

# Accelerate transformation through an intelligent Digital Twin

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**SIEMENS**

# Welcome!



# 1 What challenges Industry is facing?



**30-70%**  
of scheduling and resources  
are consumed by  
**integration issues**

Source: Data captured by Siemens in the field

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# 2 What's already possible?

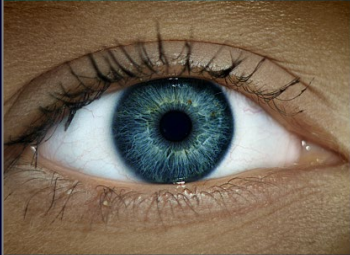


**Digitalization**  
across product lifecycle is key!

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# 3 What will be possible?

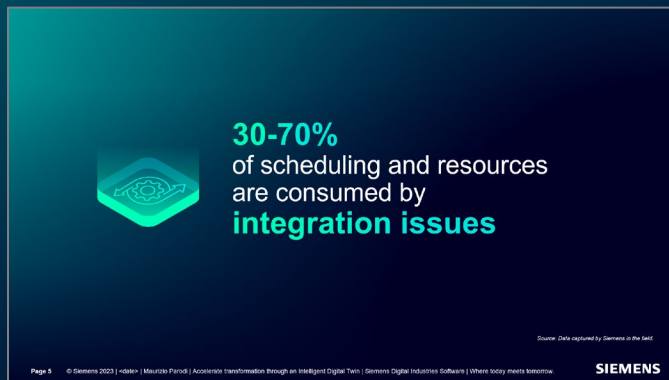


**Where next?**

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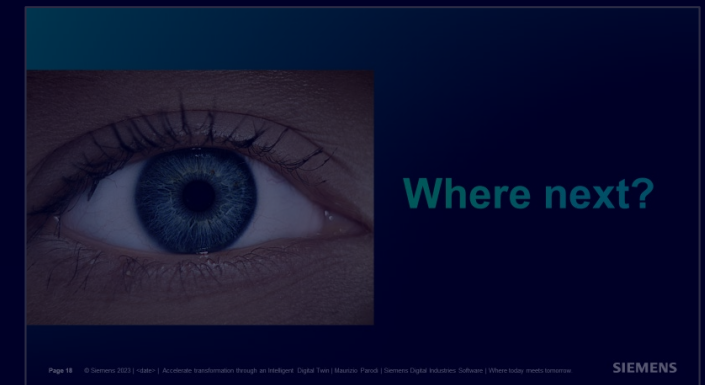
# 1 What challenges Industry is facing?



## 2 What's already possible?



## 3 What will be possible?





**Innovation never rests**

**84%**

**of executives say innovation is critical to grow their business**

Source: [McKinsey Global Innovation Survey](#)

