AVEVA™ Unified Engineering for seamless integration and digital transformation

Brian Hughes, Vice President of Portfolio for Engineering
Evolving to a truly digital project environment

Disconnected systems, teams, and project data

Connected systems, teams, and project data
Proven business outcomes

Worley achieved **4-8%** savings on total installed cost (TIC) for the project.

Bruce Power, a major U.S. power company, reduced man-hours by **40%** and rework by **5%** from fewer errors.

Veolia’s 260 engineers worked on a single data-centric platform, which **improved collaboration and transparency** and saved **20%** man-hours on the project.

Aker Carbon Capture cut FEED time by more than **20%** by integrating real-time engineering and execution in a **single digital thread** across engineering and operations.

Shell achieved **highly mature FEED 50% faster** than normal, while minimizing potential growth in cost and change orders.
AVEVA Unified Engineering

1D, 2D, 3D multi-discipline engineering and design leveraging common data

- Process engineering/dynamic simulation
- Mechanical engineering
- Specialist engineers
- Electrical engineering
- Instrumentation engineering
- DCS & safety engineers

- Drafters
- 2D Drafters
- P&IDs & Schematics
- 1D Specialist engineers
- Lists / Reports
- 3D Electrical engineering
- Plant Layout
- Piping/structural/electrical design

- Procurement
- Construction
- Real-time reporting
- Project managers
- Operators

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AVEVA Unified Engineering enables collaboration in a complex world

**Simplify**—Remove the need for multiple technologies that drive unnecessary costs and limit performance.

**Drive time to value**—Reduce complexity, time, and cost for setup and maintenance.

**Collaborative**—Make data-sharing easy, while meeting IT security and data access control demands.

**Dynamic**—Leverage flexible configurations that can be adjusted as projects, facilities, and businesses mature.
Unified Engineering Roadmap

Key initiatives

All authoring solutions on Dabacon

AVEVA Electrical and Instrumentation
Next-generation P&ID

Unified Engineering

Multi-Site, multi-region, multi-organization
Phased Release with 3D first UE released July
1D/2D added UE Q4 2024.

Cloud UE / AVEVA™ Connect evolution

Appstream vs AWS Workspaces – Enable cloud UE option in more regions and support for data residency in countries

Integration enhancements

Secure Cloud File Share
AVEVA Integration Service Evolution Rest API of Data Source to Data Source mapping – Q4 2023
Cloud Configuration and Cloud Connector for AIS REST API – Q4 2023
AVEVA Unified Engineering—Next-gen solution (@ September 24)

**AVEVA™ Connect**

- **Project data** (Multi-tenant/multi-project)
- **Spectrum data service**
- **UE connected support services**
  - User management
  - Credit management (licensing)
  - Cross account billing
  - Data access control
  - Workflow engine/orchestration
  - Name allocation service

**Integration & interoperability**
- Automation API's workflow/scripting
- System to system data integration
- Secure file storage/management

**System to system data integration**
- Deploy per cloud region

**UE Connected UX**
- Authoring Apps
- AVEVA E3D Design
- Engineering
- Access to Dabacon admin & interop tools

**Fabrication**
- 1 to n user desktops
- 1 user desktop

**Access via browser**
- User end device
- Account X & Y

**Connect user identity** defines access rules for Unified Engineering Connected
- **User type** – Application access and cost of access
- **User account** – Credit consumption/user type
- **User role** – Project/data access control (read/write/hide)
AVEVA Unified Engineering

Connect multiple sites to the project data

Connect a cloud region to enable browser access to the project data

Transition between desktop or browser access to the project data and maintain user identity/access rights/credit consumption
Unified Engineering API – Development direction

AVEVA Unified Engineering public REST APIs

Data transfer APIs
- Publish & read data
- Pub/sub
- Notifications

Action APIs
- Create & modify objects
- Design automation
- Batch processing, e.g. deliverable creation etc.

AVEVA integration service (on-prem & cloud)

AVEVA application service (API host service – Cloud/spectrum projects only)

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AVEVA Unified Engineering connectivity to other AVEVA apps

- AVEVA Connect apps or on-prem/legacy apps
  - Point Cloud Manager
  - AIM
  - ERM/RIB
  - AVEVA Apps
  - 3rd Party Apps

- AVEVA Connect
  - Automation APIs
  - System to system data integration
  - Project Data (Multi Tenant/Multi Project)
  - Secure file storage/management
  - Spectrum data service
  - Application integrations

- AVEVA Connect
  - UE Connected Support Svcs
    - User management
    - Credit mgmt (licensing)
    - Cross account billing
    - Data access control
    - Other common services
      - Worktasks

- Site 1
  - 1 to n User Desktops
  - Account X

- Site 2
  - 1 to n User Desktops
  - Account Y

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Unified Engineering evolution – Connecting on-prem to cloud

