AVEVA NET

**Powerful and effective Information Management
for engineering and operations**

Effective Information Management – what is it?

Whether your business is operations, design or construction, and whatever industry you are in, effective Information Management can add major value to your activities.
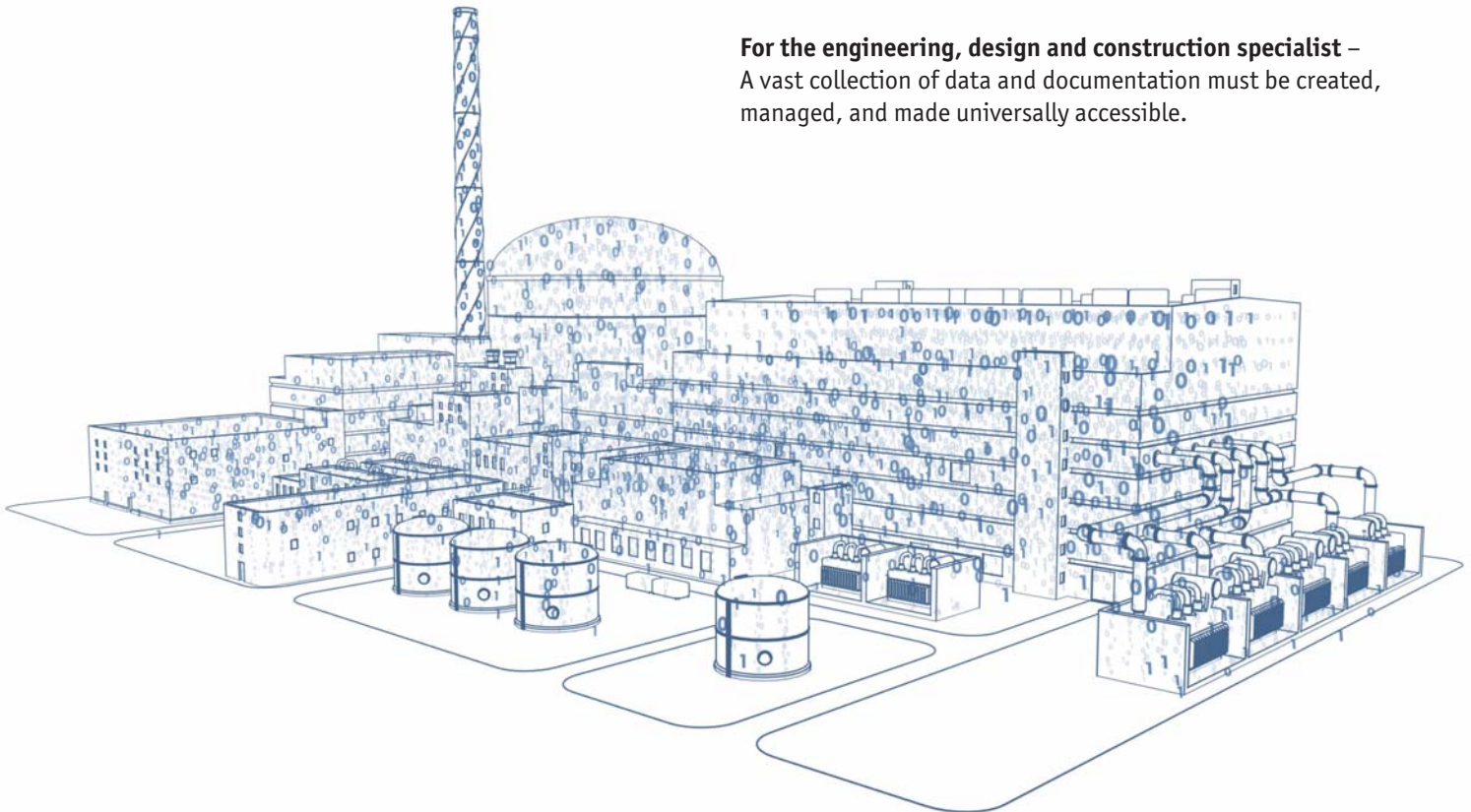
Information Management covers many issues and requirements, for example:

- **Safety:** the less information you have about your environment, the less likely you are to understand and avoid the risks.

- **Handover:** Questions such as: 'what do we have?', 'what should we have?', 'what duplication of data and inventory is there?' can only be resolved if there is an ongoing transition or handover of information between phases – not the usual 'big bang' approach.

- **Integration:** Data in hundreds of different data formats is often held in scores of unconnected repositories. How to harmonise it all into a single environment, make sense of it, and understand the associativity (interdependence and relationships) between the items?

- **Access and retrieval:** Your teams are often based across countries or even continents; a single source of access to data, using a distributed infrastructure, is essential.

- **Security:** Information – and secondary information relating to it – must be available only to those authorised/qualified to access it, even at the most granular levels.

- **Relationship between data/impact analysis:** If a change is made to a design or an operational workflow, there will almost certainly be consequences elsewhere.

- **As-built data:** How does the physical engineering/operational environment match the digital records that you have of it?

- **Information quality and integrity:** How do you ensure that new information is complete and contains the correct elements to conform to project/operational standards? How do you know what you don't know?

For the operational specialist – The lifeblood of success is knowledge of the changing plant or ship, and everything to do with it, to ensure regulatory compliance.

For the engineering, design and construction specialist – A vast collection of data and documentation must be created, managed, and made universally accessible.

