



**SIEMENS**

*Ingenuity for life*

## New perspectives for plant engineering and operation

With integrated solutions throughout  
the entire lifecycle

[siemens.com/comos](https://www.siemens.com/comos)



Benefit from a strategic alliance for enhanced competitiveness – for example thanks to the interaction between COMOS Process and Bentley OpenPlant.

## Real integration... through perfect interaction!

**Optimized plant design, straightforward commissioning and short changeover times for fault-free operation – a digital twin holds enormous benefits for designers and operators of process plants. Bentley Systems and Siemens help their customers to leverage the full scope of these benefits. Together we create the conditions for generating a digital twin for process plants.**

### **Alliance for digital change**

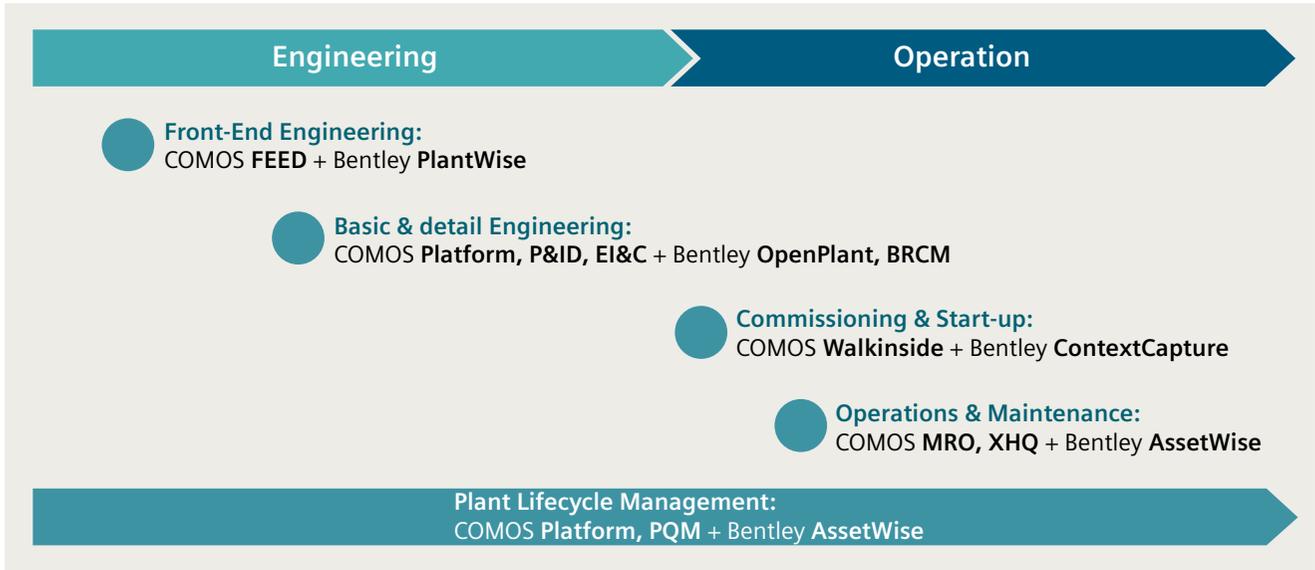
The aim of the strategic alliance between Bentley Systems and Siemens is to achieve systematic optimization of process plants throughout their entire lifecycle. This is accomplished with the interfaces between COMOS as a central engineering and data management system on the one hand and Bentley Systems' 3D modeling products on the other. These enable integrated engineering and maintenance of plant and engineering data.

The result: integrated solutions throughout the entire lifecycle of a process plant.

You benefit from...

- faster planning
- simpler maintenance
- better cost calculation
- shorter project durations

# Perfectly equipped in every phase of the lifecycle



## Conceptual installation engineering

Installation engineering for vessels and reactors often results in difficulties in calculating costs and also requires structural work. The linkup between 2D and 3D planning with COMOS FEED and Bentley PlantWise ensures that information needed for cost estimation and simulation is available earlier and in greater detail than was formerly the case. The process flow diagram (PFD) in COMOS FEED contains important information about flows and flow directions as well as about the equipment and its dimensions. This engineering data is available in Bentley PlantWise for automated installation engineering, pipe routing and cost estimation. The actual space requirement and the corresponding structural work can then be planned more accurately.

### Benefits:

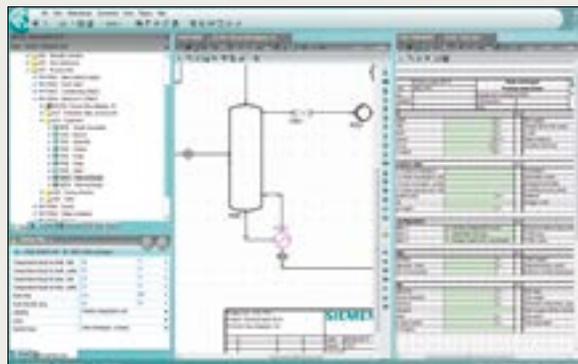
- Well-informed decisions thanks to early 3D planning
- Front-end loading and consistent conversion of simulation data into PFD and P&ID
- Early and more accurate cost estimation
- Automatic pipe routing and 3D installation engineering

### Products:

- COMOS FEED
- Bentley PlantWise



Bentley PlantWise gives you a simple and reliable way of estimating costs on the basis of consistent data.



COMOS FEED enables you to produce clear and detailed visualizations of process workflows while benefiting from top levels of flexibility and consistency in the exchange of data with other technical subsystems.