**Meet my needs**

**85%**

**of executives say customization is the next competitive advantage**

Source: [McKinsey 2021 global report](#)

**Let go of old business models**

**50%**

**of revenue will be generated from not-yet existing businesses**

Source: [Accenture Tech Trends Report](#)

Efficient

Integrated

Cost effective

Sustainable

Personalized

# Explosion of complexity

Smart

Secure

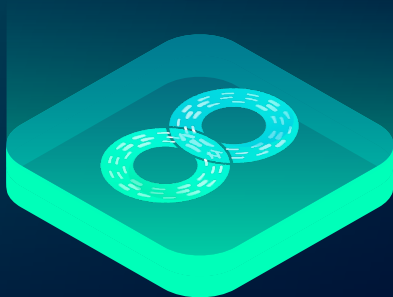
Connected

Flexible

Global



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**Digitalization**  
across product lifecycle is key

*Source: Data captured by Siemens in the field.*



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**Where next?**

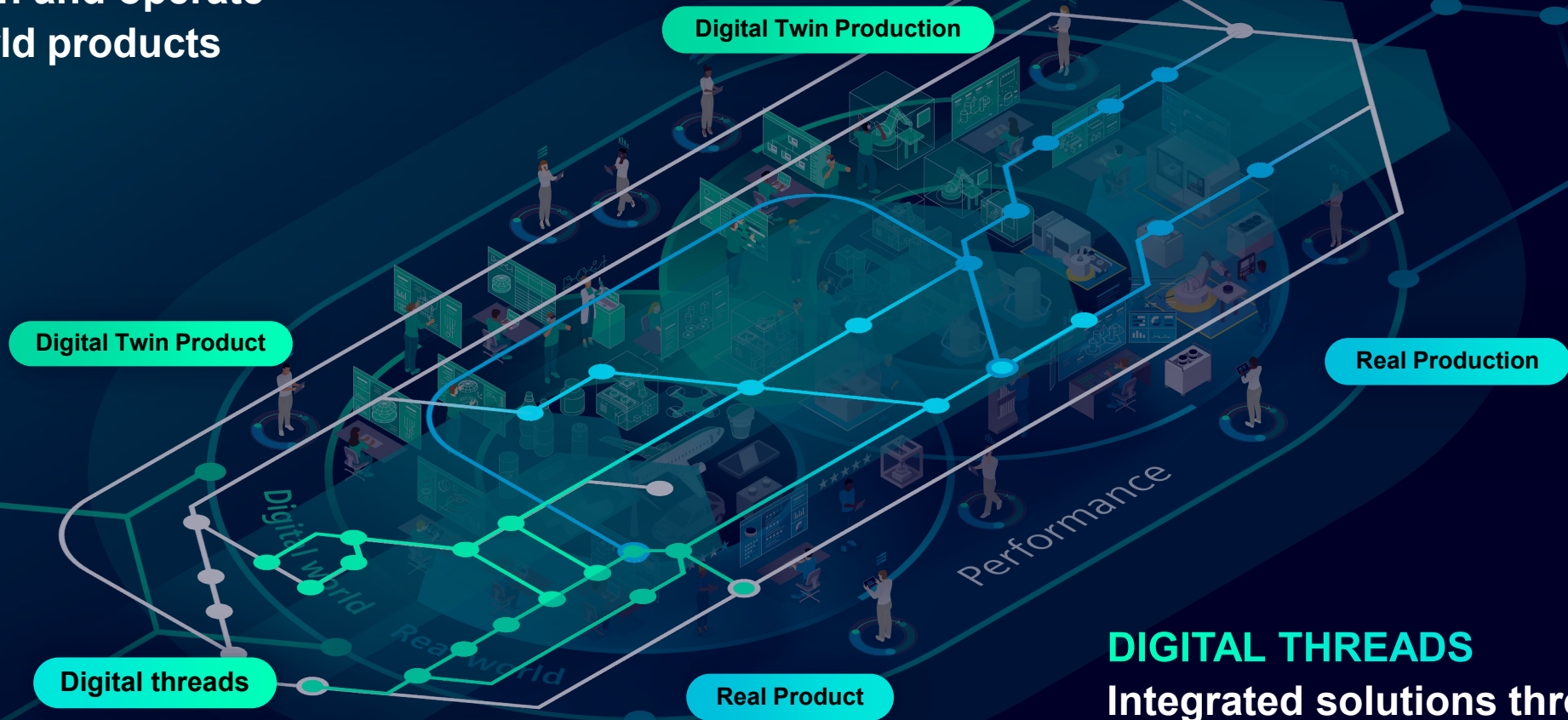
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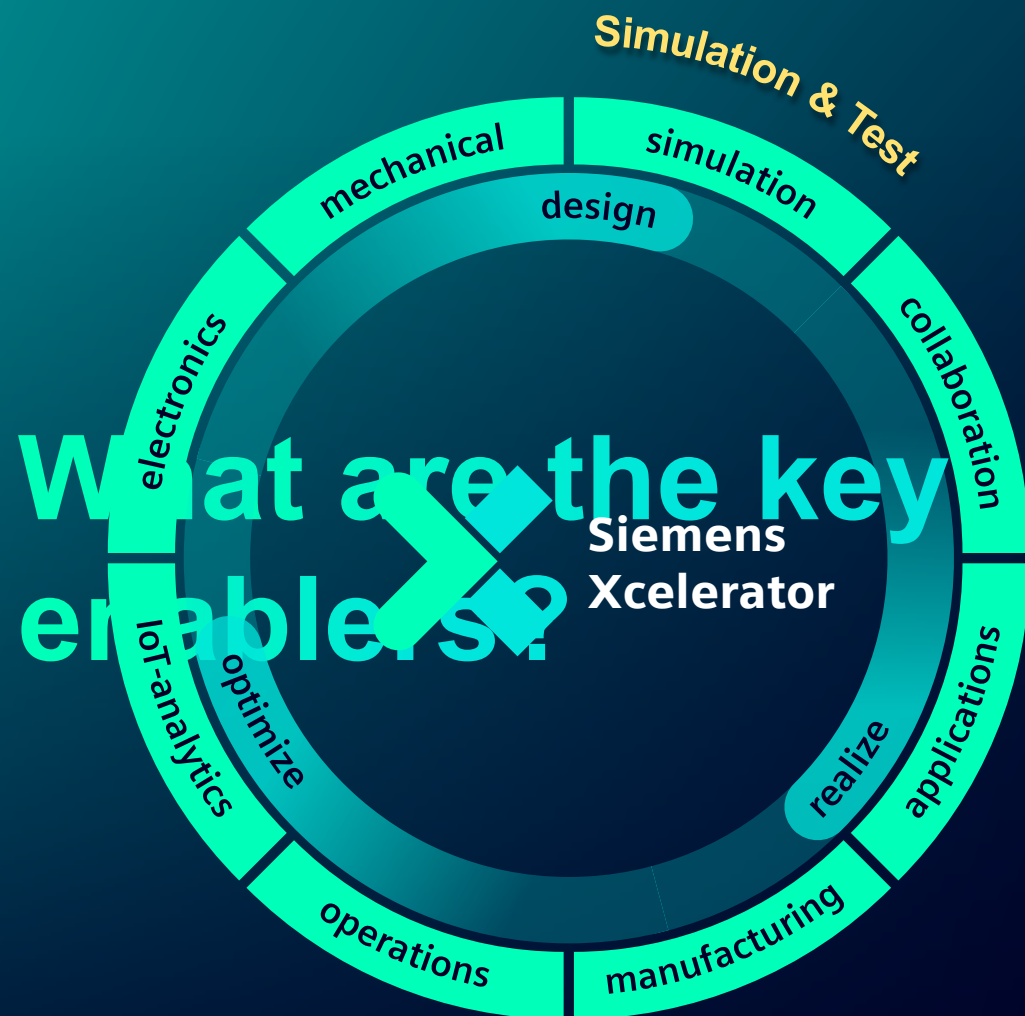
## DIGITAL TWIN

