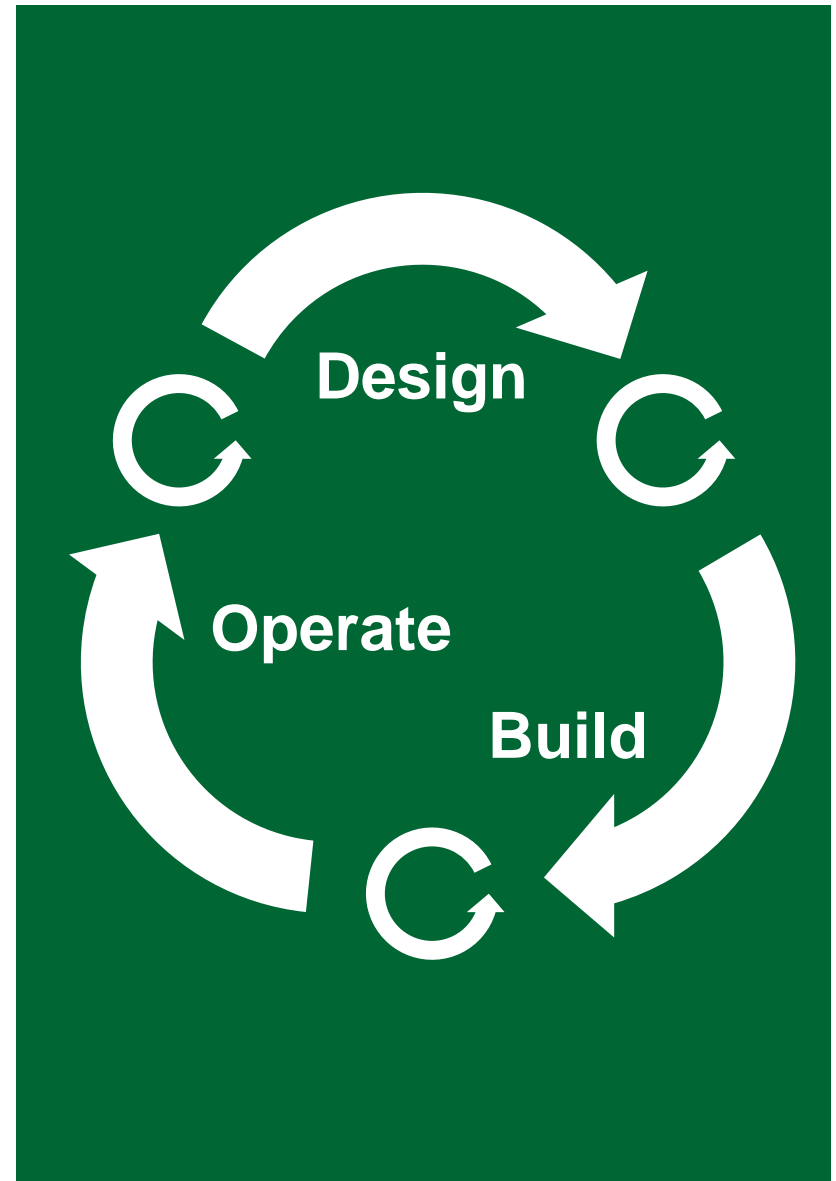
What is Digital Twin technology?

Digital twin is...

- Virtual representation / digital model of the elements and dynamics of how a product, process or service operates

The visions include

- Digital models that can support you during all stages of a product life cycle
- Support interlinking different life cycle stages
- Exploit the IoT opportunities



What is Digital Twin technology?

