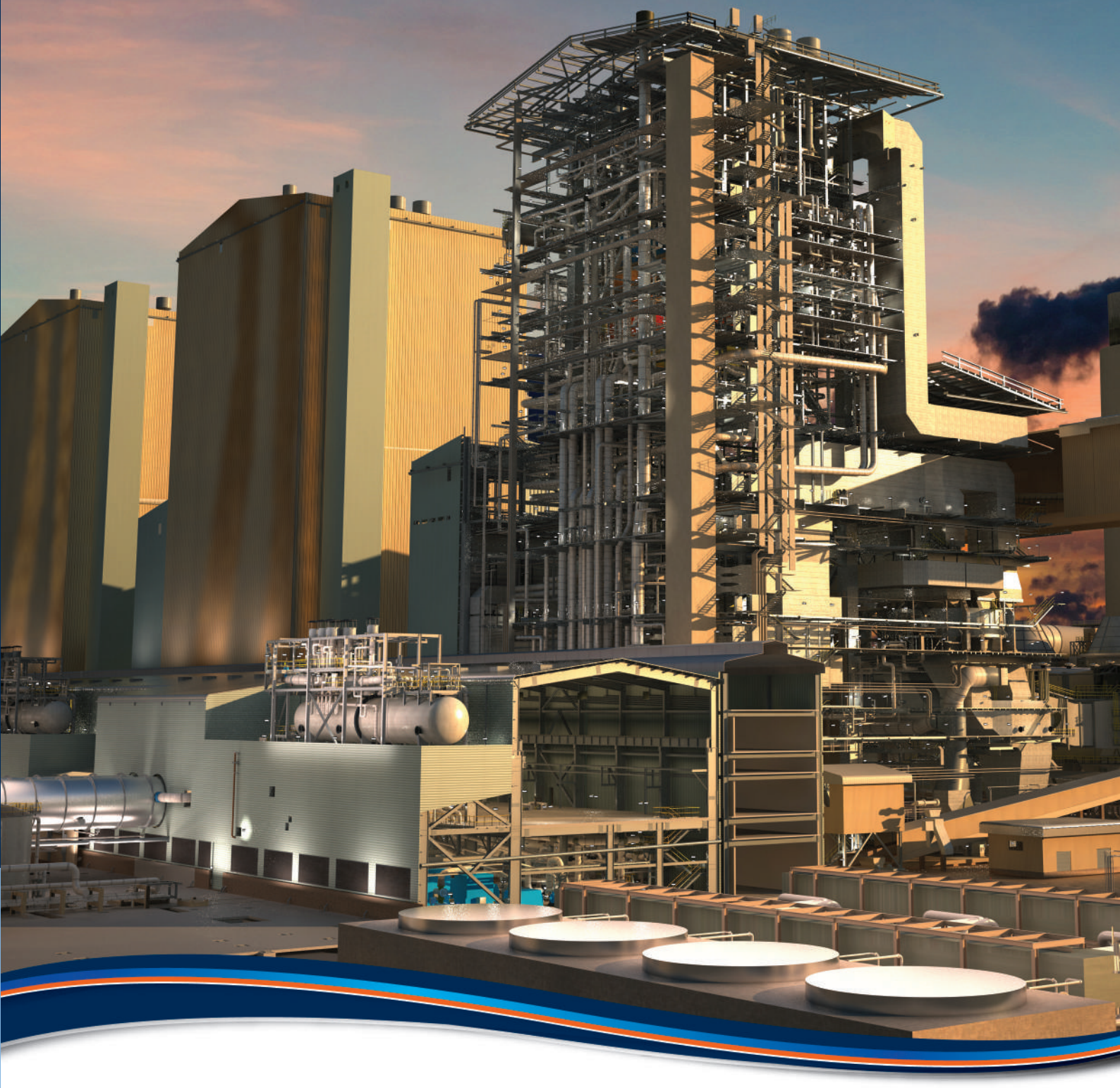
Next Generation

TRAINING AND PRODUCTION SUPPORT



3D PACT
SimuPACT

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SIMULATION AND TRAINING

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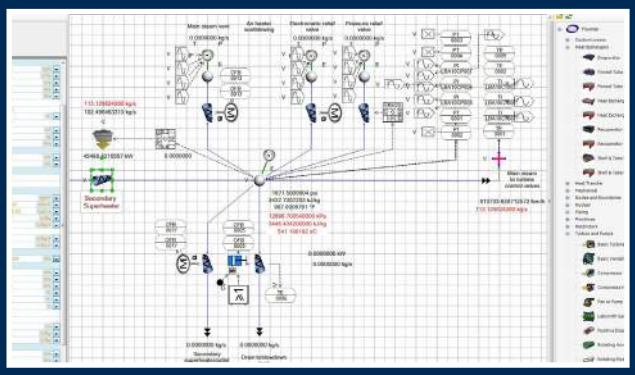
3D PACT in a Nutshell

SimuPACT
Advanced Simulation Software

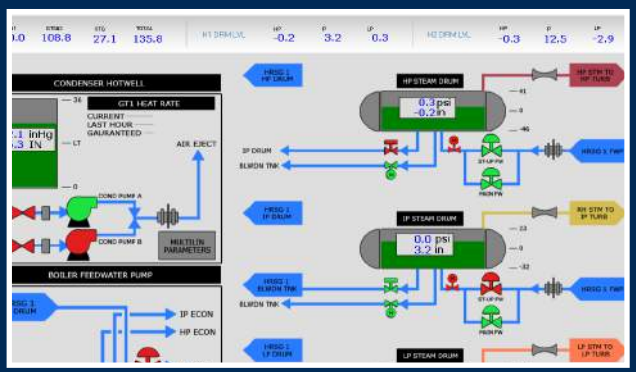
SimuPACT is an Advanced Simulation Software Suite used to develop Operator Training Simulators, which can be seamlessly integrated with 3D PACT to enable comprehensive Crew Training.

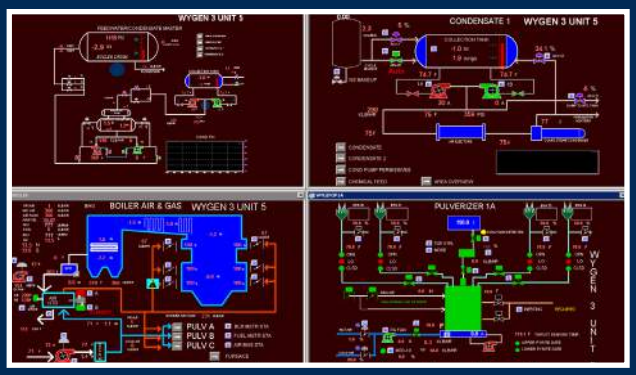


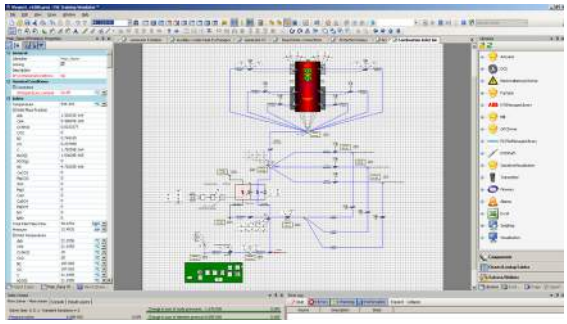
SimuPACT is an extremely powerful, integrated software platform which enables engineers to develop high fidelity, full-scope power and process plant simulators quicker than ever before. It sports a modern, intuitive graphical user-interface which makes it exciting to develop, analyse and train on.

The power of SimuPACT comes from embracing the latest software technologies and engineering strategies. This not only enables quicker development of full-scope plant simulators, but also delivers higher accuracy, which allows engineering analysis and operator training on the same simulation platform, at no extra cost.