Combine real and digital worlds  
to design and operate  
real-world products



## DIGITAL THREADS

Integrated solutions through  
the entire product lifecycle



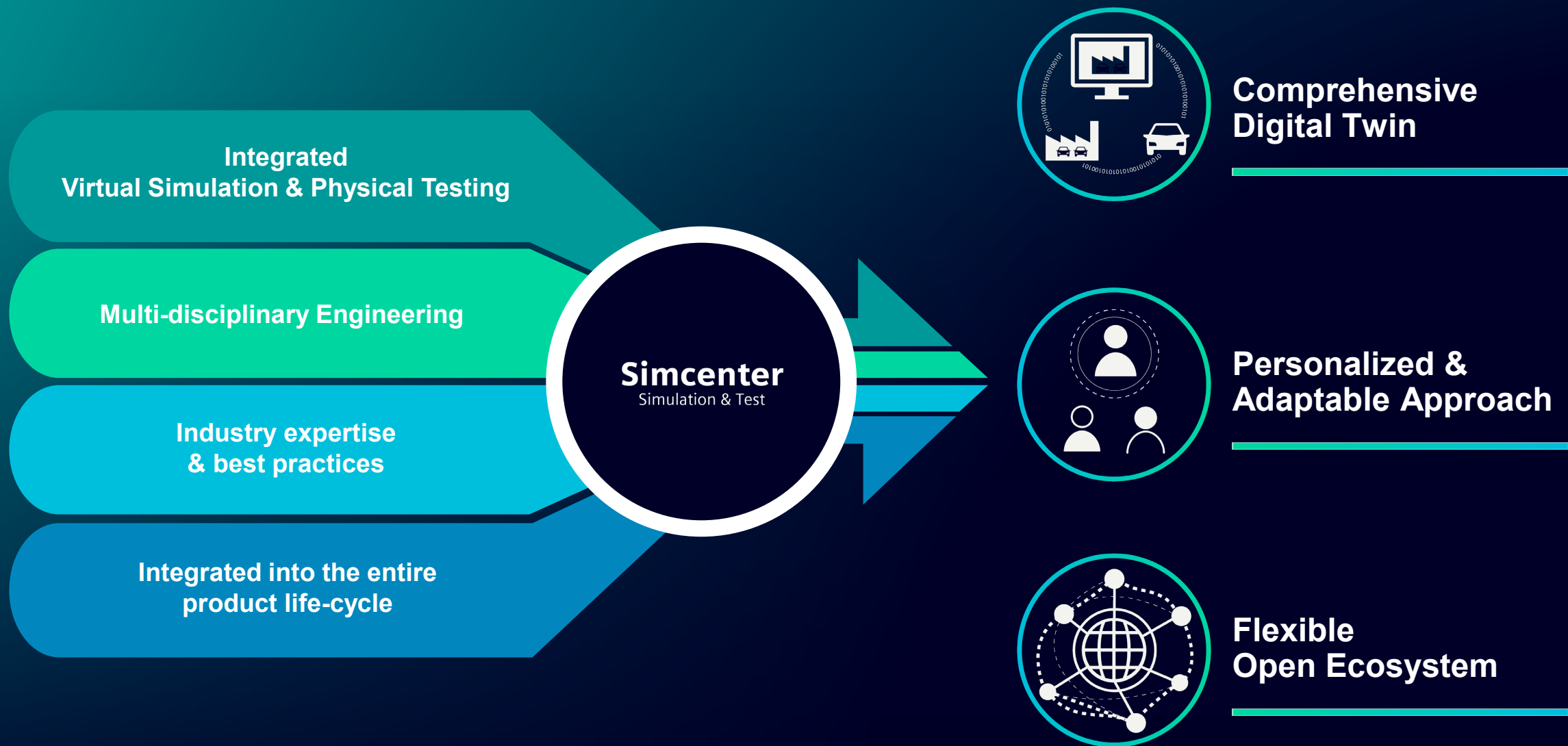
**Comprehensive  
Digital Twin**



**Personalized &  
Adaptable Approach**

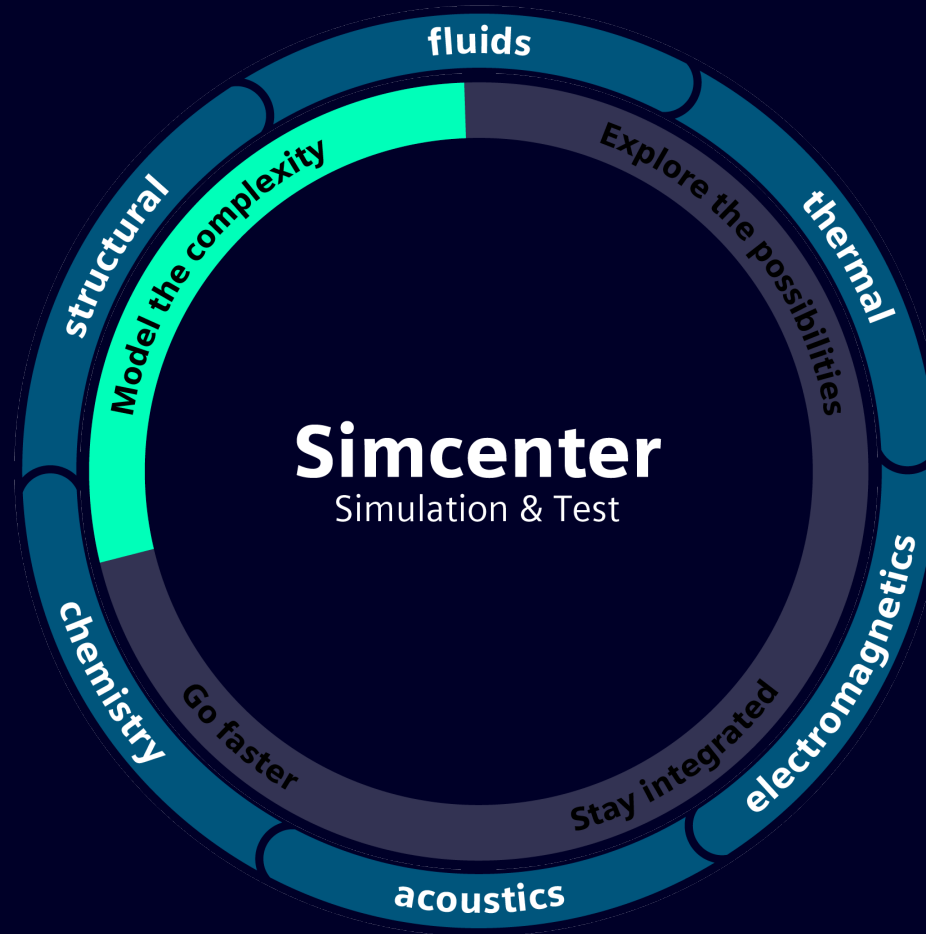
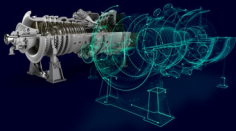


**Flexible  
Open Ecosystem**



# Simcenter, answering Industry's questions

How can I **fix issues**  
**before** building a  
physical **prototype** ?







Renault

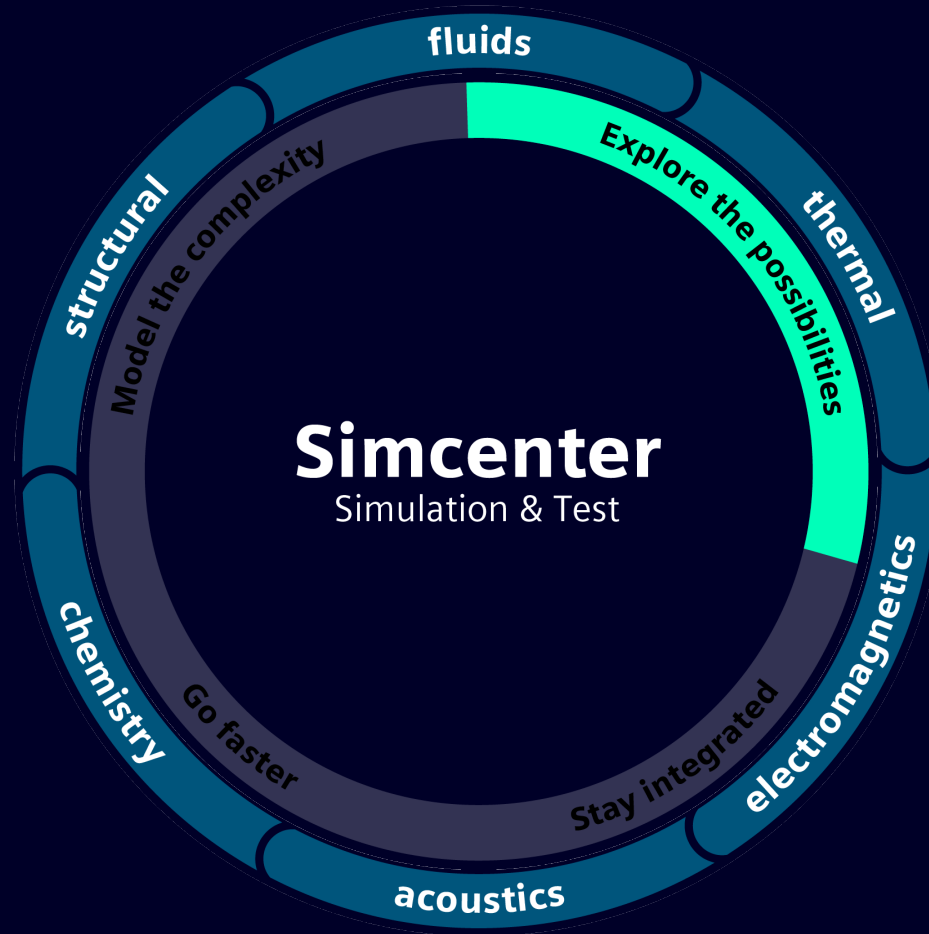
## How can I fix issues before building a physical prototype?

Development costs and time-to-market are reduced through a more accurate NVH virtual assessment earlier in design phase.

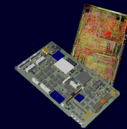
**5x**

expanded  
NVH prediction  
applications ↗

# Simcenter, answering Industry's questions



How can I **make design decisions** with **higher confidence** ?







