



simulation  
knowledge  
profit

## Digital Twins Simulate, predict and optimize product and production all along plant lifecycle

### Benefits

- Create efficient production methodologies
- Prevent costly downtimes to equipment and production lines
- Predict when preventive maintenance will be necessary
- Enable faster, more efficient and more reliable production operations

### Functionalities

#### Offline

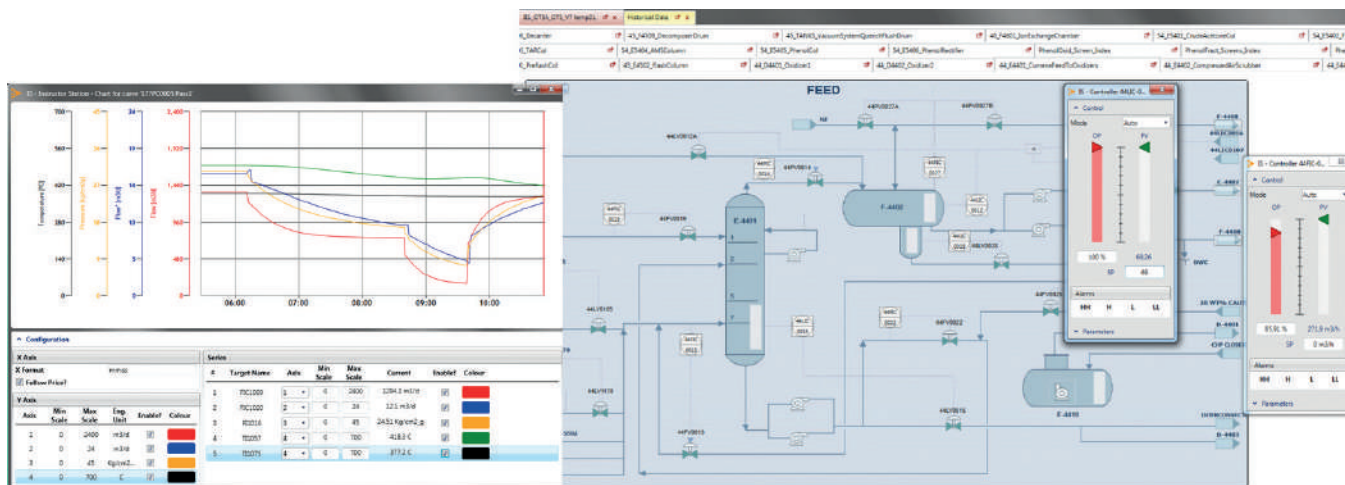
- Engineering studies to debottleneck processes and units
- Process control studies to test alternative loop configurations
- Process Hazard Analysis, reducing significantly the time devoted to them

- Test-bed for ICSS changes to check newly developed code
- Operational studies to replicate plant issues and test new procedures
- Operators Training (OTS) in a risk free environment

#### Online (RTS: Real Time Simulator)

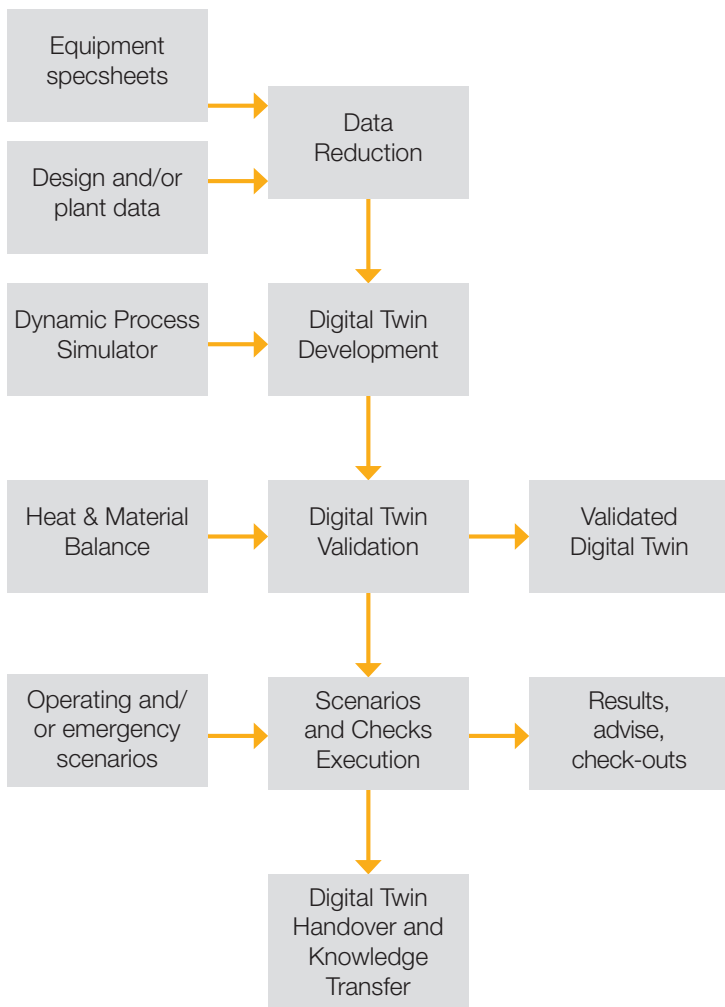
- Soft-sensors to determine non-measurable variables
- Advanced alarms to check other than process variables
- Look-ahead alarms forecasting out-of-range values
- What-if advise to test operational actions
- Post-incident analysis through autosaved statuses
- Instrumentation check comparing with simulated variables

Digital twins are virtual representations of the structure and behaviour of processing plants



Determine control requirements of process alternatives with a digital twin

**Workflow**



By adding replicas of the Operator Consoles and DCS softcontrollers, digital twins are converted into full Direct-Connect OTSs

**Follow-up projects**

- Operator Training Systems
- Support to Operations and Maintenance
- Online connectivity

**Case studies**

Scan this code to see our latest case studies list.

