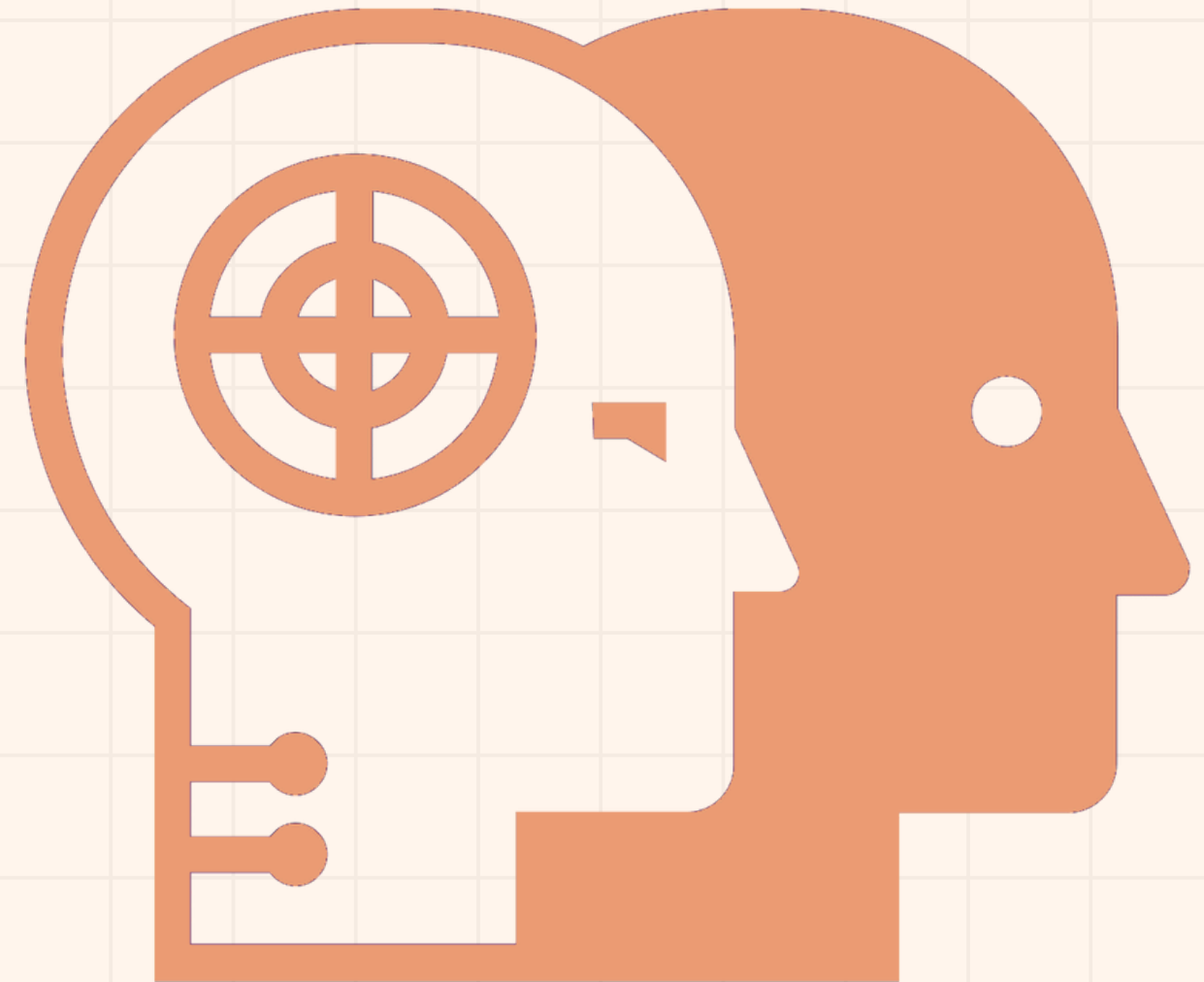
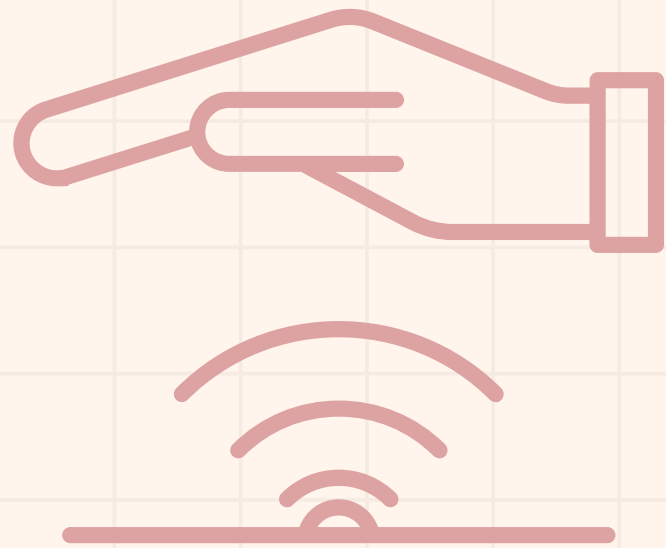