Teignbridge Propellers International

## How can I make design decisions with higher confidence?

Leverage Multiphysics simulation and optimization for a more holistic engineering approach

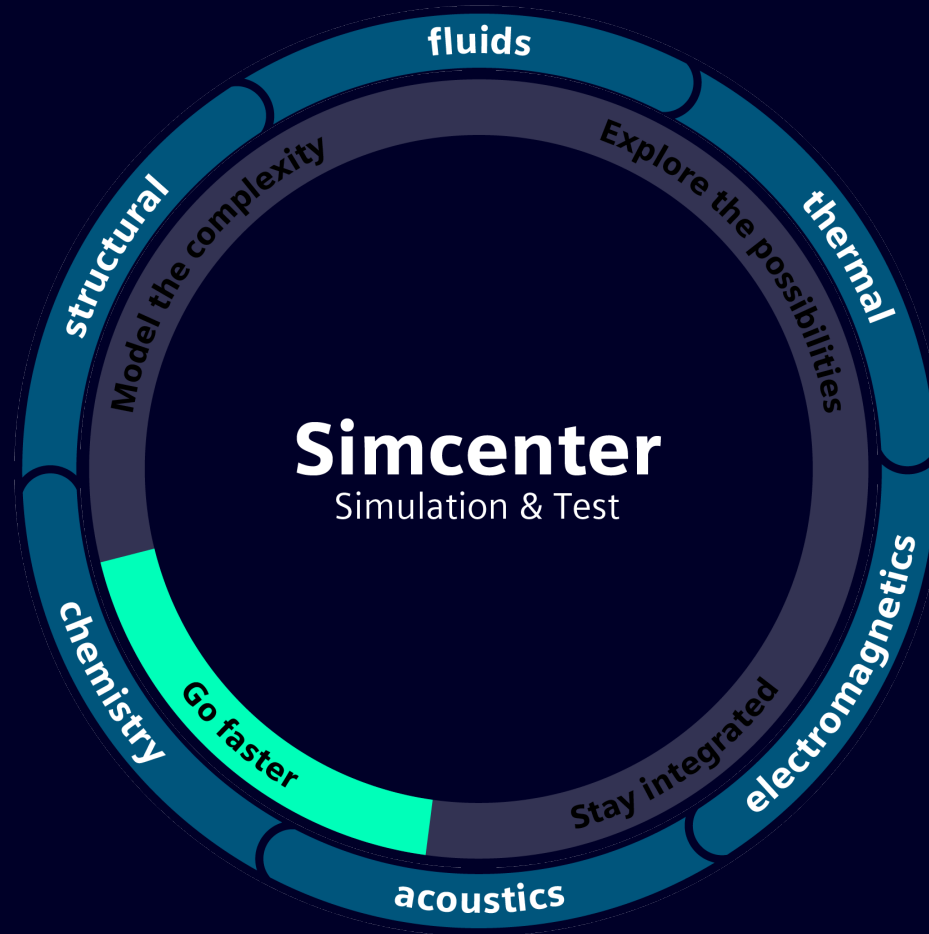
**10 dB**

reduction in  
underwater  
noise ↘

**500**

Explored  
designs in 48  
hours ↗

# Simcenter, answering Industry's questions



How can I make my  
**design process faster** ?



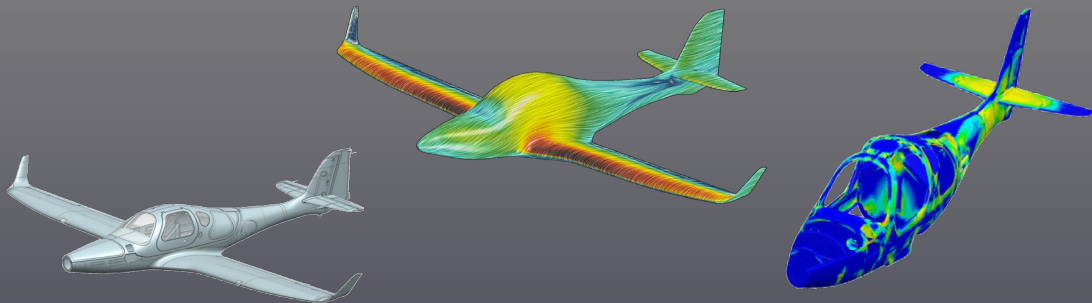




Bye Aerospace

# How can I make my design process faster?

Agile structural design and analysis process, significantly reducing overhead and allowing more iterations.



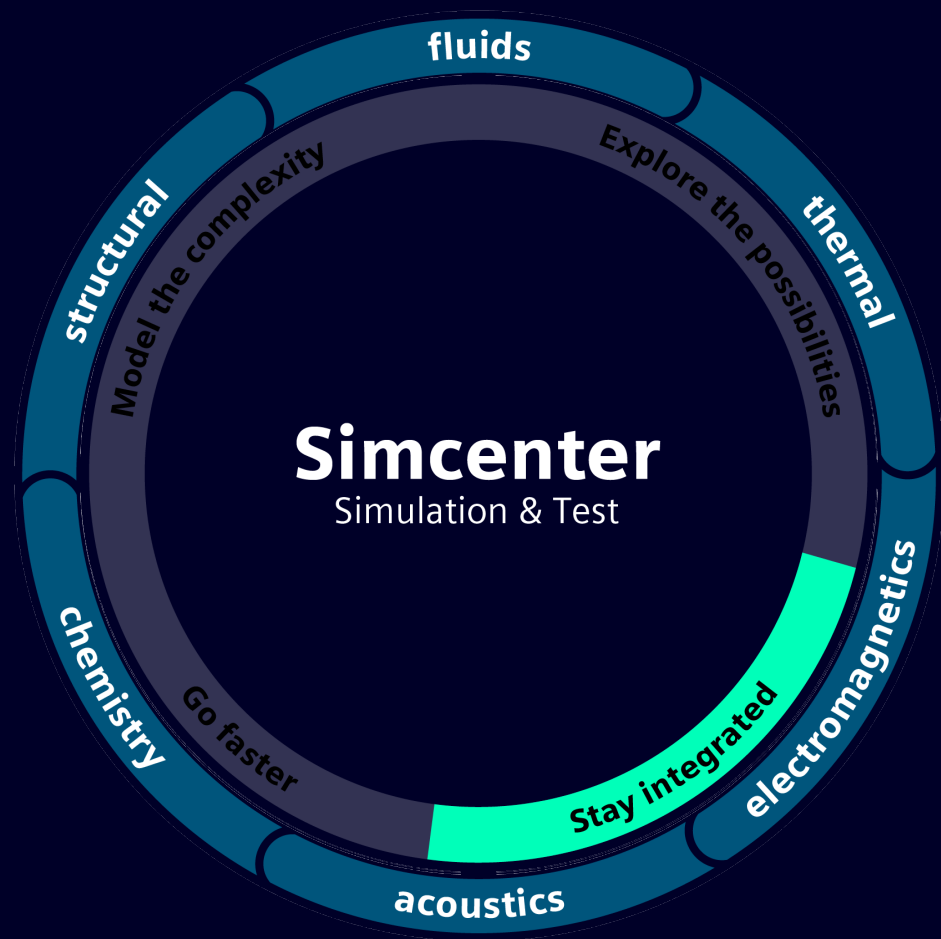
**>60%**  
overhead reduction



from **months**  
to **weeks**  
to verify redesigned  
aircraft



# Simcenter, answering Industry's questions



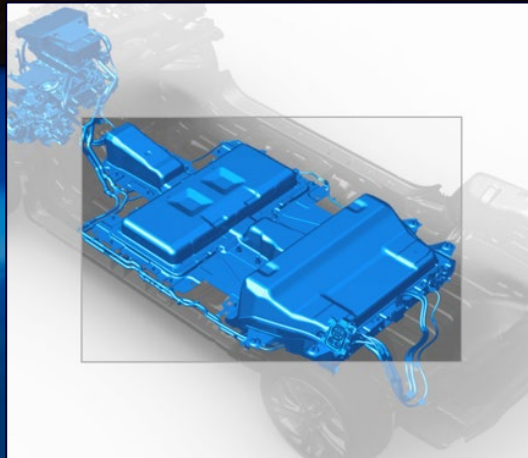
How do I **keep** my simulation and test **data** and **processes current** ?



