BROCHURE

AVEVA™ Unified Engineering on Connect

Conceptual, FEED and detailed engineering design from a single, secure data hub in the cloud increase design maturity and reduce project time, cost and risk

AVEVA Unified Engineering on Connect provides a single, integrated, cloud-hosted platform for end-to-end facility engineering information that runs on the secure common data platform, AVEVA™ Connect. Teams from multiple disciplines can collaborate efficiently on all project phases, on anything from process simulation to 1D, 2D, and 3D design data. That way, engineers can focus on engineering–not time-consuming information administration.

Storing data on AVEVA Connect, where it's available to everyone, keeps it consistent. That consistent data increases the quality of deliverables and speeds up timelines.

More importantly, teams can use that data to assess and manage the impacts of design changes in real time. Process changes are almost instantly reflected in associated 3D models and equipment specs.

Teams can also re-run steady-state and dynamic process simulations as the engineering data matures through conceptual, FEED and detailed design phases. That lets them continuously validate the plant design so they can ensure they're staying on cost and performance targets.

AVEVA

AVEVA Unified Engineering: From concept to digital twin

Productivity in capital projects has stagnated for decades. The average capital project lags by 20 months and goes over budget by 80%.[1] AVEVA Unified Engineering on Connect helps reduce the total installed costs (TIC) of capital projects by a minimum of 5% and makes project costs and schedules predictable. AVEVA Unified Engineering on Connect ensures you are in a stronger position to control project risks and cost overruns.

AVEVA Unified Engineering on Connect simplifies the complex challenges of delivering capital projects. It will help you optimize your projects from conceptual design and FEED, right through to detailed design. It creates new automated workflows to improve your change management process. Your business will become more agile and efficient, so you can reduce risk and capitalize on project execution.

With AVEVA Unified Engineering on Connect in the cloud, process licensors, EPCs and operators can expect efficient and flexible workflows with better end-to-end collaboration and project control. Those advantages save up to 50% of time at the FEED stage, increase engineering efficiency by 30% and save a minimum of 5% in TIC in the engineering and design phase alone.

The AVEVA Unified Engineering on Connect model

AVEVA Unified Engineering on Connect consists of two main components: AVEVA™ Process Simulation (one model), and Engineering and Design (one database). The two combine to form a robust process model and engineering database that can synchronize through bi-directional flow of all 1D, 2D and 3D data from one platform.

The bi-directional integration of a steady state and dynamic process model with an engineering database makes the process seamless and eliminates the need for MS Excel or other intermediate steps to transfer information between tools. Unlike most other systems, data flows both ways–ensuring that the engineering database captures changes made during simulation, and that simulations can test engineering changes. That bidirectional data flow matures models earlier in the engineering and design phase.

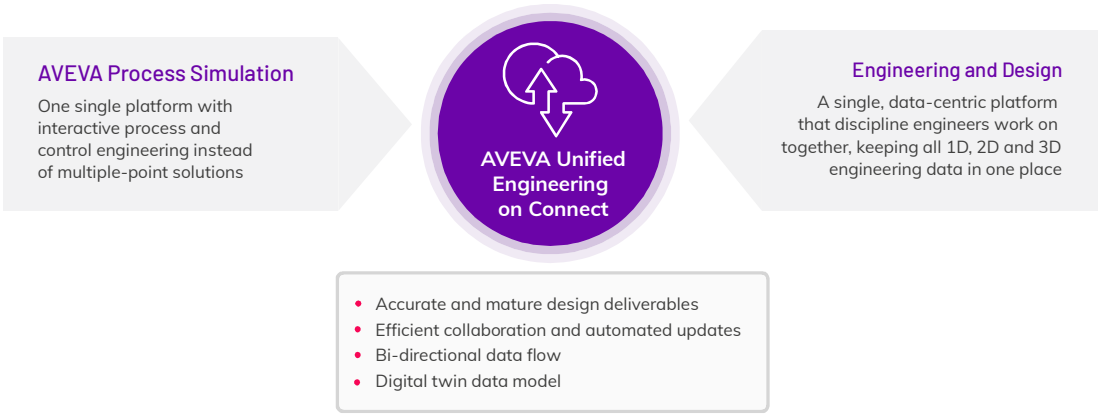
AVEVA Unified Engineering on Connect gives you:

- One single version of the truth that remains up-to-date
- Verification that equipment and piping are properly sized
- Verification that the plant will operate as expected and that controls are properly configured

Integrating process design with multi-discipline engineering workflows reduces delays in getting the latest valid information from other disciplines. Fewer delays reduce the risk of unplanned rework and increase overall profits. The integration also helps teams collaborate and transfer information between disciplines.

