DIGITAL TWIN – VIRTUAL COMMISSIONING

Digital Twins as enabler for future safety automation

Pro²Future

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MOTIVATION & GOALS

Due to the complexity of automation systems, a great deal of on-site engineering is often required during installation, commissioning, and maintenance. The digital twin emerges as new approach that allows engineers to remotely design, install, and maintain automation systems that comply with defined standards and regulations without hardware equipment.

The goal is to reduce commissioning and maintenance time while maintaining consistency of the system and its features (e.g. safety).
Strategic goal (long-term): Identify technologies that could become the main drivers of industrial and process automation in the coming years.

Project FactBox

Project Name	**TWIN-Solution**
Project ID	MFP/StratP abc
Duration	xx Months

Area _ (1-4.2)
Full Area Name

Project Lead
Prof. Dr. abc

APPROACH

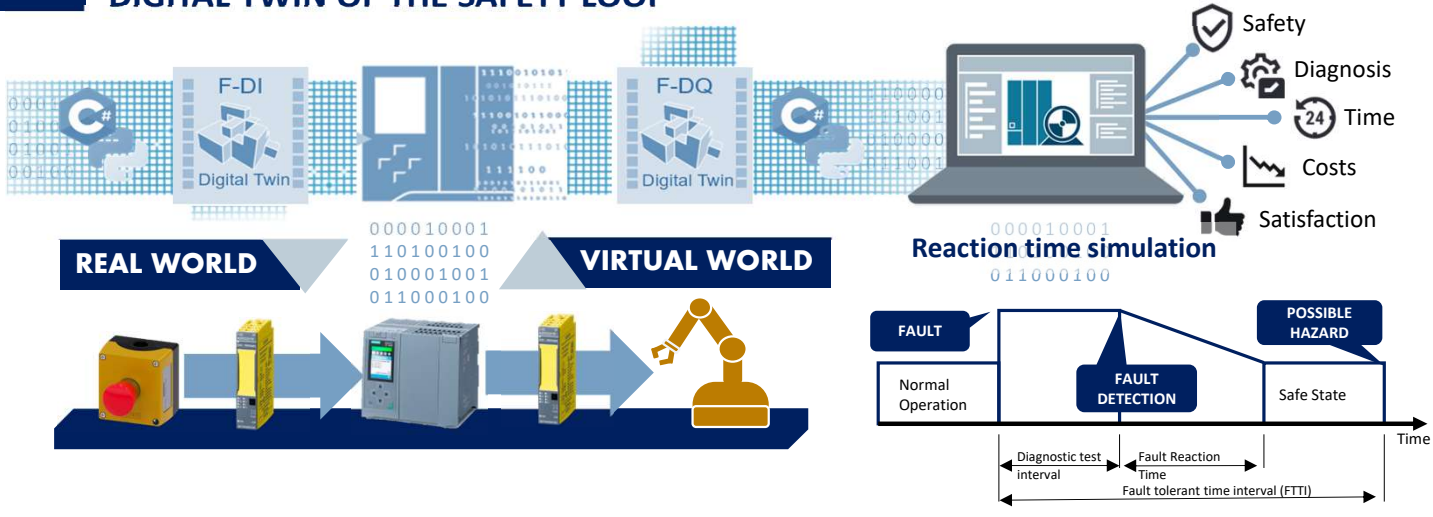
- Getting familiar with **Siemens' fail-safe devices** and their functionalities.
- **Develop** digital **twins** for different failsafe devices.
- Using a current Siemens' virtual portfolio as the starting point (PLCSIM Advanced v3.0, SIMIT tool, etc.).
- Looking at **norms** and **regulations** as guides for development.
- Develop **tests** and execute **simulation (e.g. Reaction time)**.

CONTRIBUTION

Scientific contribution
Enables a new approach to industrial automation
Enables data acquisition without hardware
Helps introduce new approaches for preventive and predictive maintenance

Economic contribution
Reduces commissioning and maintenance time
Allows customers to pre-test before deployment
Accelerates risk assessment and production time
Reduces risks in the development phase

DIGITAL TWIN OF THE SAFETY LOOP



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