**Products**
- AVEVA Engineering (Dabacon)
- AVEVA PID (MS SQL + AutoCAD)
- AVEVA E&I (MS SQL + AutoCAD)
- AVEVA Diagrams (MS Visio)
- AVEVA E3D (Dabacon)

**Suite**

**Hybrid**

**Unified Engineering (a la carte)**
- 1D (Dabacon + SQL + Visio + AutoCAD)
- 2D
- 3D

**Unified Engineering**
- 1D
- 2D
- 3D

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### Previously
**A la carte products (on-premise)**
- 3D: AVEVA E3D Design
- 2D: AVEVA P&ID or Diagrams,
- 1D: AVEVA Engineering (including E&I disciplines)
- Simulation: AVEVA PRO/II, AVEVA Process Simulation

**OR**

**AVEVA Unified Engineering on Connect (Cloud UE SaaS)**
- Standardized solutions as an AVEVA-managed cloud service
- Sold only with AVEVA™ FLEX cloud credits
- All the same products available as on-prem
- Utilizing AWS Workspaces today and transitioning to AWS streaming technology later this year

### Today (Summer 2023)
**In addition to what we have today...**

**AVEVA Unified Engineering (M1)**
- Contains 3D product ONLY
- Project data stored in the hybrid cloud (Spectrum data service)
- Available July 2023
- Access via AVEVA Flex cloud credits

### Future (Fall 2024)
**AVEVA Unified Engineering (M2)**
- Only available through consumption of AVEVA Flex cloud credits
- This solution will eventually replace AVEVA Unified Engineering on AVEVA Connect Cloud UE solution we are selling today.
- Data residency issues resolved (multiple countries supported)

**Hosting options:**
- All on-premise – Software and data fully hosted by customer
- Hybrid cloud – Software installed on-prem, project data in the cloud using the Spectrum data service
- Online – All applications are accessible via online access. Fully Hosted SaaS.
Unified Engineering Roadmap

Delivery types

On-premises
All on-premise – software and data are fully hosted by customer.

Hybrid
Hybrid cloud – software installed on-prem and project data stored in the cloud, using the Spectrum data service.

Online
Online – all applications are accessible via online access. Fully Hosted SaaS.
AVEVA Unified Engineering

2023/24 Projected Feature Delivery

**AVEVA Unified Engineering 1.0 (incl. E3D Design 4.0.0)**
- AVEVA™ E3D Design: Spectrum enabled
- 64-bit
- Structures: Bent Plate
- Draw: Intelligent Tables
- Draw: AVEVA Whitespace Optimizer support
- Draw: Single Line Representation
- Piping: PCF interface
- Piping: AVEVA Process Simulation Export Interface
- Inclusion of Pointcloud Manager 23.1
- MultiCAD Import: Support for new CAD format versions
- BuildingSmart IFC certified 2x3 Export

**AVEVA Unified Engineering 2.0**
- Structures: Analysis Interface
- Mining: Conveyor Improvements
- HVAC Redesign (for production)
- MultiCAD Import: Support for new CAD format versions

**AVEVA Unified Engineering 3.0**
- Browser Access Option
- Communities/Data Sharing X-Account Permissions
- Isometrics: Draw based deliverable
- Piping: Sub-components
- Piping: Improved P&ID design integration
- Piping & Structures: Auto-Generative Design
- Inclusion of Pointcloud Manager x.x
- Engineering: Spectrum enabled
- Engineering: E&I On Dabacon Updates
- Engineering: Next Gen P&ID

Roadmap based upon current requirement understanding and feature scope.

Please note delivery targets are subject to PO/Stakeholder verification of feature and passing of quality gateways.

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Why use AVEVA Unified Engineering?

Where we add value

**Drive new digital business**

Pursue new digital business deliverables in the market with a unified engineering platform developed to help you gain a competitive edge.

**Streamline collaboration**

Enable engineers to complete deliverables faster and with greater transparency and maturity to deliver projects on time and on budget.

**Reduce cost, risk, and delays**

Minimize engineering errors and accelerate project execution to deliver:
- 50% faster FEED stage.
- 30% increase in engineering efficiency.
- 5% reduction in TIC.

**Maximize margins**

Reduce cost throughout capital projects, while improving the quality and reliability of engineering deliverables.
Brian Hughes

Vice President of Portfolio for Engineering

AVEVA

• AVEVA
• Brian.hughes@aveva.com
Questions?
Please wait for the microphone.
State your name and company.

Please remember to...
Navigate to this session in the mobile app to complete the survey.

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AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life’s essentials: safe and reliable energy, food, medicines, 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. The company is headquartered in Cambridge, UK.

Learn more at www.aveva.com