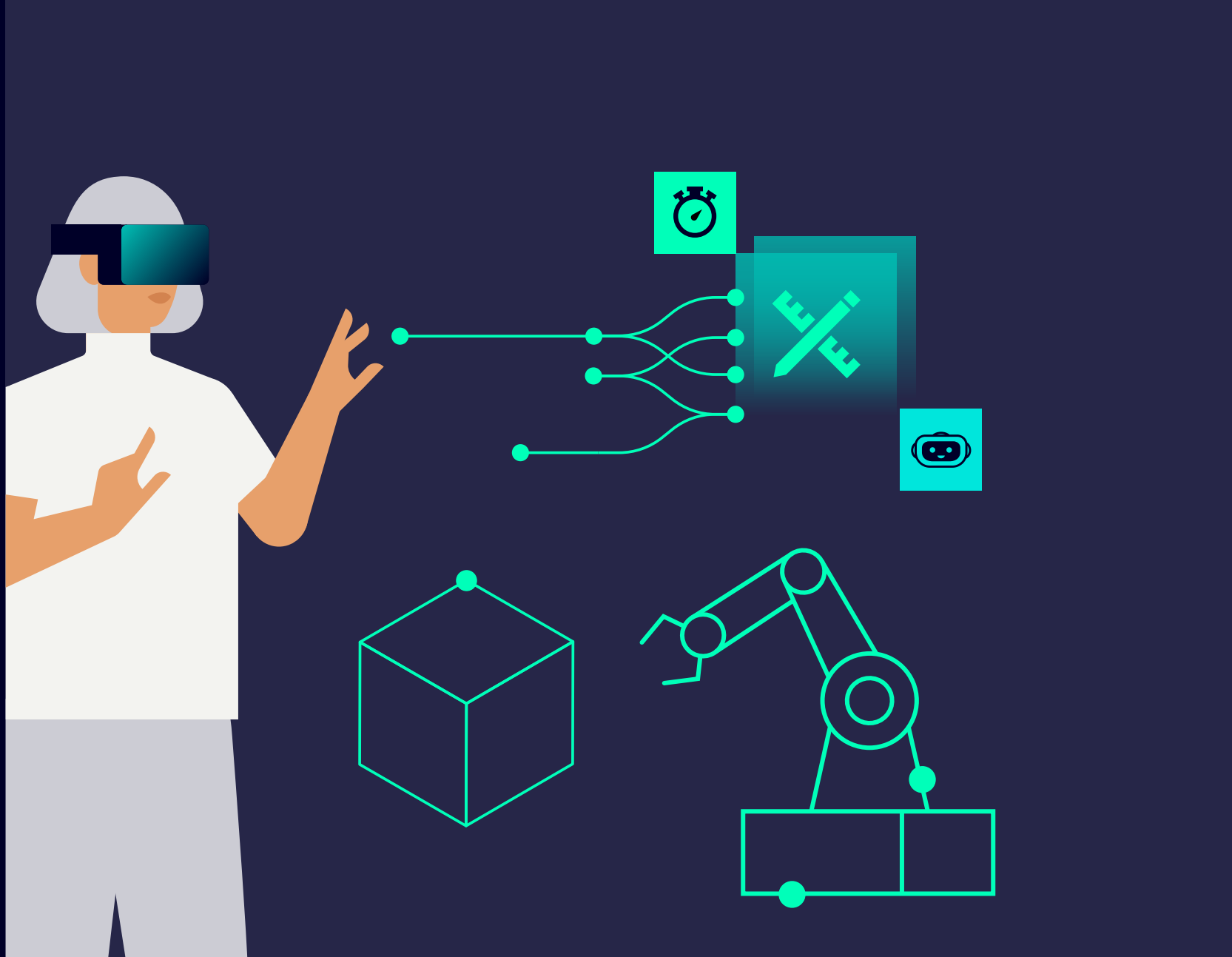


# Industrial AI: Transform the entire value chain

Deep dive: Design



# Physics-informed AI today



## Transforming design and simulation with AI

### Challenge

- Physics-based simulations are computationally expensive and slow
- Engineering data (CAD, CAE, test) is siloed and hard to use effectively
- Traditional workflows limit speed, accuracy, and efficiency in design exploration.