# DIGITAL TWIN TECHNOLOGY

Bridging Physical and Digital Worlds

Understanding the Future of Intelligent Systems

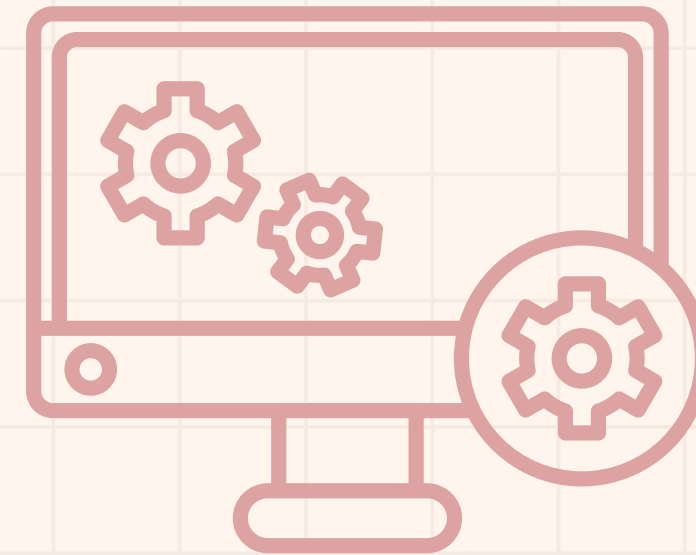




**CHEAP SENSORS**



**CLOUD**



**SMART PROGRAMS**

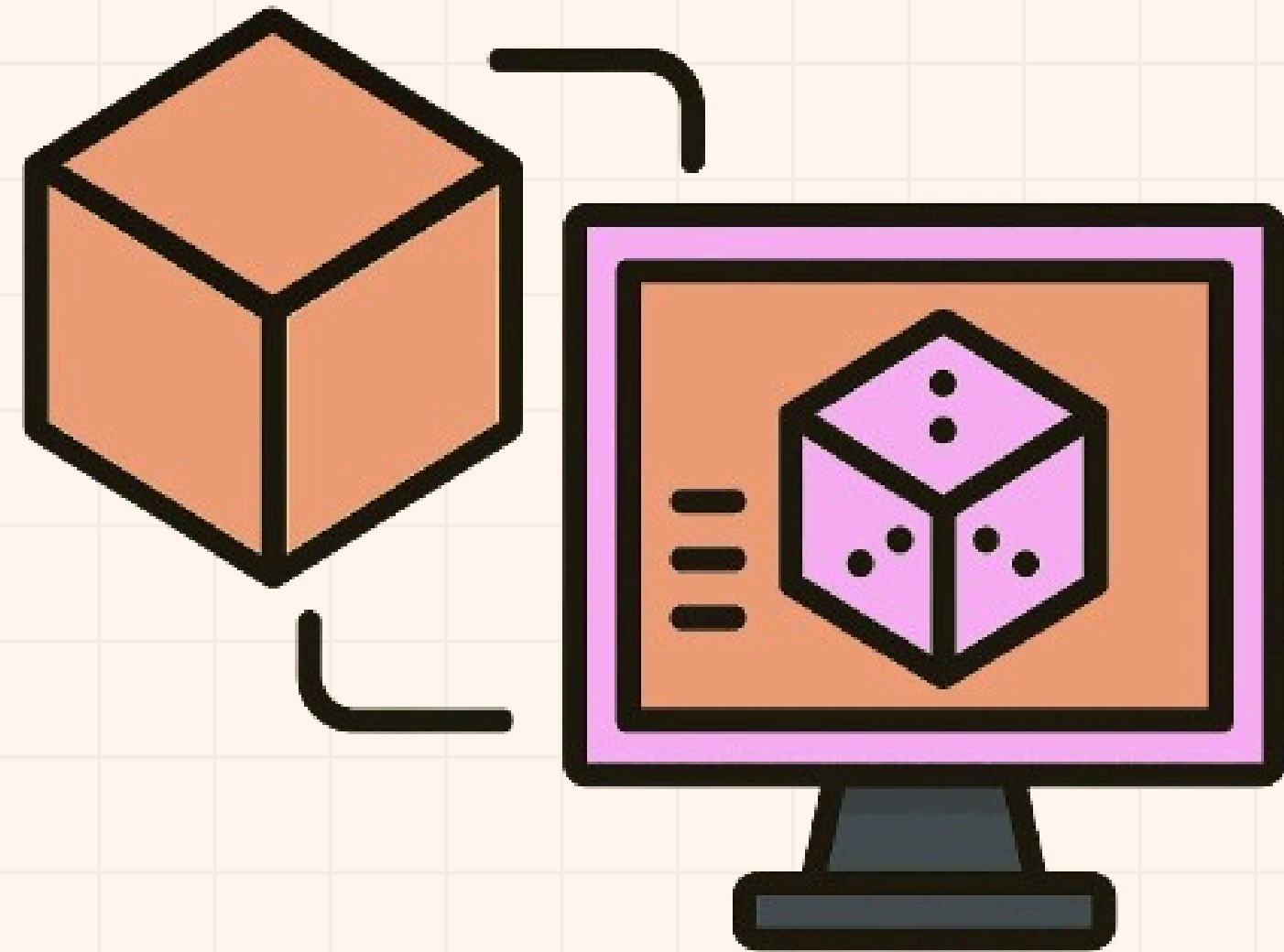
# INTRODUCTION

What is a Digital Twin?

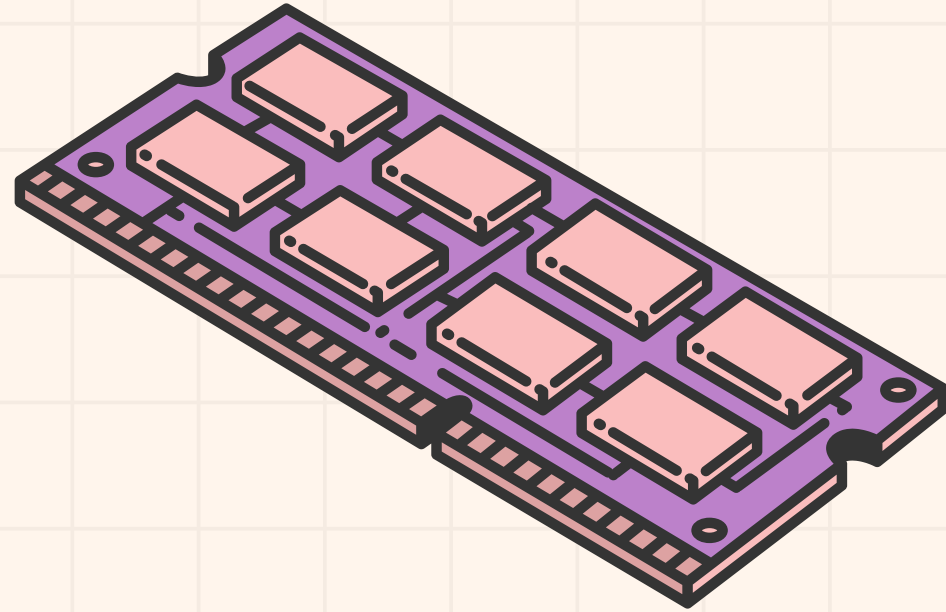
Definition:

Key Components: Sensors, Data Integration, Simulations, Machine Learning

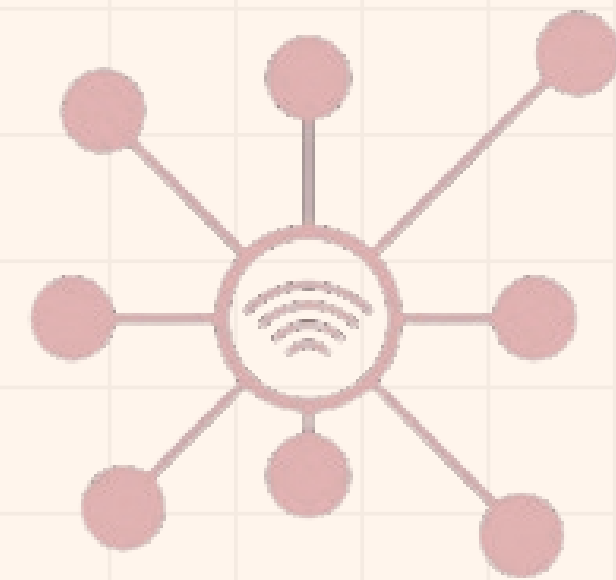
Purpose: Predict performance, optimize operations, and enhance decision-making



# HOW DIGITAL TWINS WORK



REAL MACHINES AND SENSORS



DATA COLLECTIONS



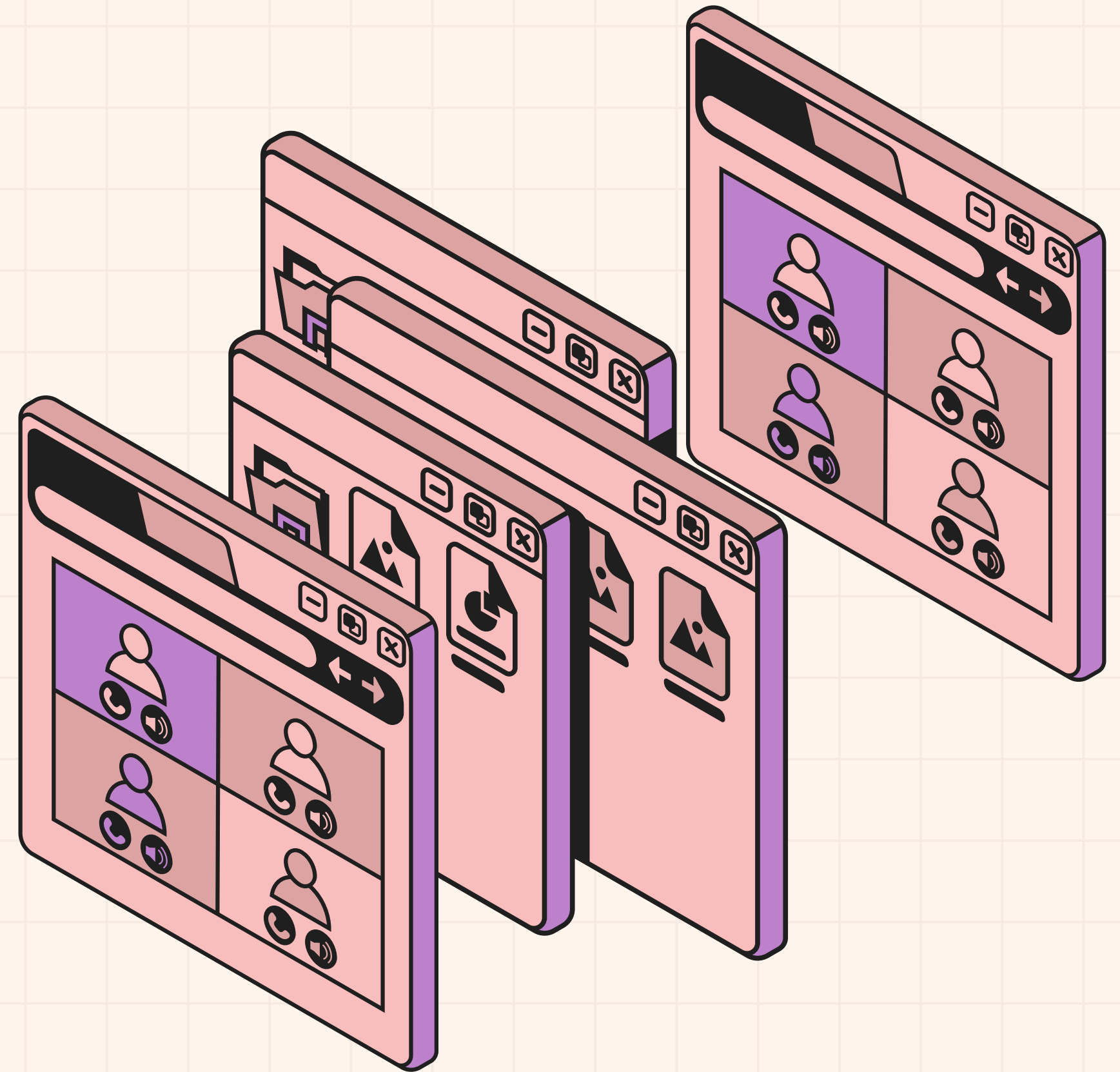
MODEL SIMULATES AND ANALYZES  
THE SYSTEM'S BEHAVIOR