## Consistent 2D/3D engineering

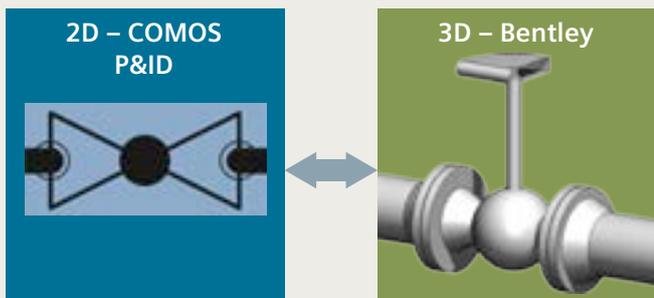
During the planning or optimization of process plants, data is adapted or changed in the respective software solutions regarding two-dimensional (2D) and three-dimensional (3D) visualization. Consistent data management between the individual planning tools plays a key role in accelerating project work. COMOS P&ID allows you to generate 3D data for Bentley OpenPlant directly from 2D piping and instrumentation diagrams. The stored graphic and process data can therefore be used seamlessly for 3D plant engineering. The project team always has the current project status under control and can detect and resolve conflicts.

### Benefits:

- Faster and cost-effective engineering
- Efficient process and material planning
- Simple transfer of P&ID data to OpenPlant
- Maintenance of data consistency through comparison of 2D and 3D data
- Improvement in data quality and security

### Products:

- COMOS P&ID
- Bentley OpenPlant



The smooth interaction between COMOS P&ID and Bentley OpenPlant ensures consistent and efficient planning as well as optimization of your process plant.

## Cost-saving cable planning

Cable laying often results in huge costs during the detail engineering phase. These costs can be reduced by the accurate planning of cable routes and the associated raceways.

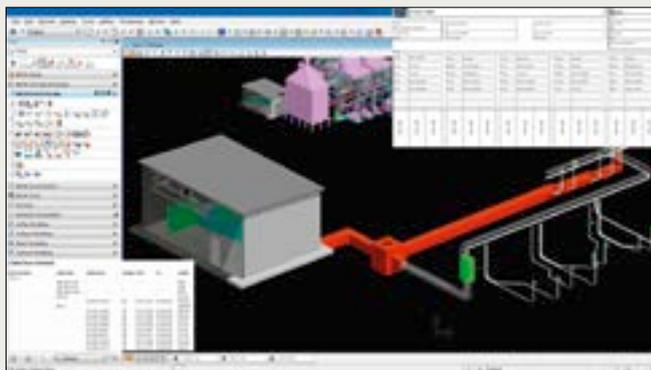
However, a lot of work has to go into your planning. Or at least that was the case up to now, but the interaction between COMOS EI&C and Bentley BRCM (Bentley Raceway and Cable Management) ensures more efficient processes and offers users a wide range of new options.

### Benefits:

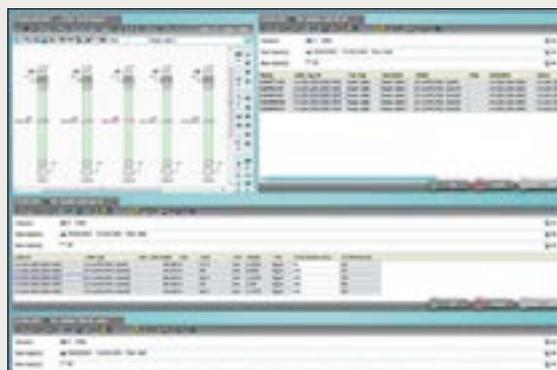
- Faster planning of cable routes and lengths
- Enhanced material cost estimation
- More cost-efficient project planning
- Faster commissioning thanks to pre-assembled cables
- Management for pre-calculation of cable drums
- Consistent information for each cable

### Products:

- COMOS EI&C
- Bentley BRCM



Engineering cable routing in a new dimension: Bentley BRCM enables you to considerably reduce the workload and costs involved in cable engineering.



When using COMOS EI&C, you benefit from a significant increase in quality thanks to consistent object-oriented EI&C engineering.



Take a virtual walk through the plant model from Bentley ContextCapture and make significant cost savings: COMOS Walkinside is ideally suited to train operators in the digital plant model, thereby helping to make maintenance and modernization processes faster and less costly.

## Successful plant operation thanks to transparent modernization and maintenance

Modernizing and maintaining process plants is a great challenge. Such projects are often difficult to calculate – one reason being that it is not uncommon for considerable differences to arise between the originally planned and the actual state of the plant. Changes implemented over the course of the years are not entered at all or not entered in full in the plant documentation.

Innovative methods (e.g. drone footage) help to record and digitalize an up-to-date picture of the plant using Bentley ContextCapture. Thanks to the object-oriented data model and the open system architecture in COMOS, data and documents from the engineering and operating phases can be easily imported into the plant lifecycle management system at any time.

Data from a wide range of sources is maintained centrally thus enabling enhanced maintenance engineering so that plants can be put back into service more quickly. The virtual image is used together with COMOS Walkinside for training purposes for various plant scenarios or for testing maintenance measures.

The resulting digital twin provides a solid basis for efficiency-boosting measures and facilitates the retrofitting or extension of existing plant sections thus simplifying and accelerating modernization projects. When the plant is running again, XHQ visualizes and monitors key operational and business indicators practically in real time to secure the competitive edge accomplished with the modernization.

### Benefits:

- Avoidance of deviations and inconsistencies before and during the modernization process
- Enhanced process reliability thanks to greater transparency and central data management
- Costs savings because project durations are shorter and plants are put back into service faster
- Increased plant productivity

### Products:

- COMOS Platform, PQM, MRO, Walkinside and XHQ
- Bentley AssetWise, ContextCapture or Pointools

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information  
about COMOS!



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