Engineers can easily return detailed engineering data to the simulation in dynamic mode for controls checkout, safety analysis and operator training. With all the engineering data in one place, FEED projects become easier to control and manage. Engineers can review, update and generate their deliverables confidently and with ease using automated processes. All of this helps you deliver projects on time and within budget.

[1]Source: www.mckinsey.com/capabilities/operations/our-insights



+50%

Faster FEED stage

+30%

Increased engineering efficiency

-20%

Reduction in project schedule

+5%

Saved on total installed cost

The value and benefits of AVEVA Unified Engineering on Connect

AVEVA Unified Engineering on Connect helps accelerate project design and execution by enabling engineers, suppliers and clients to collaborate on a single, secure platform that spans your project lifecycle.

One trusted and secure data environment

- Validate design interactively with simulation
- Get applications that directly communicate with each other
- Use one single-tag register
- Enter data once, reuse multiple times
- Integrate engineering with dynamic simulation

Integration with AVEVA Process Simulation

- Replace point solutions with a single, multi-purpose process model
- Get design, rating and dynamics modes in a single simulation
- Switch between modes any time in any direction
- Extend model libraries with no programming
- Manage library centrally to apply company standards

Lower total cost of ownership (TCO)

- Keep it simple and deal with one supplier – AVEVA
- Get single sign-on cloud access to AVEVA Connect
- Take advantage of a single data environment
  - Lower implementation costs
  - Faster operational readiness
- Employ common licensing
  - On premises with CALM

Reduced risk

- One open and agnostic vendor partner–AVEVA
- One point of contact to deal with any issues instead of multiple third parties

Cost estimation and control

- Integrate with proprietary cost estimation and control systems
- Generate material and construction estimates by inputting consistent key data–such as material take-offs, weld counts and bolt ups, and equipment and instrumentation count–into estimation tools

What AVEVA Unified Engineering on Connect can do for you

Break down silos

AVEVA Unified Engineering on Connect breaks down the silos between process and engineering design by aligning everyone around the same trusted data, no matter where in the world they are. Each discipline maintains ownership of its data, while getting correct, up-to-date data from other disciplines.