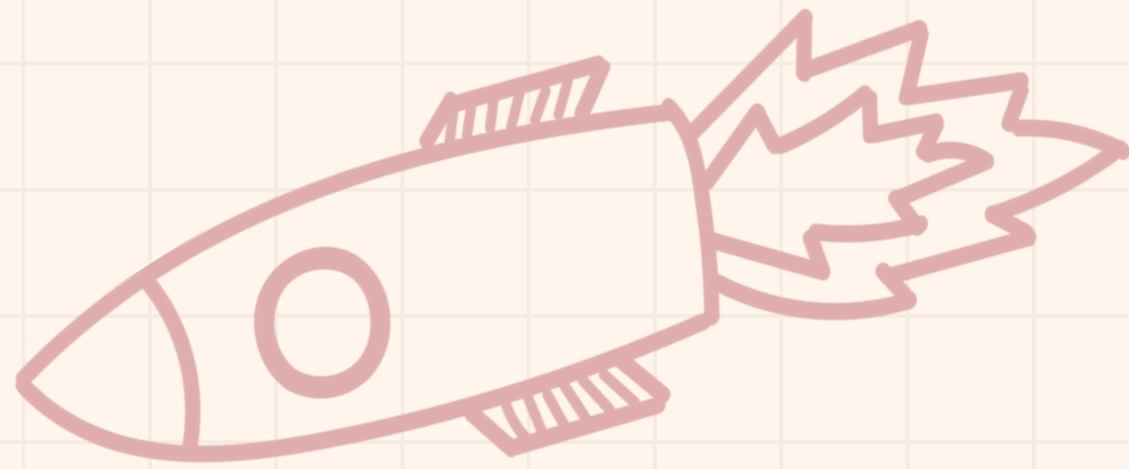


FEEDBACK PROVIDED TO OPTIMIZE  
PERFORMANCE

# BENEFITS OF DIGITAL TWINS

- Real-time monitoring and diagnostics
- Predictive maintenance
- Operational efficiency
- Cost reduction
- Product and process innovation



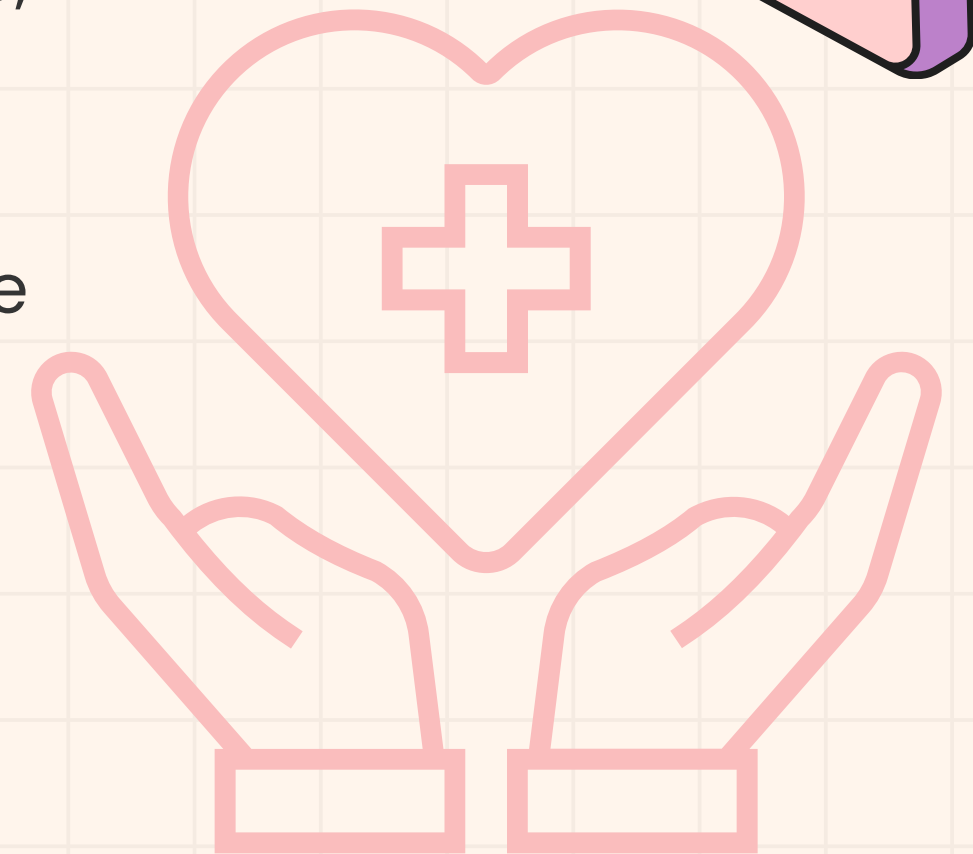
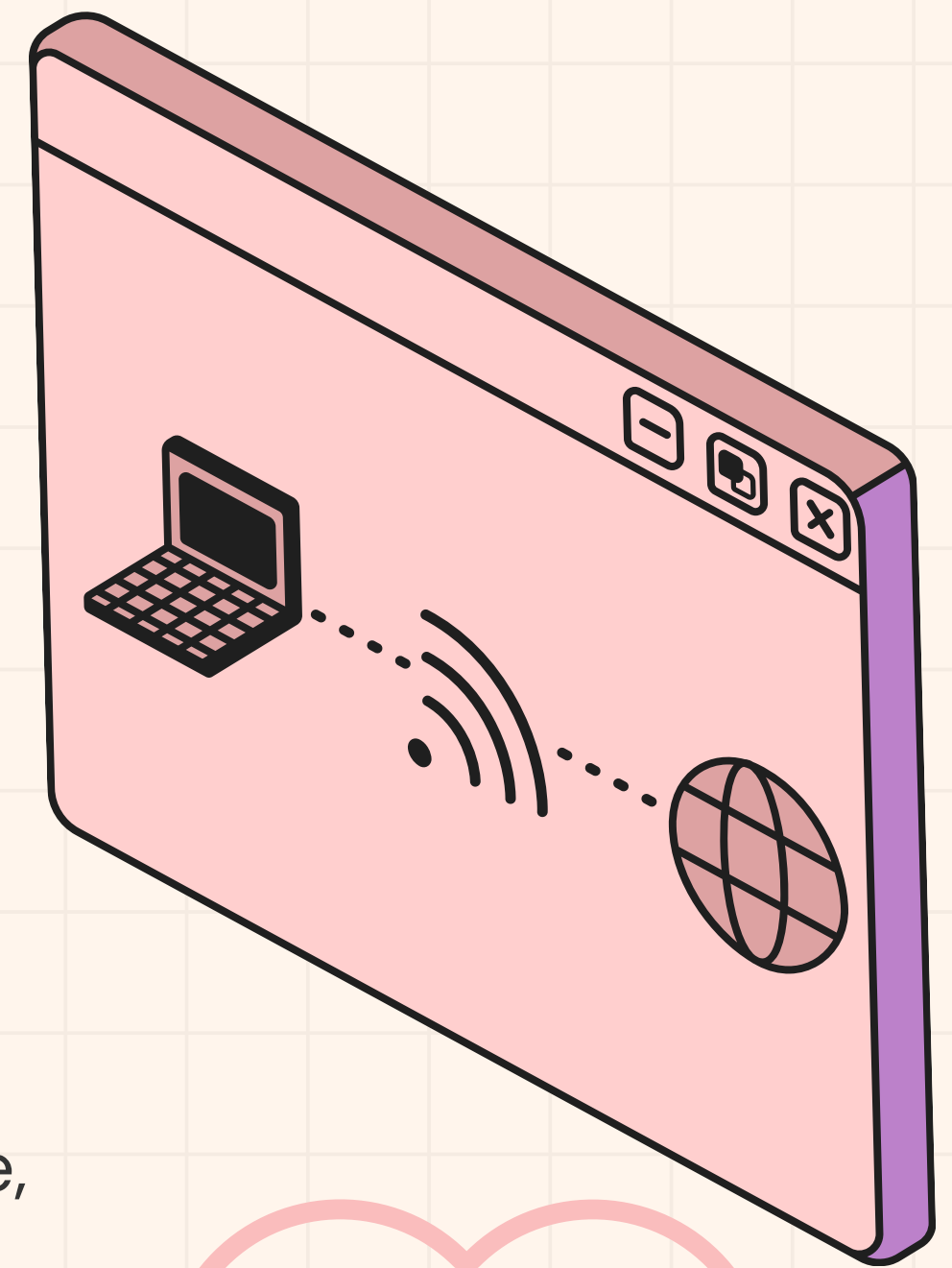


