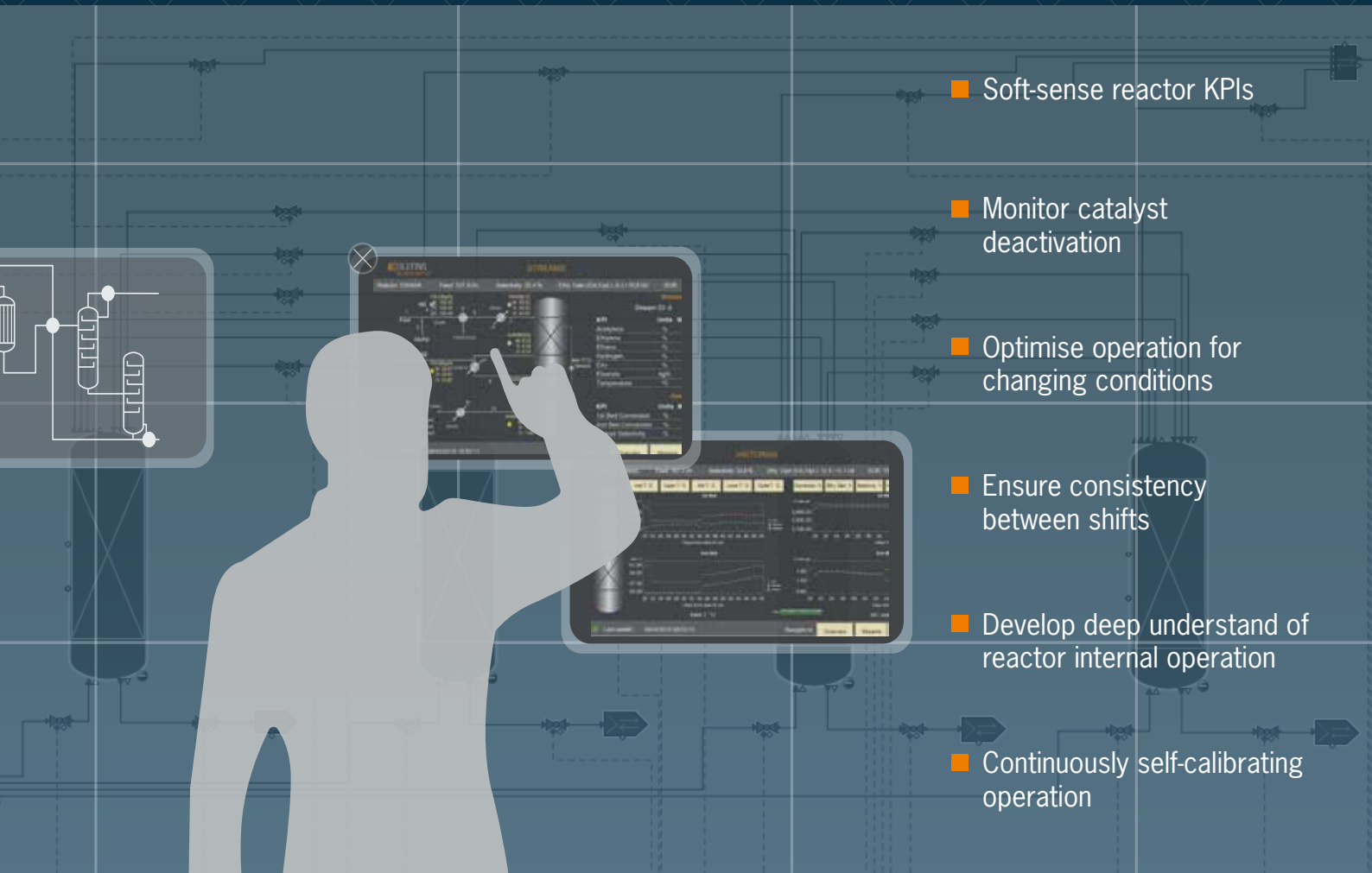


OPERATIONS DIGITAL TWINS

Using deep process knowledge to support operational decisions



- Soft-sense reactor KPIs
- Monitor catalyst deactivation
- Optimise operation for changing conditions
- Ensure consistency between shifts
- Develop deep understand of reactor internal operation
- Continuously self-calibrating operation

