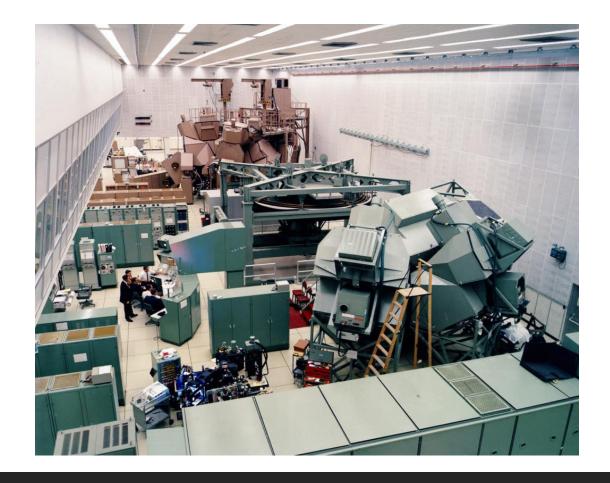


Digital Twin

First Digital Twin

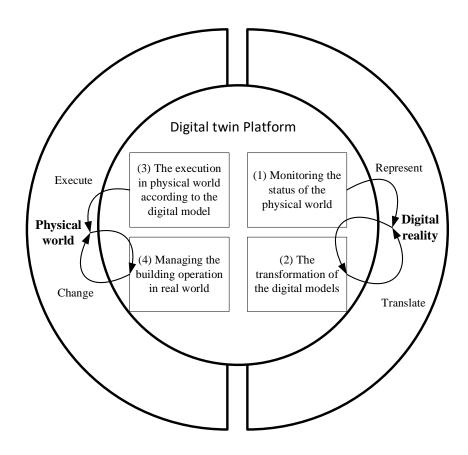
Apollo 13: The First Digital Twin – Apr 1970



Modern Digital Twin

Most modern digital twins involve a remote physical asset that is connected to the digital model through a continuous stream of data. This connection is used to update the computer models in response to changes in the real-life object. Some characteristics include:

- •Physical: represent physical assets
- •Connected: feedback of data from the physical asset
- •Adaptable: flexible enough to react to changes in the physical asset.
- Threaded: multiple interacting models (connected many)



Types of digital twin

Product Digital Twins: Using digital twins for efficient design of new products

Production / Process Digital Twins: Using digital twins in manufacturing & production planning

Performance Digital Twins: Using digital twins capture, analyze, and act on operational data

Digital twins vs. simulations?

Under the hood

An example of smart building

- Watch <u>here</u>

Implementations

Proprietary system

- Watch video here

Unreal Engine development

- Watch video here

Web-based development (JavaScript)

- Watch video <u>here</u>

Use cases

Manufacturing

- Shop floor performance improvement
- Self-driving car development
- Design customization
- · Predictive maintenance

Healthcare

- Improving operational efficiency of healthcare operations
 - Improving personalized care



Use Cases by Industry

Supply Chain

- Predicting the performance of packaging materials
- Optimizing warehouse design
- Creating a logistics network



Retail

 Customer modeling & simulations

https://research.aimultiple.com/digital-twin-applications/

Playable demo

Give a go <u>here</u>

Questions