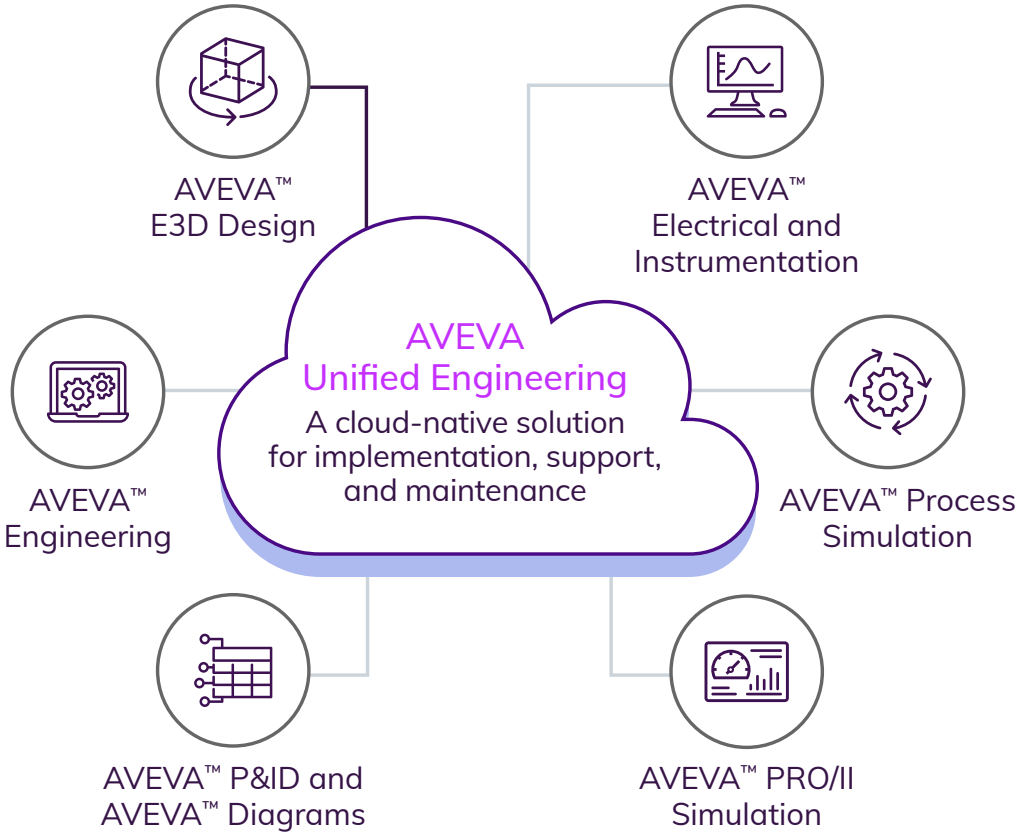
Early FEED is a highly iterative process, but with AVEVA Unified Engineering on Connect, data is entered only once. Users can readily use the simulation data created in FEED for detailed design, increasing efficiency across stages. This avoids procurement errors and delays, and eliminates rework caused by immature design deliverables.

Interactively use process simulation within the engineering process

New / greenfield projects

You can start off from a steady-state process simulation, generate design cases for various plant conditions, and then hand them off to the engineering database. It is easy to compare various scenarios and select a governing case. AVEVA Unified Engineering on Connect lets you auto-generate all deliverables of the FEED or basic engineering package, such as process flow diagrams, line lists and equipment data sheets. You can use the engineering environment to size equipment based on process conditions. .

As your project progresses into detailed engineering, the various engineering disciplines work on creating deliverables that may include equipment, piping, instrumentation, controls, etc. The equipment sizes then go back to the simulator–now in fluid flow and rating mode–to see how the plant will behave.



From here, you can verify that the equipment and piping are the sized correctly:

- Valve positions and exchanger bypasses from actual valve Cv
- Column hydraulics and flooding from actual tray design
- Flare RV back pressures from 3D piping data
- Pump curve operating point and suction head
- Compressor interstage injection/extraction from pump

You can then switch to dynamic simulation mode in the simulator to verify that the plant will operate as expected and validate the control strategy:

- Controller behavior
- Transient conditions
- Relief loads

Brownfield projects

For a brownfield project, you start from the engineering database and start the simulation loop by validating the design in simulator rating mode.

With the simulator, you can easily switch back and forth between steady-state, fluid flow and dynamic modeling in one single process environment. Process simulation automatically includes simulation changes made for rating and dynamics using SimCentral's unified model. You no longer have to freeze process simulations when you enter the detailed engineering phase. Change becomes an opportunity for improvement, not an element of risk.

Automated process validation of change

If you make a significant change in engineering design, it will automatically flag in process so that the process engineer can validate the process or make modifications as appropriate. All these changes are critical to the outcome of your project.

AVEVA Unified Engineering on Connect helps you check and validate change in real time. This makes the engineering phase more efficient and productive, and ultimately lowers the level of risk at commissioning and start-up.