SimuPACT sports a totally open, customizable architecture. Using any Microsoft .NET capable programming language, engineers can easily develop and integrate their own solvers, libraries, schedulers or even control all simulator functionality from an external application.





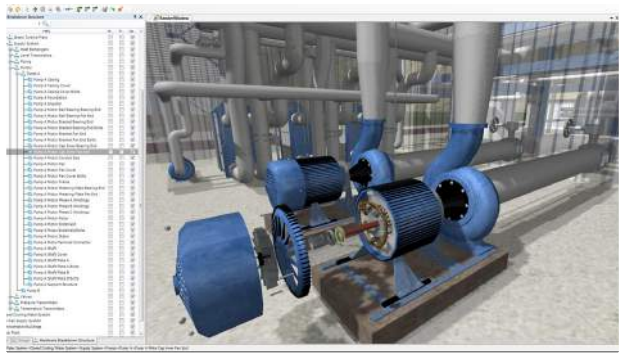


The following high fidelity, configurable solvers and libraries are by default included SimuPACT:

- Multi-Phase Flow with Incondensable Gases and Trace Elements
- Seamless Integration with 3D PACT (Input and Output)
- Electrical Networks
- Logic and Control Networks (Basic and Advanced)
- OPC Client (Integration to 3rd Party Control and HMI Systems)
- Mechanical Solver (Shafts, Gearboxes, Bearings etc.)
- Sensors and Actuators
- Materials Handling (including Slurry Flow)
- Fossil Power (Drum, Benson, Super-Critical, Fluidised Bed Boilers. Various types of Coal Mills, Oil/Gas/Coal Burners, etc.)
- Nuclear Power (3D Diffusion Model)
- Chemical Reaction Builder (Empirical)
- HMI and Local Control Panel Emulation
- Integrated C# Scripting Engine
- Integration library with Aspen Materials Database
- Full Instructor Station capability
- Multi-core, Multi-PC deployment (i.e. can have various operator station and instructor station PCs connected to the process simulation server PC over a network) and Production Support Software

Maintenance Training and Planning:

3D PACT allows planning of complex and time critical maintenance tasks to perform them as quickly and safely as possible to limit downtime and production loss to a minimum. Once again, 3D PACT allows this to happen on a PC instead of on the actual plant, saving time and providing a risk-free environment for workers to practice and gain confidence before performing tasks on the actual plant.



Schedule Tracking:

By updating project schedules and plans in 3D PACT (imported from MS Project® via MS Excel®), time, cost and quality parameters for new facilities under construction and equipment under maintenance can be visually tracked.

HSE & HAZOP Review:

Since 3D PACT provides users the ability to import one or more 3D CAD models from existing formats such as MicroStation® and AutoCAD®, and 3D PACT's rendering technology allows users to navigate and perform tasks and simulate cranes in real time on these facilities quickly and efficiently, engineers can use it to evaluate designs of new or modified systems in a facility to ensure the design is logistically feasible and maintainable.

Crane Operations:

Insert design parameters to instantly activate cranes/ hoists in a 3D model and use it to simulate equipment assembly/disassembly or space management for construction and maintenance projects.

The Future of 3D PACT

Training organizations are driving to align existing training methods and methodologies to Scenario-based training and technology-driven VR. 3D PACT is at the forefront of Scenario-based training and to remain the leading solution we're constantly adding features based on customer requirements and lessons learned, as well as integrating cutting-edge hardware capabilities :

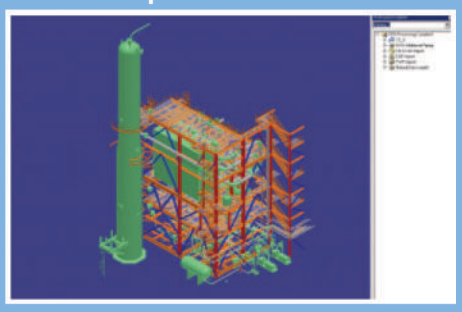
Some of the highlights that will be available soon:

- DirectX12 Support.
- Windows 10 Support .
- Scenario Deployment on Mobile Devices.
- Powerful Augmented Reality Features.
- Multi-CPU and -GPU Support.
- Improved Real-time Rendering, Photo-Realistic Materials and Visual Effects.
- Support for much Bigger Models and Component Count per Facility.
- Oculus Rift and Other VR Headset Integration.
- Support the importing of 3D CAD, Point Cloud and Leica TruView Data into one Integrated Facility.

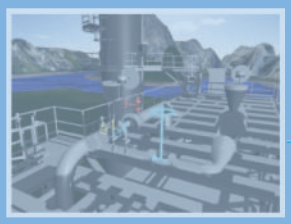
And more…

Game-based training on Multiple 3D CAD Models

Multiple CAD Models

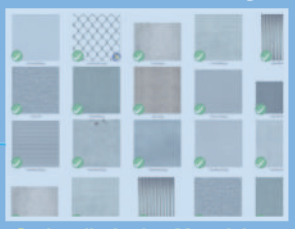


3D Model



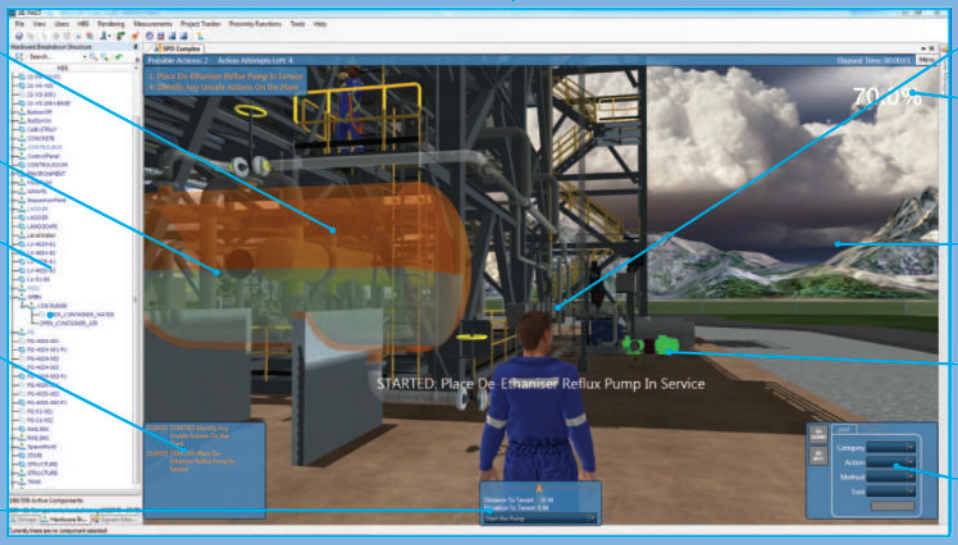
Changes Synchronized Automatically without Losing any Configured Content

Material Library



Optionally Assign Materials to Equipment

Import to 3D PACT



- Particle Effect Builder
- 3D Object Builder
- Full HBS with Attributes & DB Link for all Equipment
- User-Friendly Procedure Builder
- Execute Any Procedure in Tutorial or Test Mode
- Character System with Damage
- Evaluate & Certify Staff
- Customizable Realistic Environment & Lighting
- Dynamic Animations Linked to Process Simulation
- Flexible Task Definition