Complex multitubular reactors are at the heart of many chemical processes, and their performance is often key to plant profitability. However, operators often have little visibility of internal performance, relying instead on limited product stream instrumentation and after-the-event analysis.

gPROMS Reactor self-calibrating digital twins combine PSE's advanced catalytic reaction models with live data from the plant to provide decision support information that helps operators deal with changing process conditions, feed supply and product demands.

Applications include real-time monitoring of catalyst deactivation, soft-sensing of reactor 'internal' variables, optimisation of operating conditions and provision of abnormal situation advice to operators.



Advanced Digital
Process Twins

A Siemens Business

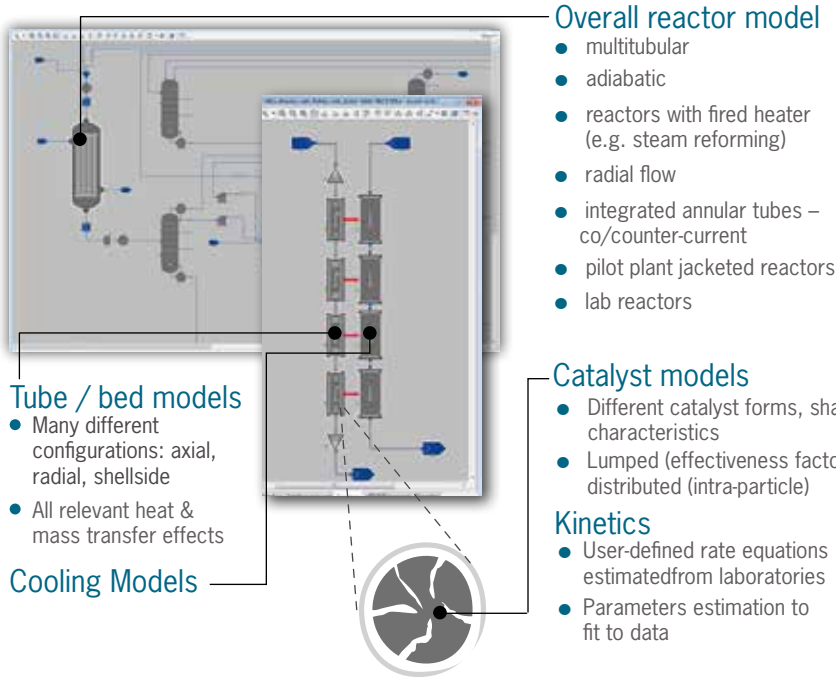
psenterprise.com

Operations in UK, USA, Japan, Korea,
UAE, China, Taiwan and Thailand.

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gPROMS Reactor: how it works

High-fidelity predictive reactor models are constructed using gPROMS Process's state-of-the art Advanced Model Library for Fixed-bed Catalytic Reactors, with kinetics validated against laboratory or operating data:



The resulting predictive model is implemented online using the gPROMS Digital Applications Platform (gDAP), integrated with the plant historian or DCS database. Results are provided to operators via custom dashboards:



Supply

gPROMS Reactor is provided as a turnkey gPROMS Operational Excellence Solution. PSE works closely with your operations and engineering teams to create a high-fidelity predictive model and implement it online behind custom dashboards.

Typical processes

- Acrylic acid/acrolein
- Dimethyl sulphide
- Fischer-Tropsch gas-to-liquids
- Hydrocracking
- Maleic anhydride
- Methanol
- p-diiodobenzene
- Phthalic anhydride
- Propylene oxide
- Reforming
- Styrene monomer
- Terephthaldehyde
- Vinyl acetate monomer

To find out more about gPROMS Reactor digital twins, visit

pseenterprise.com