### Solution

- Physics-informed geometric deep learning delivers predictions up to 1,000x faster
- Automated geometry recognition organized complex assemblies
- Reduced-order models enable real-time system simulation

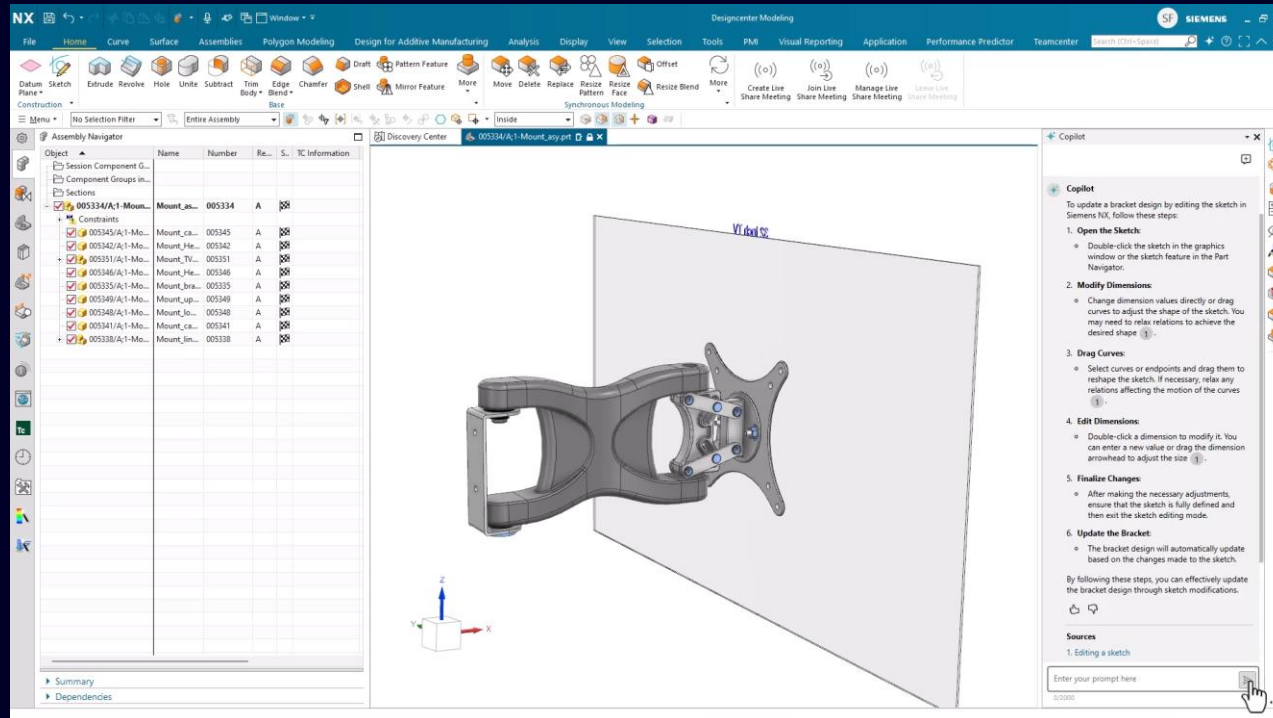
### Value

- Faster, more accurate digital twins for decision making
- Lower development costs and faster-to-market
- Improved product quality and operational efficiency

### Products and services

- PhysicsAI
- romAI
- shapeAI

# Generative AI today



## Generative AI-powered product design using Designcenter NX CAD

### Challenge

- Difficulty handling increasingly large and complex datasets
- Need to improve operational efficiency and throughput
- Need to decrease risk throughout produce development process, security and costs

### Solution

- Designcenter NX Copilot
- An AI engineering assistant: ask natural language questions, access detailed technical insights and streamline complex design tasks