PSA Peugeot Citroen

## How do I keep my data & processes current?

Multilevel modeling and multi-physics simulation to rapidly analyze battery performance and investigate alternative safe designs.



from **months**  
to **weeks**  
development time

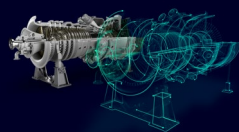


**2x**  
as much heat  
rejection for same  
cooling  
conditions

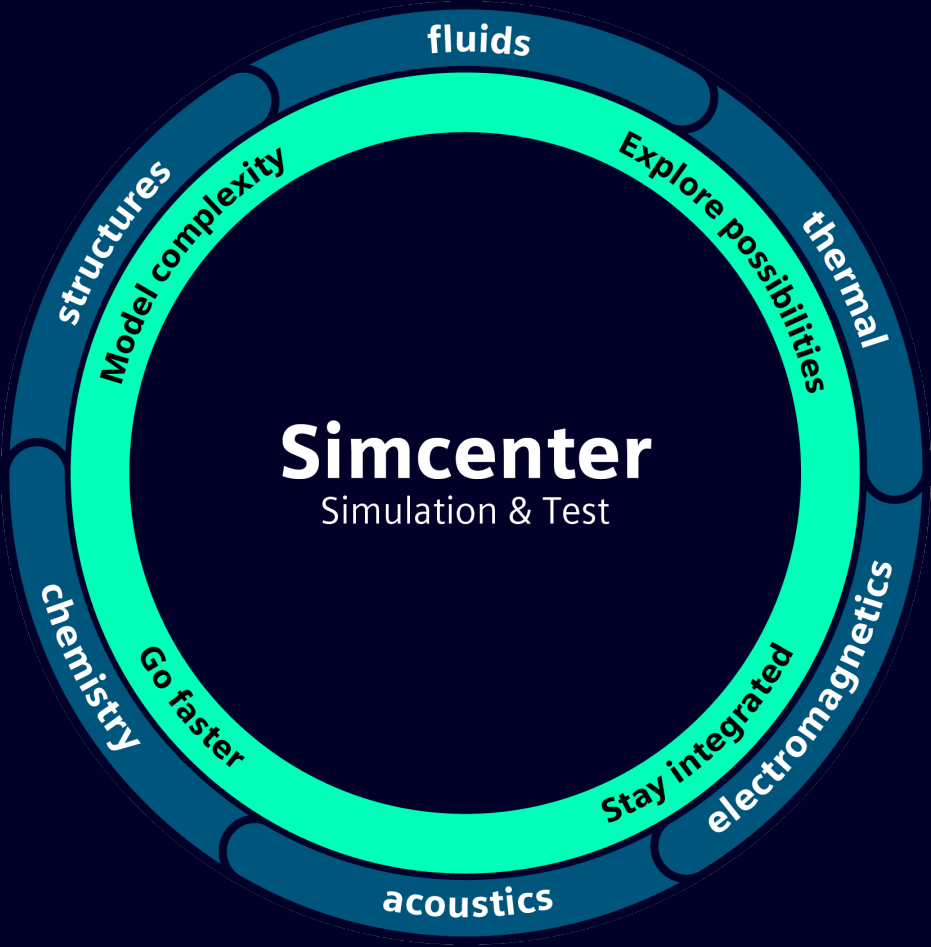


# Simcenter, answering Industry's questions

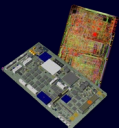
How can I **fix issues before** building a physical **prototype** ?



How can I make my **design process faster** ?



How can I **make design decisions** with **higher confidence** ?




How do I **keep** my simulation and test **data and processes current** ?





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**Where next?**

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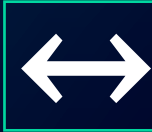
# Where next?

# Where to focus?



## Effective collaborative engineering

---



## Shift left & shift right

Creating a life-time value from the Digital Twin

---



## Personalized & adapted processes

Specific workflows, leveraging state-of-the-art technologies

---



## Cloud-based operation

Strengthen collaboration

---



# Product development

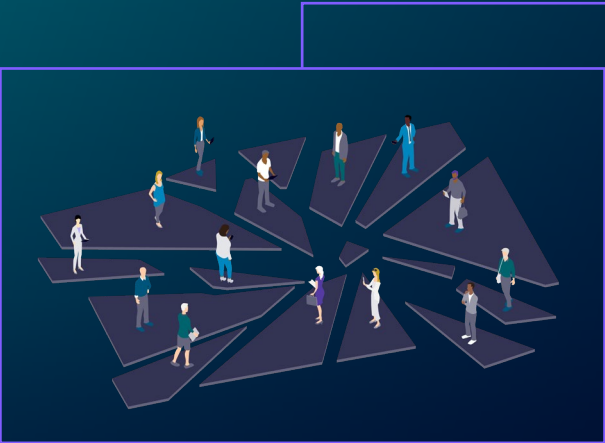
From “disconnected & slow” to “integrated & agile”

Shift left & shift right

Creating a life-time value from the Digital Twin

## Today

Disconnected, slow  
“Build - then - integrate”



Design  
Modifications



## Tomorrow

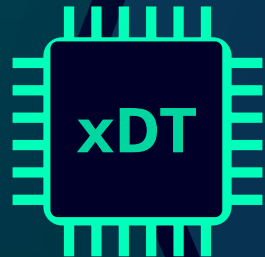
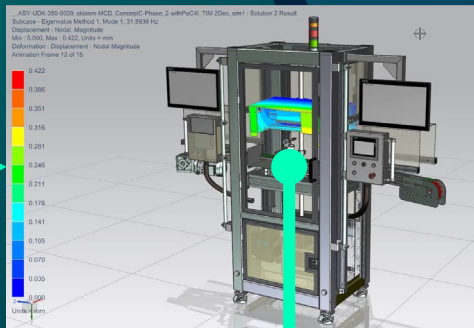
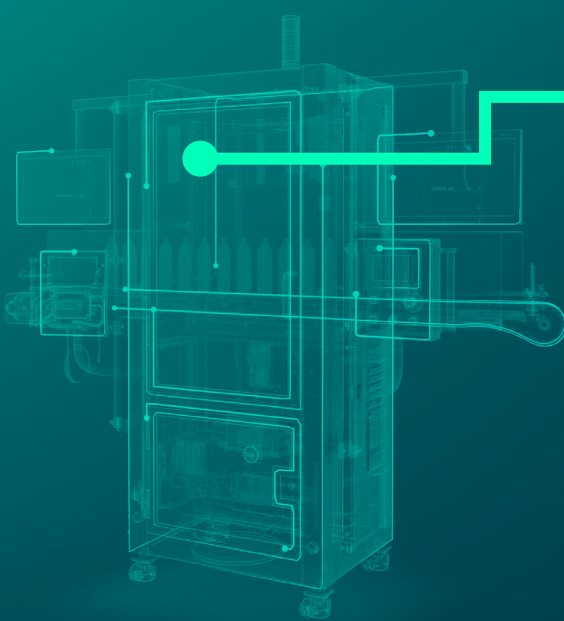
Integrated, agile  
“Integrate - then - build”