# EVOLUTION AND GROWTH OF DIGITAL TWINS

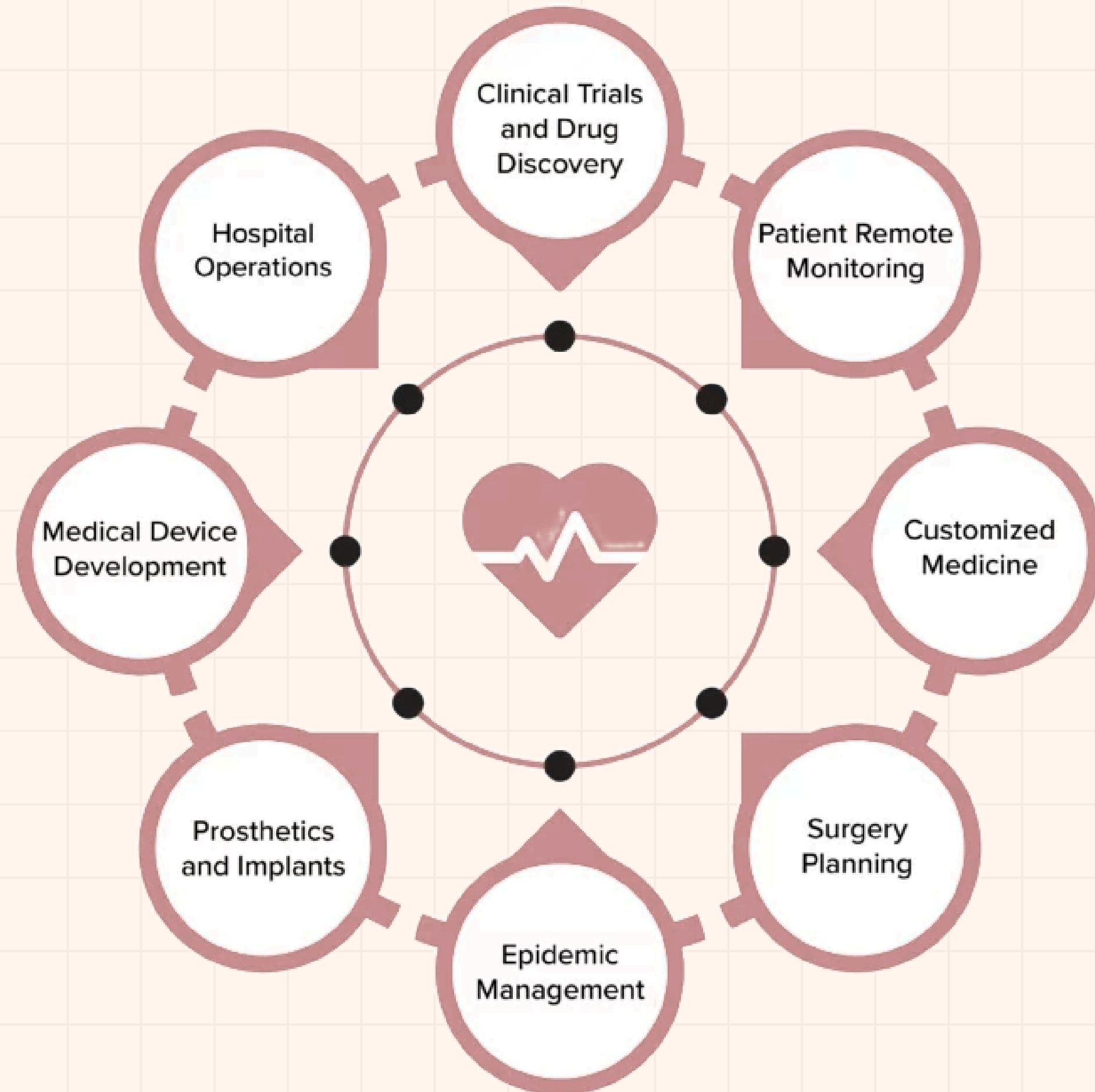
Initially used in aerospace and manufacturing