Game-based training on Leica TruView Data

TruView Projects

TruView Updates

Changes Synchronized Automatically without Losing any Configured Content

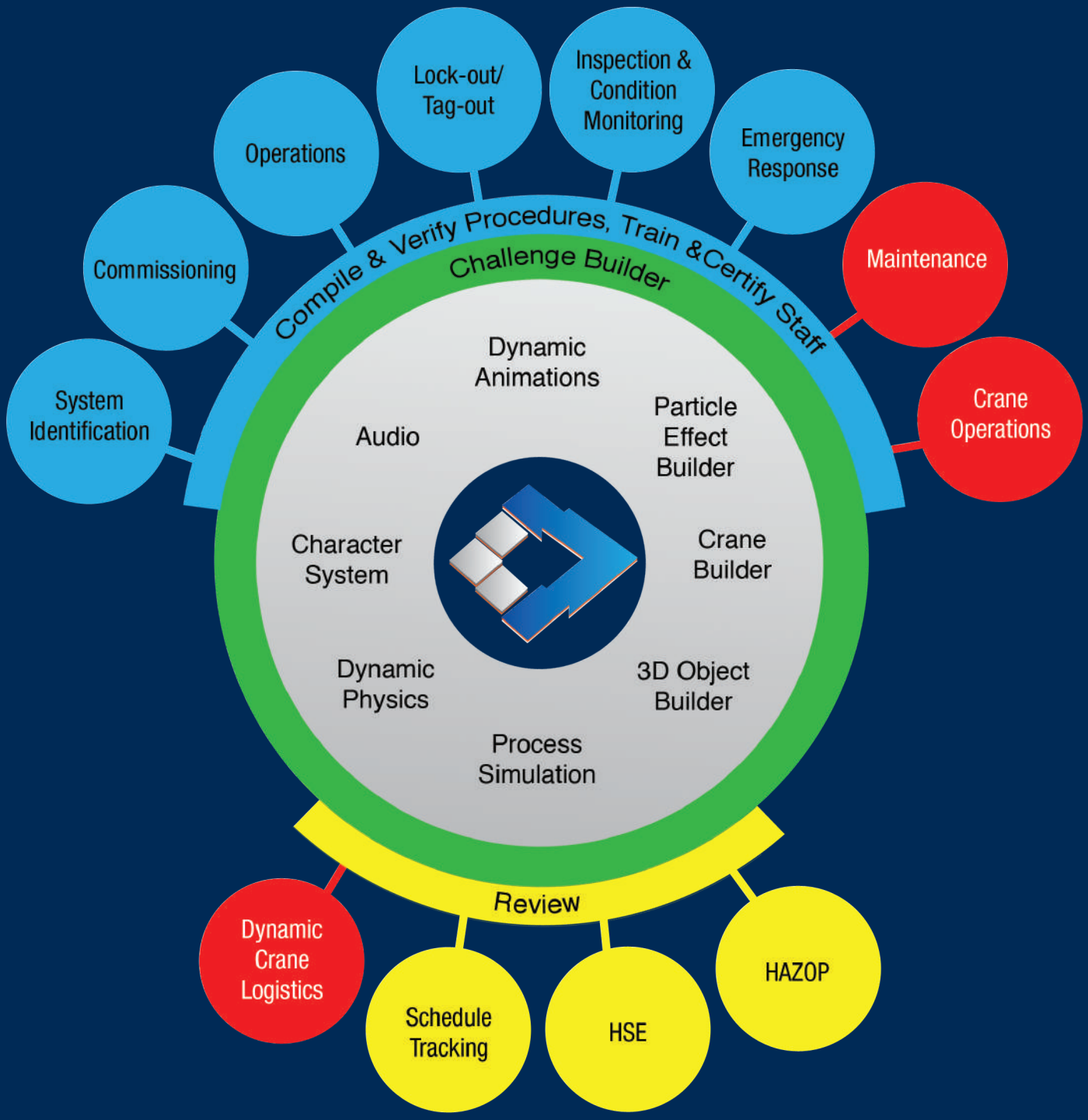
Import to 3D PACT

- Particle Effect Builder
- Hotlinks with Attributes
- User-Friendly Procedure Builder
- Execute Any Procedure in Tutorial or Test Mode
- Character System with Damage
- Evaluate & Certify Staff
- Rendered in Ful 3D Environment
- Dynamic Animations Linked to Process Simulation
- Flexible Task Definition

Images courtesy of Intergraph® Corporation

3D PACT
Description

3D PACT provides users with a host of tools and features such as a User-Friendly Procedure and Scenario Builder with Configurable Tutorial & Test Execution Modes, a Particle Effect Builder, 3D Object Builder, Crane Builder, Character System, Dynamic Physics, Animations etc. which all seamlessly combine to present the trainee with a realistic, lifelike scenario to execute.



