

Press release



IMMEDIATE RELEASE

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APM Forum 2019 focus on digitalisation for the process industries

Key role of deep process knowledge in digital design and digital operations

LONDON, 3 April 2019 --- Digital design and digital operations were the key focus at the 2019 Advanced Process Modelling (APM) Forum in London, where leading process industry organisations presented on how advanced modelling technologies are helping to create value in applications ranging from accelerating time-to-market of new pharmaceuticals to maximising production from multiple oil & gas processing sites simultaneously.

Introducing the event, Prof. Costas Pantelides, MD of conference host Process Systems Enterprise (PSE), said that technologies that combine prior knowledge, in the form of physics-based models, with laboratory or plant data, or use accurate nonlinear surrogate models derived from large-scale physics-based models, now provide unprecedented opportunities for exploring the design decision space and incorporating deep process knowledge in operational decision systems.

Keynote speaker Bob Docherty, Strategic Lead for Digital Design at Pfizer, presented a global vision for digitalisation in the pharma industry that enables a level of clarity in manufacturing processes never available before. Mathias Oppelt, head of simulation at Siemens, described how Siemens is bringing to market intelligent digital operations tools, capable of generating value daily, that incorporate high-fidelity process models using PSE's gPROMS technology, as well as integrated engineering systems capable of generating process digital twins automatically during the engineering phase.

In the Formulated Products track, presenters from GSK, Pfizer, Eli Lilly, AstraZeneca, BMS, UCB and Novo Nordisk described a range of applications built on PSE's gPROMS FormulatedProducts modelling environment: end-to-end digital design applications to enhance drug substance and drug product R&D and manufacture, the increasing application of mechanistic models in manufacturing for control scheme development, process monitoring and soft-sensing, and the use of digital twins for optimising fermentation processes. PSE and Centre of Excellence partners NIZO launched the new gPROMS Food capability for modelling food products and processes.

In the Energy & Chemicals track, integrated petrochemicals manufacturer SCG Chemicals described the use of digital twins for rapid-response operator decision support for their vinyl chloride monomer (VCM) operations. DNV GL showed their COSSMOS digital design environment for integrated ship systems, and RWTH Aachen described how optimisation technology now enables simultaneous design of process, equipment and working fluid in organic Rankine cycles and CO₂ absorption processes. Siemens demonstrated a digital twin for integrated wells-to-facilities optimisation of oilfield production embedded in a Siemens XHQ dashboard, for operations room decision support.

PSE launched major new capabilities including enhanced digital design capabilities in the forthcoming gPROMS 6 modelling platform, where high-performance computing (HPC) capabilities now enable execution of complex models on massively parallel clusters to allow rapid and effective exploration of large decision spaces, and gPROMS Properties, PSE's new properties and advanced thermodynamics platform. The new gPROMS Digital Applications Platform for building, testing and deploying robust and efficient digital applications within plant automation or management systems was demonstrated using a nonlinear model predictive controller for polymer

production. Also announced were the new gPROMS Web Applications System for delivering models to 'non-modelling' users across the organisation via web interfaces, and the new gPROMS ProcessBuilder which allows seamless workflows from steady-state to dynamic modelling within the same environment.

Says Pantelides, "several strands of core technology are now coming together to accelerate digital design and to bring exciting new capabilities to operations. High-fidelity process models are at the heart of this. It's all moving very rapidly".

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About Process Systems Enterprise Ltd (PSE)

PSE (www.psenvironment.com) is the world's foremost provider of Advanced Process Modelling software, services and solutions to the process industries. Companies apply advanced process models within digital design and digital operations initiatives to explore the process decision space rapidly and effectively, in order to reduce uncertainty and make better, faster and safer design and operating decisions.

PSE provides advanced process modelling products built on the company's gPROMS® equation-oriented platform, including two core digital design environments for engineers and scientists: the gPROMS ProcessBuilder® flowsheeting environment for optimising fluid process design and operation and the gPROMS FormulatedProducts® environment for integrated design and optimisation of formulated products and their manufacturing processes. The company also provides gPROMS Operational Excellence Solutions, built on the gPROMS Digital Applications Platform, for operational monitoring, optimisation and planning based on high-fidelity models.

PSE is committed to defining, developing and driving the adoption of next-generation process modelling software and workflows capable of supporting industry digitalisation strategies. The unique advantages that PSE tools bring are the combination of high-fidelity models, powerful mathematical optimisation and global system analysis capabilities within a single equation-oriented framework capable of utilising high-performance computing (HPC) for rapid and robust solution of complex problems.

Use of PSE's technology and services results in faster innovation, improved process and product designs, enhanced operations, reduced risk, more effective R&D and experimental campaigns and better capture and transfer of corporate knowledge across the organisation.

PSE's global customer base of Fortune 500 process industry companies and some 200 universities is served by operations in the UK, USA, UAE, Japan, Korea, China and Taiwan.