



A Yokogawa Company

A DIGITAL TWIN. WITH TEETH. THAT WORKS.

A digital twin aims to be an accurate representation of an asset over its full range of operation and its full lifecycle. It is ideally created during the initial study to evaluate the feasibility of the asset. It is used and further developed during the design, construction and commissioning of the asset. It facilitates the optimum design of the asset and the training of the staff who will operate the asset. It works in the present, mirroring the actual plant in simulated mode, but with full knowledge of its historical performance and accurate understanding of its future potential.

KBC's digital twin has teeth. And it works. It is built on our rigorous first principles simulator. The plant model inside the simulator synchronizes with the plant model inside the EPH (Enterprise Process Historian) to ensure their separate representations of the plant remain aligned. Data gathered from the plant in real-time is validated and statistically reconciled to ensure that all physical and chemical laws are respected; and electronic noise and dynamic effects are eliminated through filtering, thereby ensuring that data quality issues are identified and mitigated.

Our digital twin allows "What if?" and "What's best?" scenarios to be run automatically to determine available strategies that maximize profitability. Experts can review the recommended strategies to assess the impact of each recommended approach. Planning and scheduling linear sub-models can be updated to reflect the proposed changes.

Only this way does the digital twin have teeth – it is not just a technological nicety but is powerful and effective; a digital twin you can trust to reflect reality and rely on for the quality and accuracy of its predictions. Our digital twin moves from design to operations with ease. Others force fit a design model into an operating environment without success.

The digital twin provides a single source of the truth for what's going on inside the plant at a molecular and asset level. It enables everyone to see inside and perceive things that are not being directly measured. It is wired up so that the insights are instantly available without data and model wrangling by end users, and run in a consistent way that everyone can understand and agree on. It drives convergence in comprehension and unity in decision making and action.