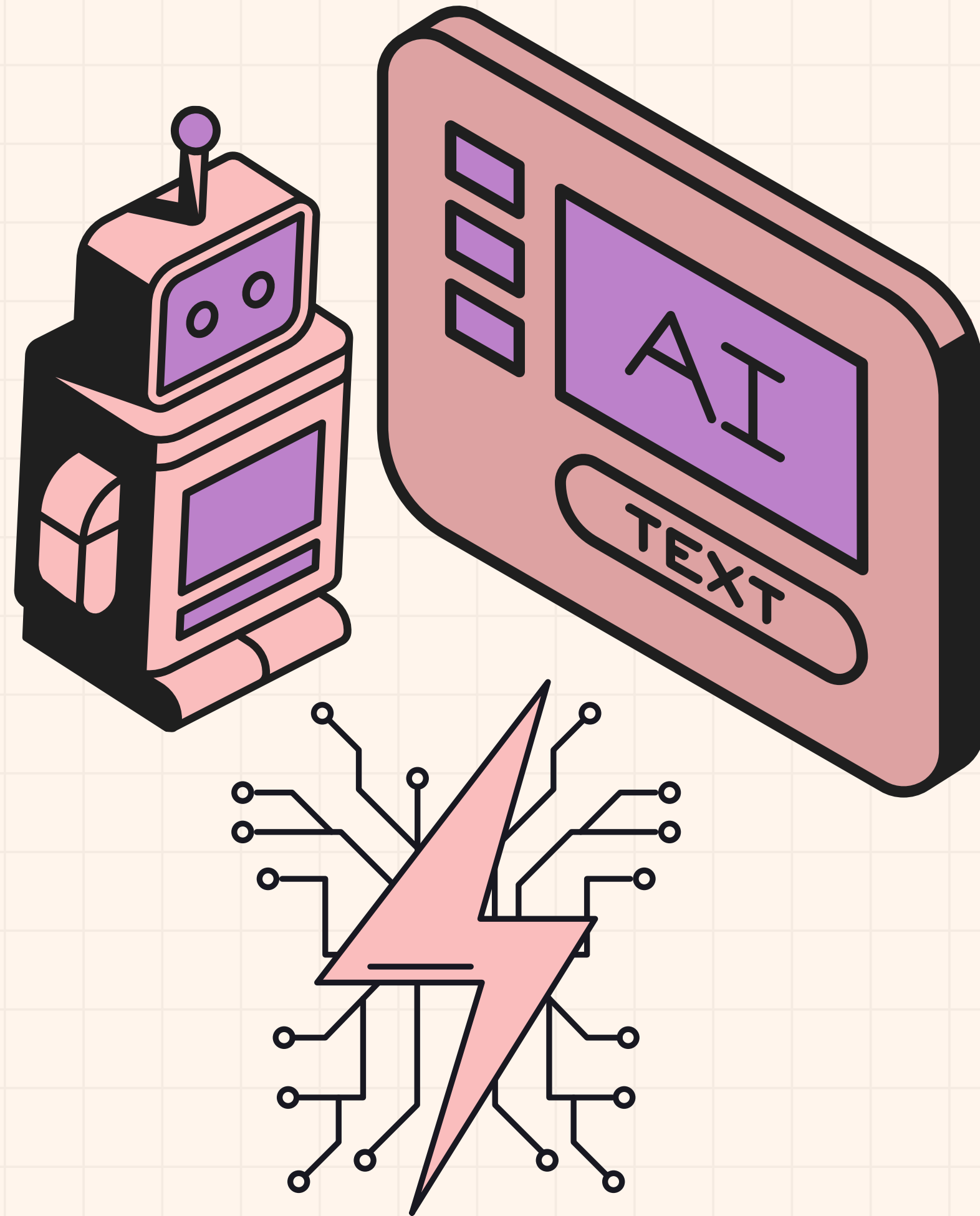
Now used across sectors: healthcare, energy, automotive,  
and infrastructure

Driven by advancements in AI, cloud computing, and edge  
computing



# DIGITAL TWINS IN HEALTHCARE





# AI & DIGITAL TWINS

- AI enhances simulations with predictive analytics
- Machine learning refines digital models continuously
- Autonomous decision-making for system optimization