Design

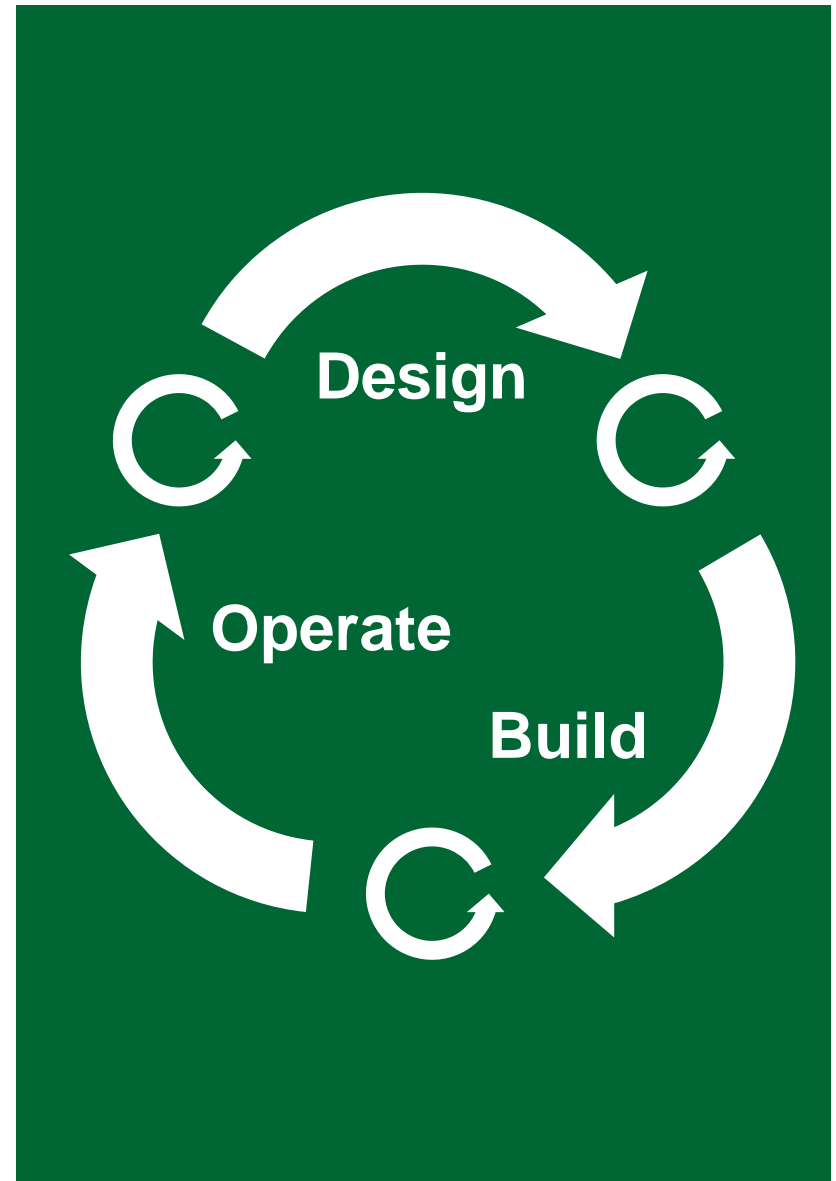
- Model and simulate complex physical systems
- Model and simulate dynamics and kinematics
- Build bill of materials
- Etc.

Build

- Simulate assembly
- Model layouts
- Simulate load patterns
- Etc.

Operate

- Support condition-based maintenance
- Monitor and optimize operations
- Send usage data to R&D
- etc

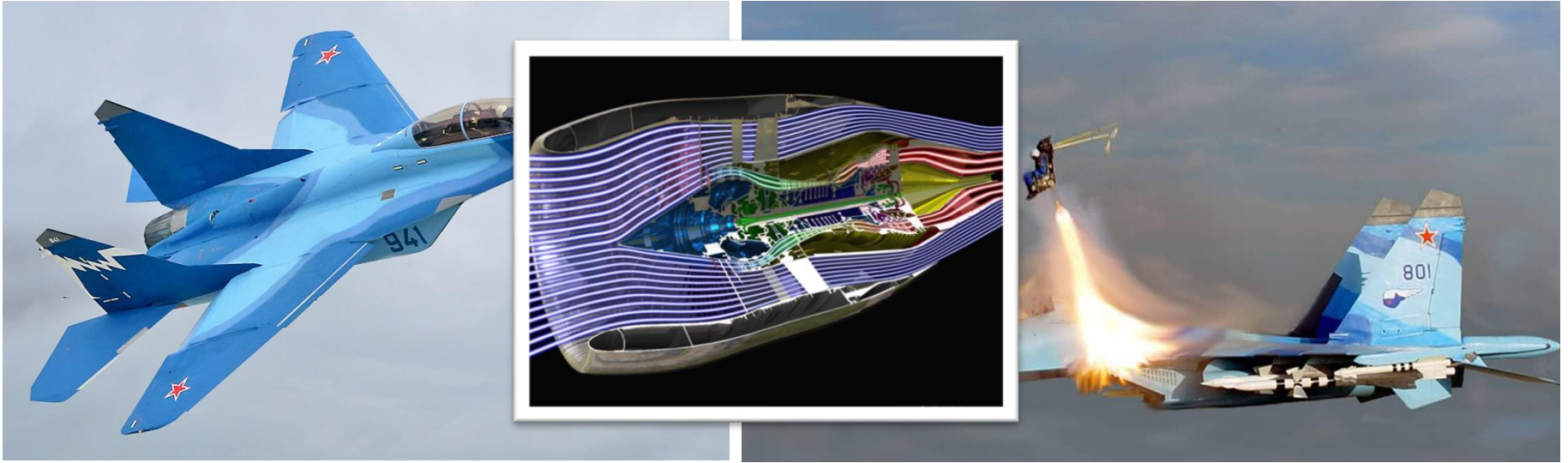


Why?



We develop solutions for your most complex technology challenges

Why?



We put research to work for your business

But I am not in Formula One, so why me?

Do you need to...
know more?

Do you need to...
test more “dangerous” zones?

Do you need to...
perform more non-destructive tests?

Do you need to...
explore new complex systems?

Do you need to...
learn faster from products in operation?

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Speed up time-to-market

Learn faster