# Creating a life-time value from the Digital Twin

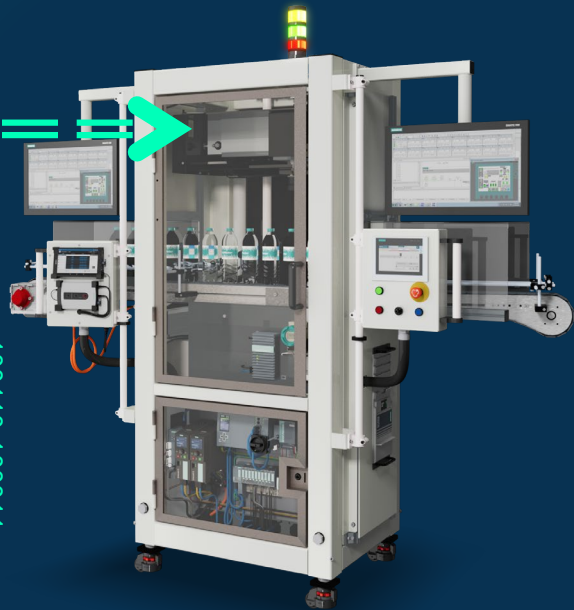
↔ Shift left & shift right  
Creating a life-time value from the Digital Twin

Virtual



Deploy xDT within or alongside the real asset to make insights actionable

010001 100100  
100110 100011



Real

Digital twin models deliver insights

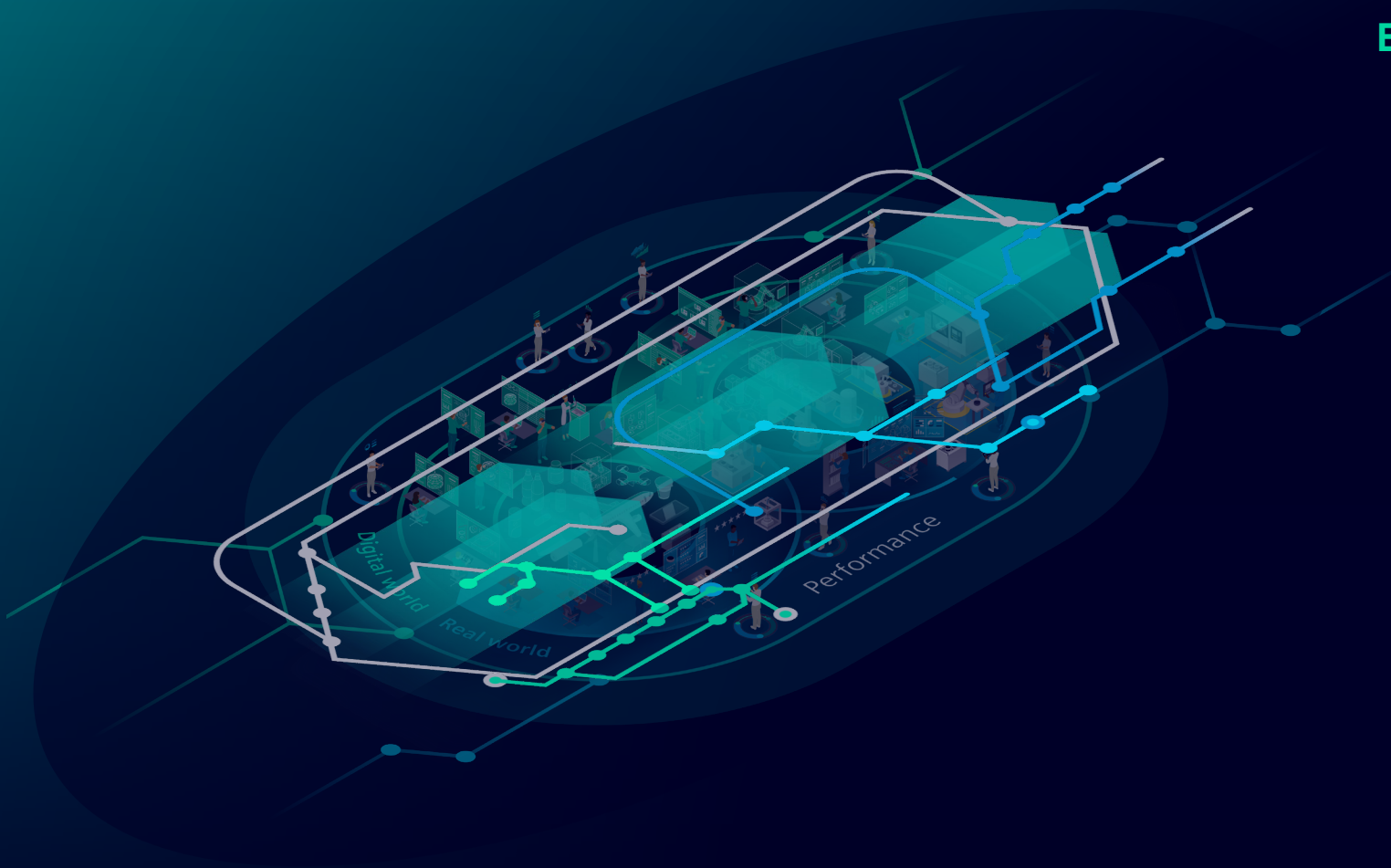
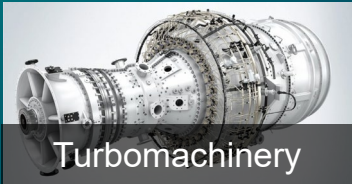
example