Not applicable when importing Point Cloud projects (i.e. only apply for 3D Models)

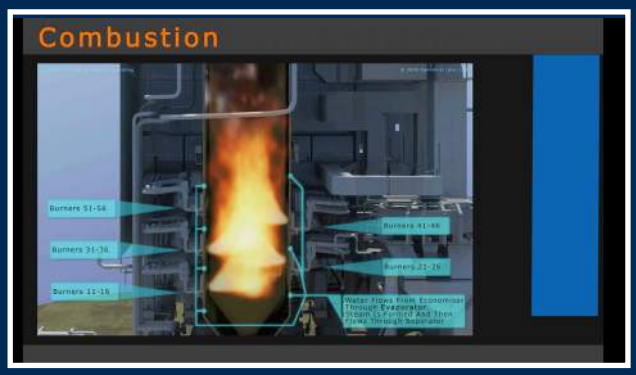
3D PACT
Application Areas

System Identification Training:

Tracing and ‘walking’ systems to identify it on a plant and view interconnections and dependencies between processes first hand. This function is enhanced with various options to highlight and identify specific plant systems and equipment, down to component level (i.e. nuts and bolts).

Commissioning Training:

Performing operating sequences on plant systems, such as startups, shutdowns and emergency operations to ensure the trainee knows his/her way around the facility. This includes dynamic animations and particle effects running standalone or coupled to a 3rd party simulation to provide trainees with an in-depth view and insight into equipment dynamics under normal and abnormal operating conditions. 3D PACT includes tight integration with a high-fidelity systems CFD package for this purpose, which is available as an add-on purchase.



Lock-out/Tag-out:

Equipment isolation, lock-out/tag-out and clearance procedures (e.g. to obtain a permit to work and to ensure equipment is safe to enter) can be efficiently trained, reviewed and evaluated before executing such isolations and work on the actual plant.

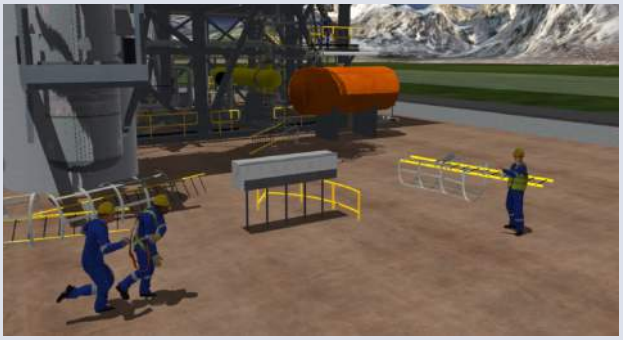
Inspection and Condition Monitoring Training and Planning:

In most plants, to access certain inspection points for condition monitoring purposes require scaffolding, harnesses and other safety equipment. With 3D PACT, planning and preparation for inspections can be performed at your desk, saving time and providing a risk-free environment for workers to practice and gain confidence to perform inspections and condition monitoring tests.

Through a remote database connection employees can further view engineering information or monitor real-time plant status and operational data and get visual feedback of equipment status while on the road and away from the facility.

Emergency Response Training:

Emergency teams can be trained and evaluated on evacuation and contingency procedures e.g. Fire Response teams can be trained on approaching and fighting a fire based on location, type and severity, while other employees can be trained to evacuate a site in the most efficient way.



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