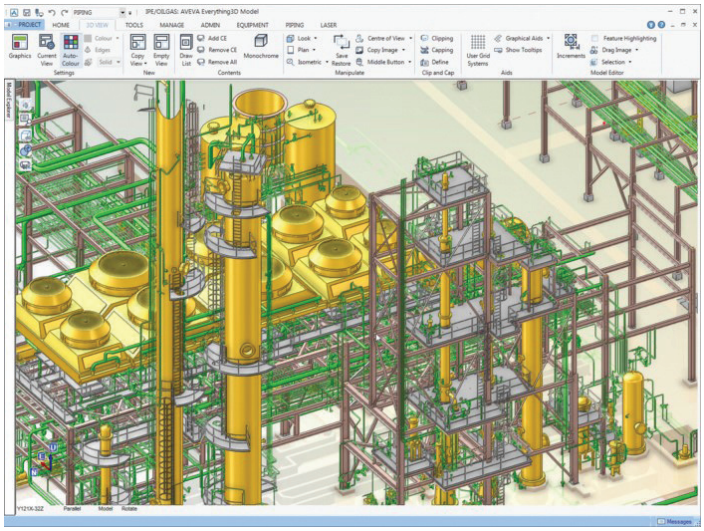
Dynamic validation of controls and operator training

AVEVA Unified Engineering on Connect reduces the time and effort required to return detailed engineering data to AVEVA simulation and run your process in dynamic mode.

Third-party control systems and safety logics connect easily to the dynamic simulation so that you can quickly perform controls checkout, safety analyses, validations of operating procedures, and operator training.

Integration with AVEVA™ 3D Design

AVEVA Unified Engineering on Connect uniquely integrates with AVEVA E3D Design to create high-quality deliverables. The same project environment manages both engineering data and 3D and schematics data, alongside all object-centric information important to capital projects.



AVEVA Unified Engineering on Connect integrates seamlessly with AVEVA E3D Design

Digital twin deliverable to owner

Have your digital twin ready to hand over to the owner. AVEVA Unified Engineering on Connect ensures your model is accurate and up to date throughout the project lifecycle. A digital twin preserves project margins for EPCs, as owner-operators start up and begin operations quickly and more easily with continuous digital handover.

Translate AVEVA Unified Engineering on Connect benefits to business imperatives

AVEVA Unified Engineering on Connect brings together engineering, design and simulation so that global, multi-discipline teams can work concurrently in a common data-centric environment. By controlling and managing change across the entire project, you get opportunities for savings and optimizations across the project, enhanced operational efficiency, and increased returns on your capital.

Break down silos

Increased engineering efficiency

- Let teams collaborate around a single source of trusted, standardized data in the cloud, minimizing the risk of errors and delay
- Eliminate time wasted searching for and verifying data

Rapid, no-touch deployment

- Get up and running in 5 days. Proven, repeatable remote deployment capabilities mean there is no need for service personnel to visit the site

Drive engineering efficiency

Flexible scale-up and scale-down

- Easily shift access between different EPCs and projects with centralized user and usage management that creates transparency between the EPC and the owner

New digital business models

- Stay on top of the latest innovations. AVEVA Unified Engineering on Connect is letting EPCs develop new digital services and deliverables while helping owner-operators transfer data to digital twins and new capital projects

Create the digital twin

Aggregated project data

- Ramp up operational optimization programs quickly by easily transferring data in the cloud and facilitate creation of an asset digital twin with aggregated data
- Create instantaneous engineering visibility across all partners and let remote staff collaborate with shared data

Streamlined handover

- Reduce handover flashpoints by sharing data on the cloud so the EPC and owner-operator can continuously collaborate
- Standardize projects to cut time and costs–and ultimately reduce the time to safe start-up