# Personalized & adapted processes

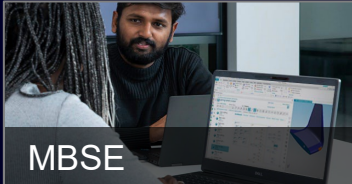


**Personalized & adapted processes**  
Specific workflows, leveraging state-of-the-art technologies


## Digital Threads & Integrated Workflows



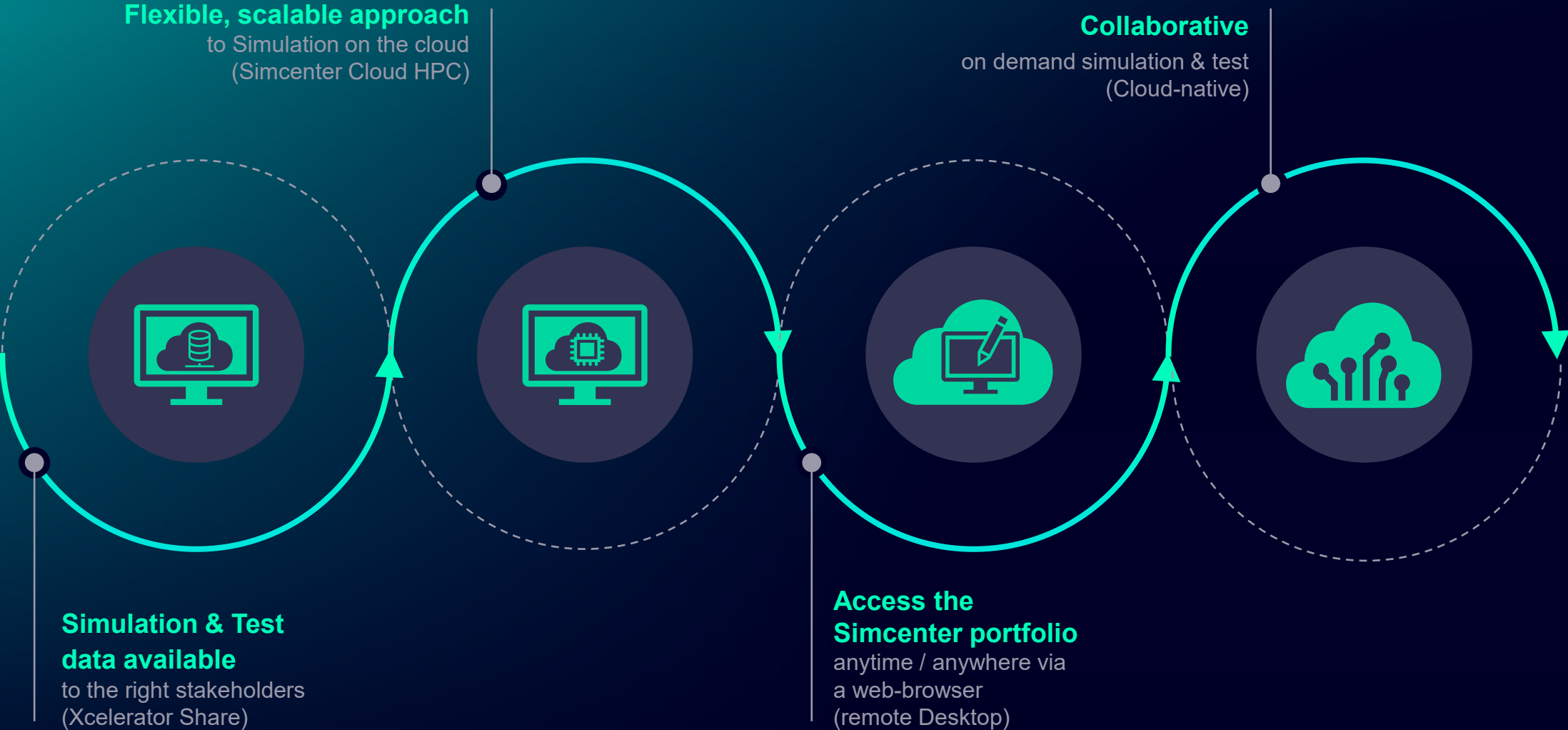
## Enabling Technologies & Processes



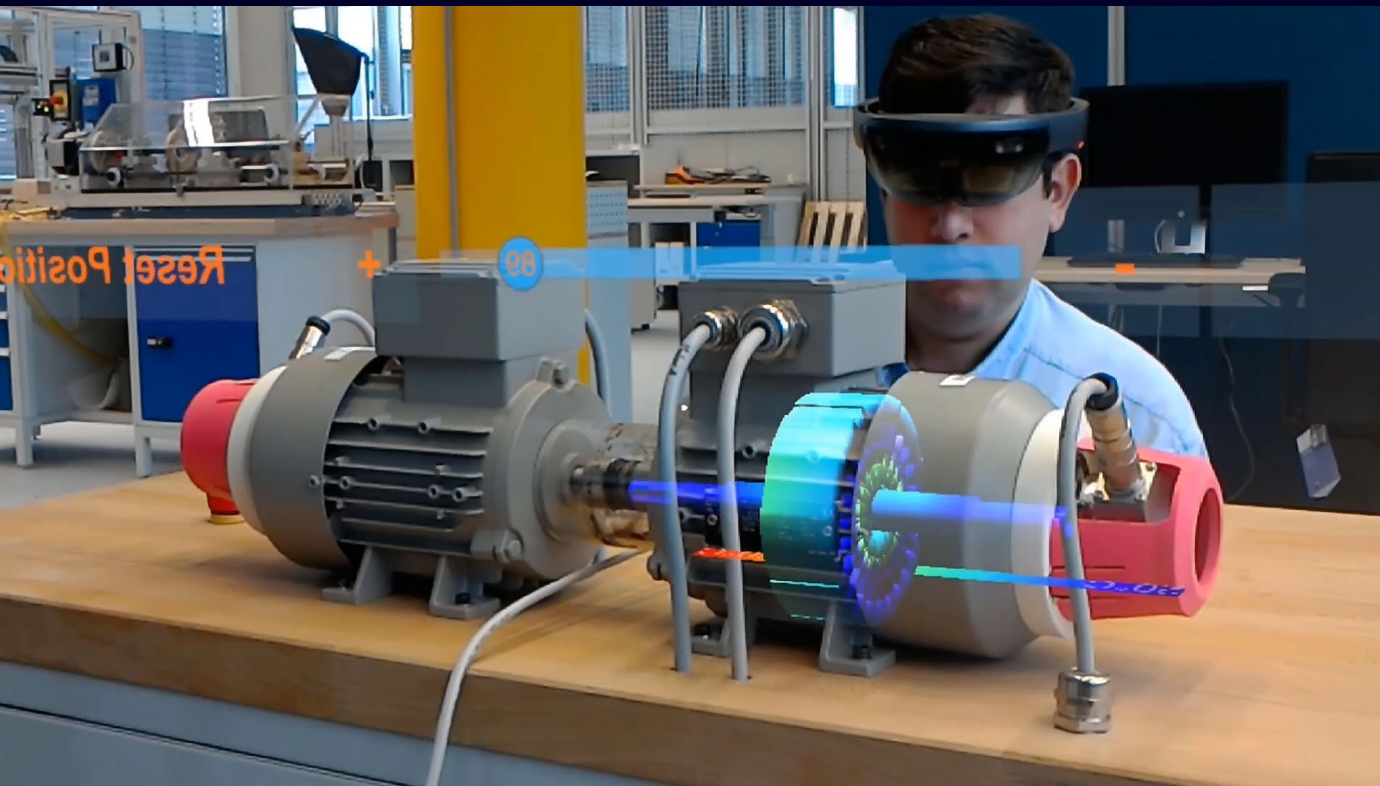
# Simcenter SaaS roadmap



**Cloud-based operation**  
Strengthen collaboration







And now, let's  
take a quick  
look a little  
further...

# What if you could...

Perform **interactive simulations** and evaluate **collaboratively** ?



Design & Engineering



Leverage **photorealistic environments** for synthetic data ?



Virtual Testing & Validation



Do **virtual commissioning assessment** ?



Production



**Visualize** workflows and data, do **remote control** and **servicing** ?



Operations



For **unusual or costly scenarios**, do training by **remote experts** ?