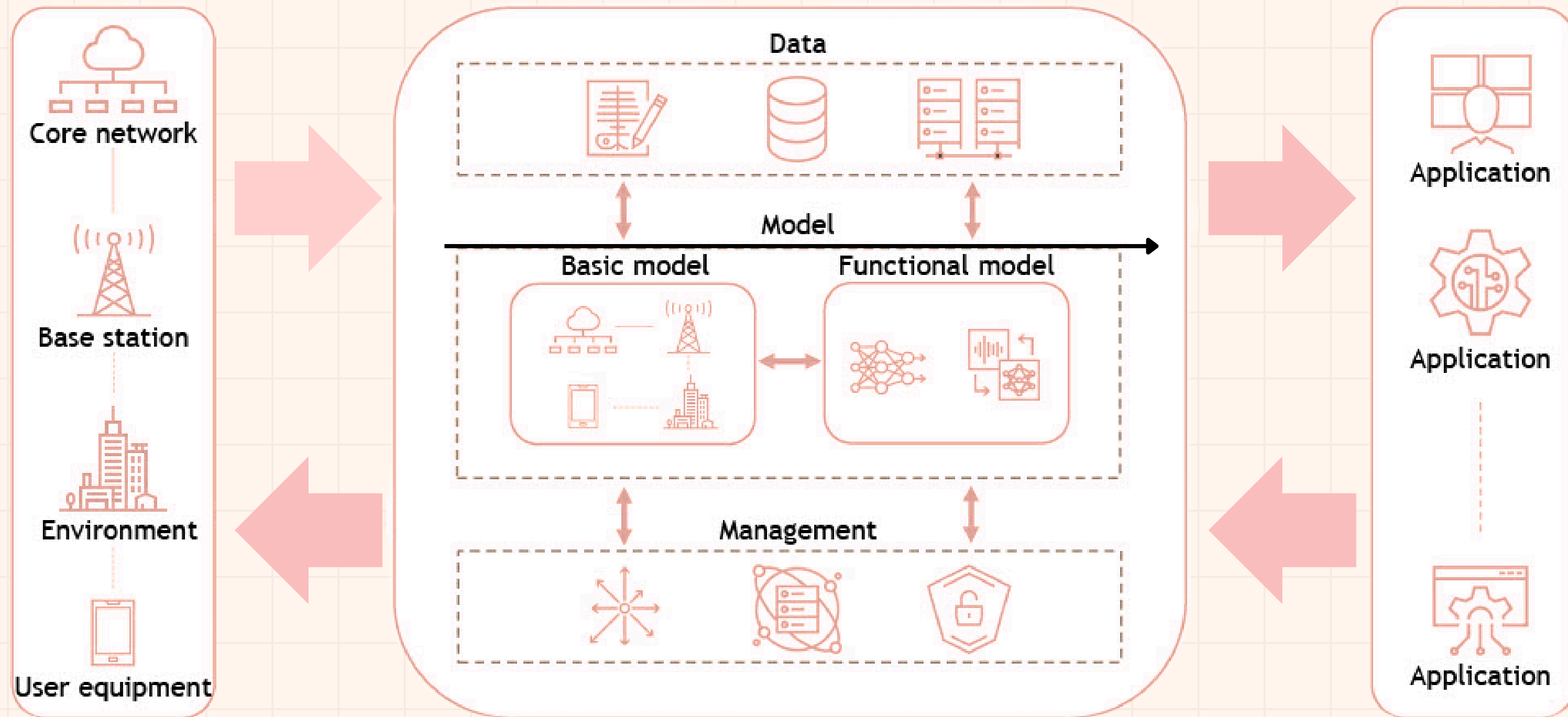


# NVIDIA'S ROLE IN DIGITAL TWIN TECH

OMNIVERSE PLATFORM TO BUILD LARGE-SCALE DIGITAL TWINS

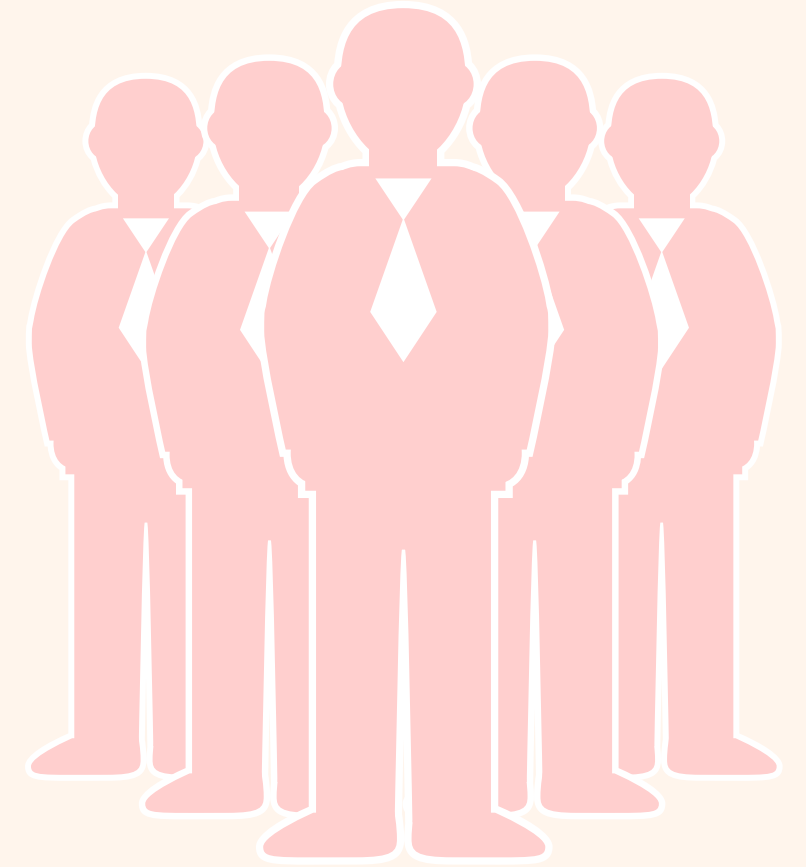
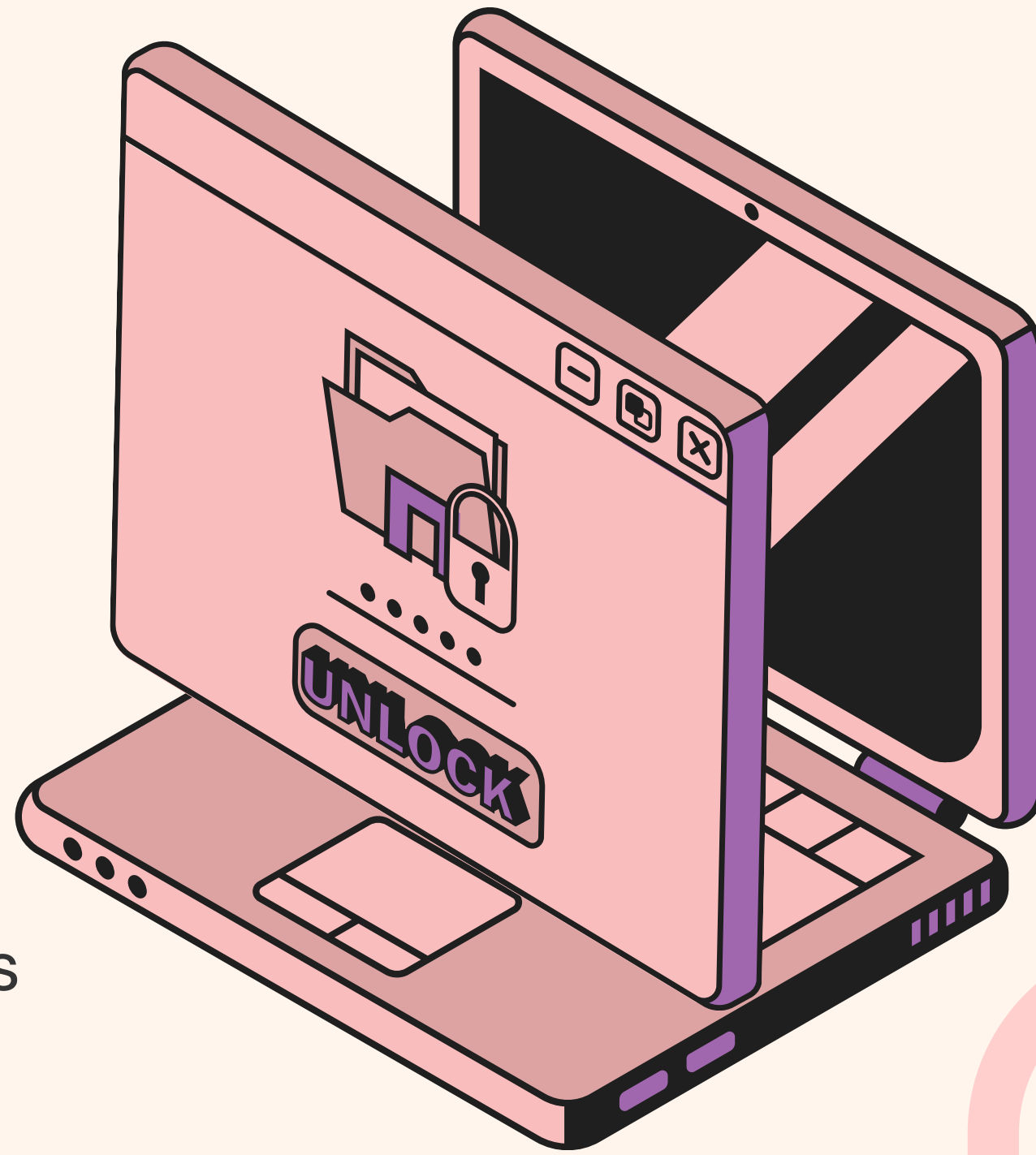
REAL-TIME SIMULATION CAPABILITIES