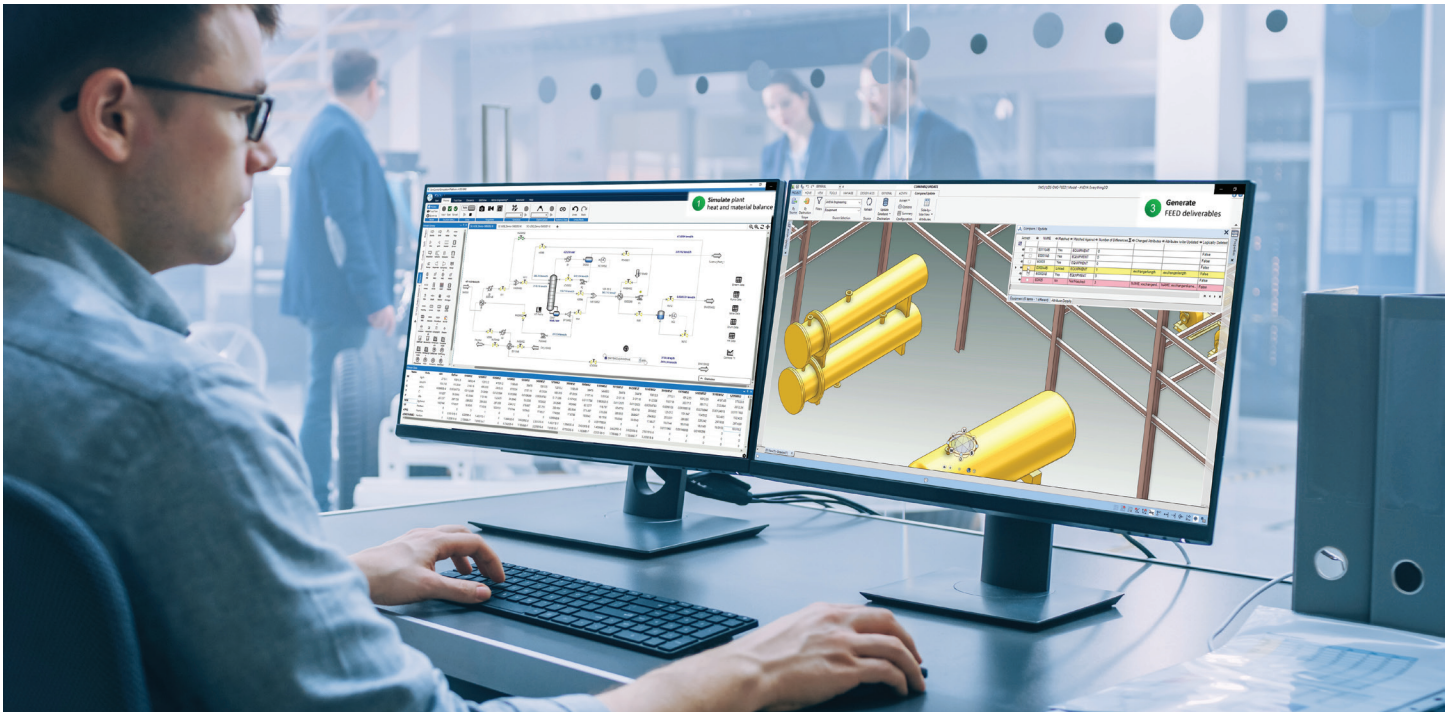
Leverage the cloud

Reduced IT costs and footprint

- Reduce pressure on your IT department. Cloud hosting shifts implementation, support, and maintenance responsibility to AVEVA
- Stay agile with zero hardware requirements
- Work securely from anywhere, improving productivity and empowering your workforce

Expedited ROI

- Achieve rapid speed to value by instantly making agile decisions and ensuring sustainable growth



Watch a demonstration

Capitalize on project execution

Organizations that rapidly and accurately communicate changes in the FEED and detailed design phase will be the most effective at capitalizing on project execution during procurement and construction.

With AVEVA Unified Engineering on Connect, hosted on AVEVA Connect – AVEVA's common cloud platform - process licensors, EPCs, and operators can expect efficient and flexible workflows with better end-to-end collaboration and project control. It gives you up to a 50% faster FEED stage and a 30% increase in engineering efficiency, and saves a minimum of 5% in TIC in the engineering and design phase alone.

Unlock your potential with cloud technology

What are you waiting for? Join hundreds of customers already using AVEVA Connect to optimize their engineering and design performance with AVEVA's single, out-of-the-box cloud solution. Learn More here.

About AVEVA

AVEVA is a global leader in industrial software. Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicine, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

Named as one of the world's most innovative companies, AVEVA supports customers with open solutions and the expertise of more than 6,400 employees, 5,000 partners and 5,700 certified developers. With operations around the globe, AVEVA is headquartered in Cambridge, UK.

For more information about
AVEVA Unified Engineering on Connect please visit:
aveva.com/en/products/unified-engineering

Watch a demonstration