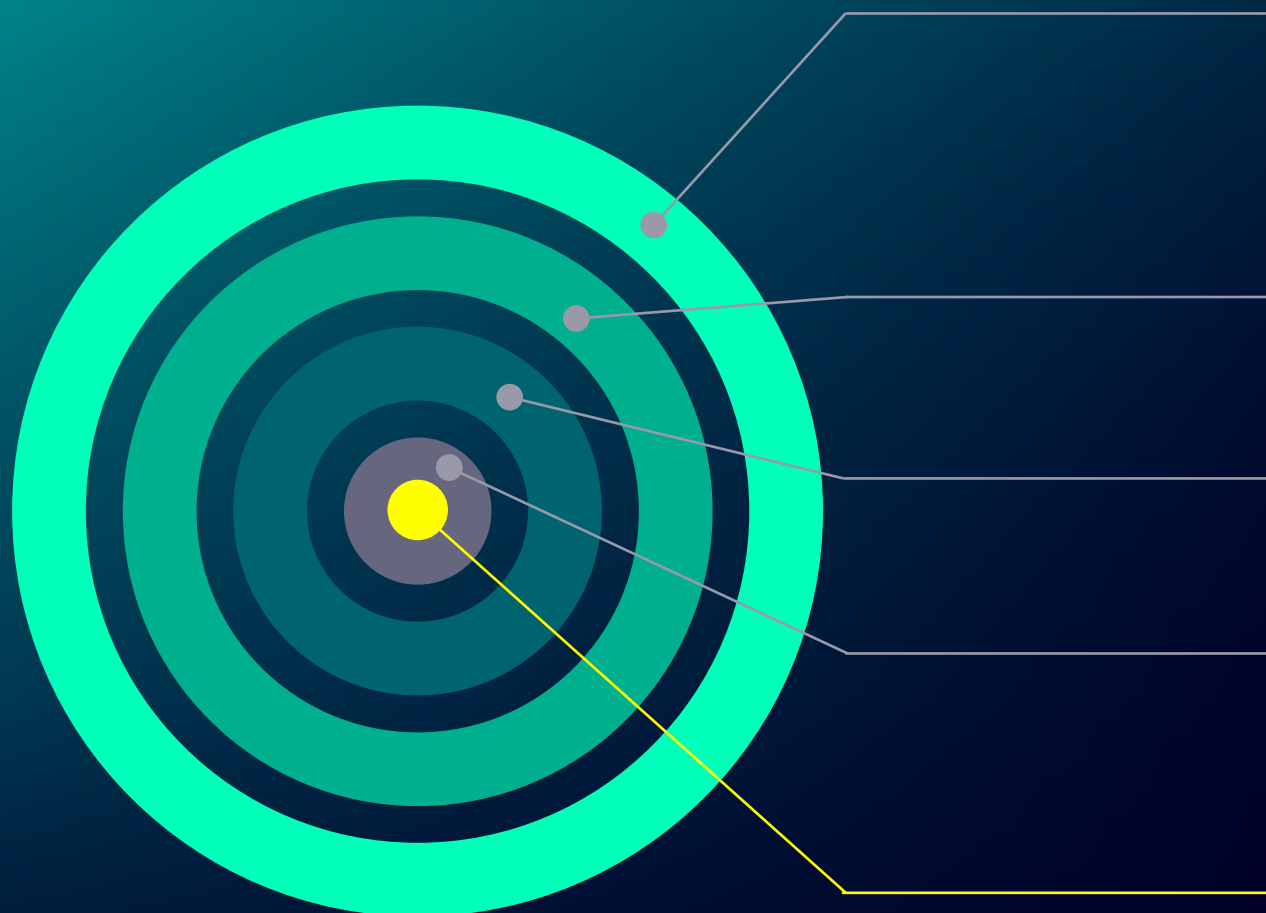


Training



**This is what the Industrial Metaverse will enable**

## Key take-aways & call to action



### Integration is the next challenge.

Impacting:

- Time-to-market
- Resource deployment / costs
- Quality

### Digitalization is the answer.

Leveraging Digital Twin & Digital Thread

### Siemens enables Digitalization throughout the entire product lifecycle...

Moving towards “Integrate - then - build”

### ... turning complexity into a competitive advantage.

- Shorter time-to-market
- Optimized resources & costs
- Increased quality

### Come and talk to us

We'll discuss how to personalize this approach for your Company



# Thank you!

## Maurizio Parodi

Vice President  
Strategic Customer Relations  
Simulation & Test Solutions

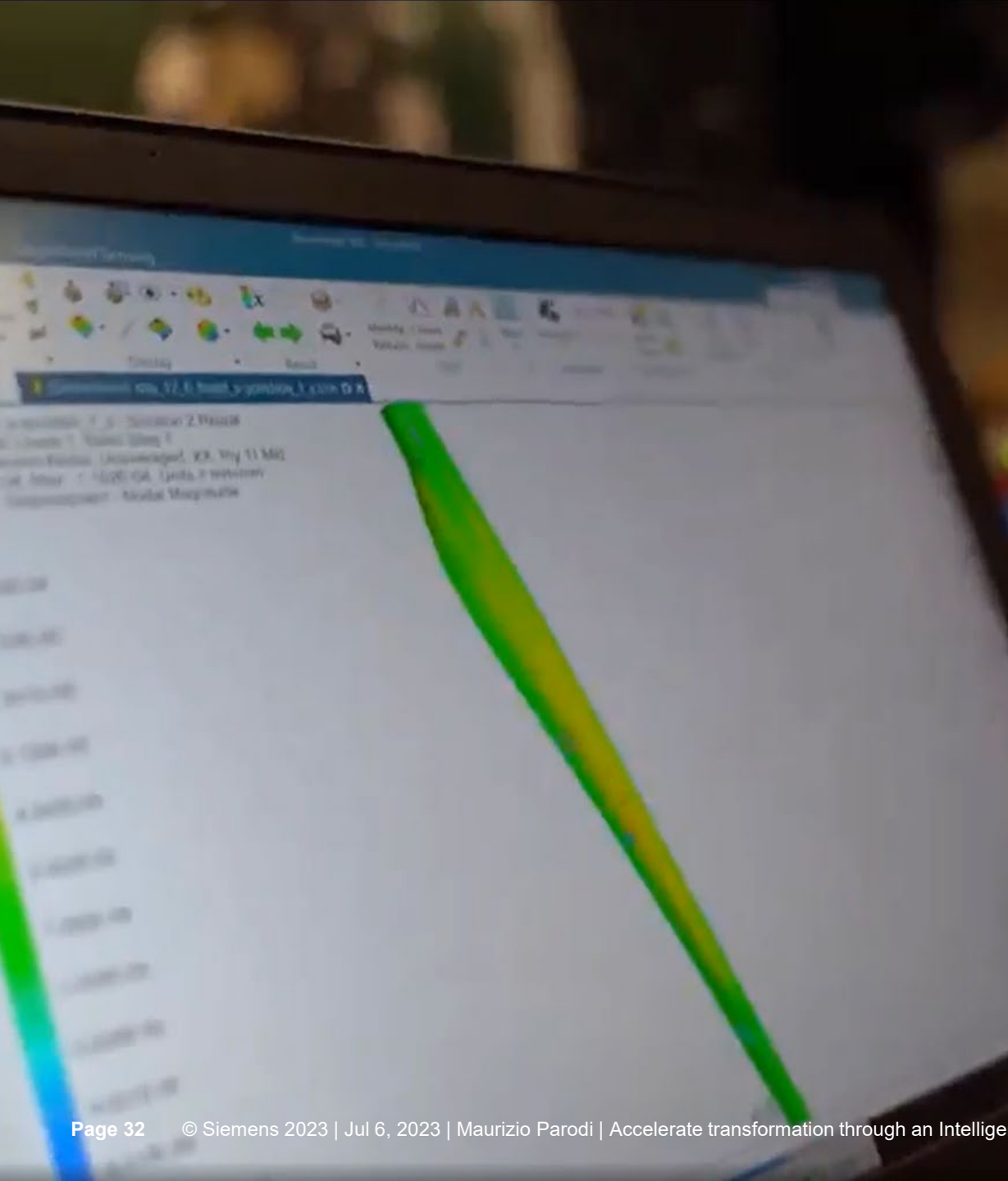
Mobile +39 33 57 57 39 69

e-mail [maurizio.parodi@siemens.com](mailto:maurizio.parodi@siemens.com)



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DTU Wind Energy

# How can I design and operate a wind turbine in an optimized manner?

Digital Twin to design and monitor wind turbine blades, making them more reliable

**-30%**

hardware cost



**5x**

faster test  
set-up



**Make a repair**

before an issue  
becomes critical