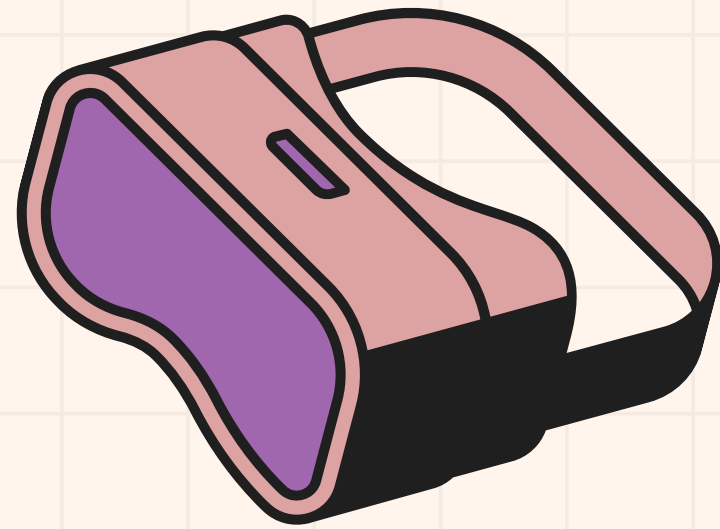
USE CASES IN FACTORIES, CITIES, AND SCIENTIFIC RESEARCH



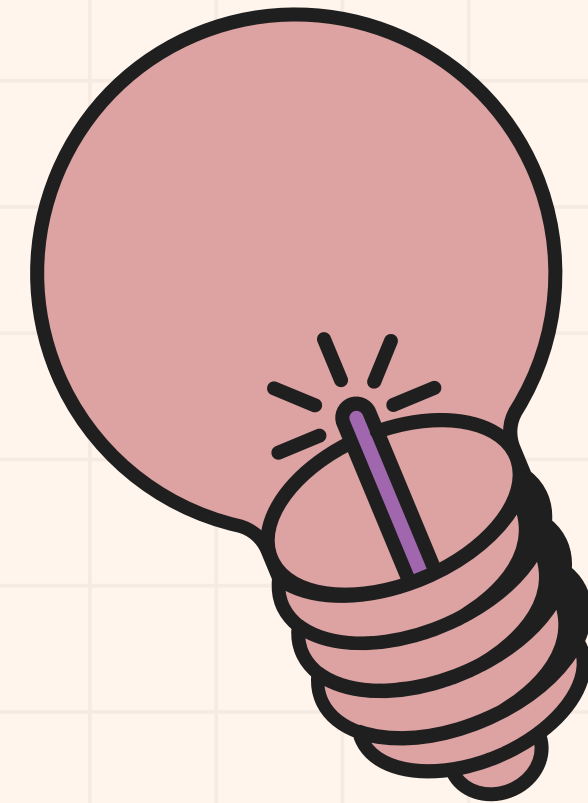
# CHALLENGES AND CONSIDERATIONS

- Data privacy and security
- High initial investment
- Integration with legacy systems





# FUTURE OUTLOOK



Greater adoption in healthcare, logistics, climate modeling  
Integration with AR/VR for immersive interaction  
More scalable and democratized digital twin solutions