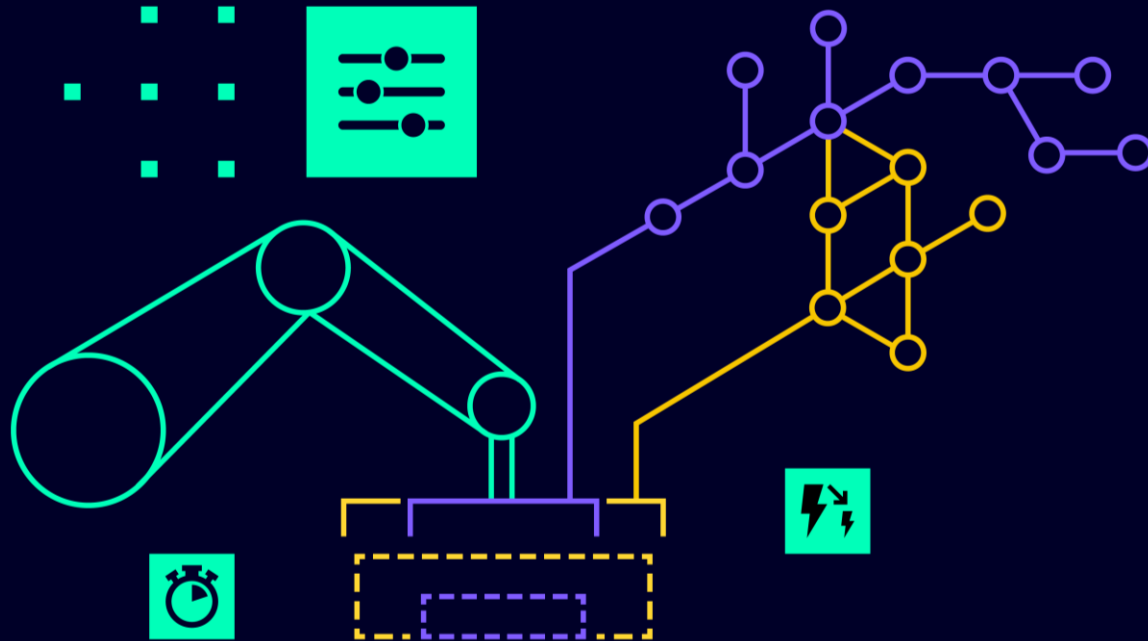
### Value

- Optimized ways to navigate data, balance trade-offs, and perform multi-domain tasks
- Improves accessibility, enabling all users to find and leverage features easily

### Products and services

- Designcenter NX
- Copilot capabilities

## Generative AI today



## Product design with generative AI and simulation

### Challenge

Sustainability has become a business imperative for most companies, which are now looking for new ways to increase energy efficiency, for example.

### Solution

One way is to reduce the weight of grippers that are attached to robots. The lighter these grippers are, the smaller the robot that handles them can be, and the less energy it uses. A handy configurator app for PCs and smart devices that significantly reduces the time and effort required to create a new gripper variant.

### Value

- Accelerated and efficient design of gripper variants
- Easy to use without any special know-how
- The fastest way to save time, effort and carbon emissions

### Products and services

- Siemens NX, Siemens NX AM
- Simcenter 3D
- Mendix
- Tecnomatix

**Define your  
process** with  
Hydrogen  
Configurator



## Engineering Copilot H<sub>2</sub>

### Challenge

Fast-growing green-H<sub>2</sub> market; many companies lack plant design/build expertise, H<sub>2</sub> Plant Configurator closes the gap

### Solution

LLM-based auto-generation of engineering-ready BFDs, layouts, metrics and component lists:

- Automated Block Flow Diagram (BFD)
- Major in-/outputs, detailed configuration
- Export to COMOS and gPROMS
- P&ID creation on autopilot

### Value

- Time reduction, cost savings
- Lowest effort for detailed configuration
- Data handover simplified

### Products and services

- COMOS
- gPROMS
- H<sub>2</sub> plant configurator