'A UK Government study of maintenance accidents, for example, examined 502 maintenance incidents and concluded that over 25% occurred while maintenance work was being carried out on pipes, pumps and valves. Workers simply did not have the information to enable them to spot the dangers…'

AVEVA NET – The information management brand

In AVEVA NET, we have a cross-industry Information Management brand that can enable you to address all of these challenges effectively.

So what, exactly, is AVEVA NET? We define it as a powerful, ISO15926-compliant solution to control, link, evaluate and deliver all types of data and documents – not just engineering information - in a secure environment, regardless of application and format.

This ability to work with any kind of digital data, no matter where or in what format it was produced, (including "alternative" information such as scanned hardcopy, laser-modelled data and digitised photographs), is at the heart of the AVEVA NET customer value proposition - and the reason why over 100 organisations around the world have deployed AVEVA NET in both operational and design engineering roles.

AVEVA NET – Business benefits

Operations

AVEVA NET enables:

- consistent, correct and available plant information to help you with:
  - improved safety and efficiency
  - improved plant uptime
  - ensuring compliance of your plant, including auditability
- cost-effective implementation of lifetime extensions and revamps
- information management supporting shift handover
- management of change, using a comprehensive toolset
- management of multiple revamp projects and maintenance activities in a safe and optimised fashion during operation and shutdown.

Engineering, design and construction
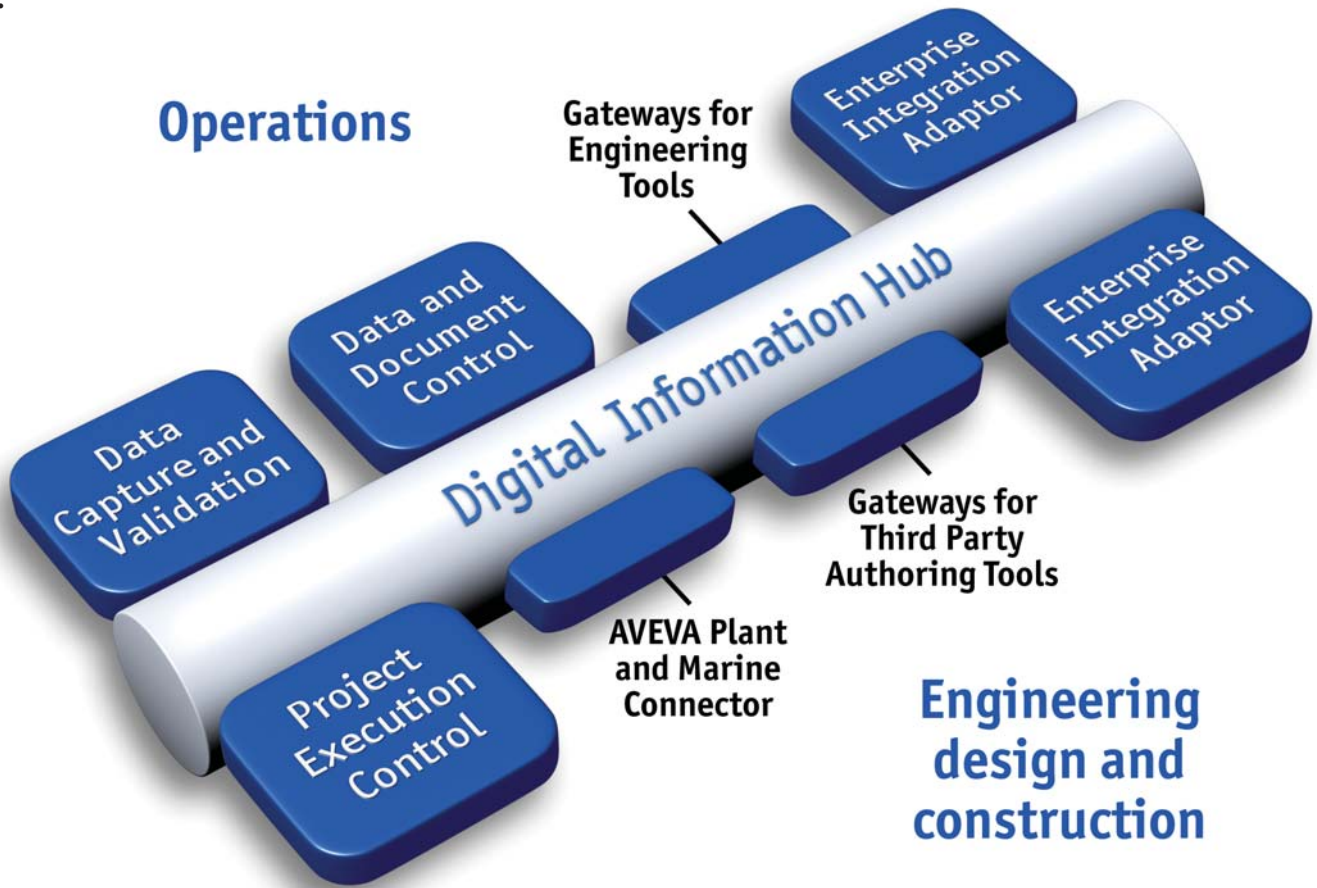
AVEVA NET enables:

- improved quality and reliability of information, reducing waste and construction rework, by control and management of inconsistencies during engineering and design
- clear visibility of project progress against plan, including KPIs (key performance indicators)
- improved global collaboration and compliance to project standards for subcontractors, who can now easily integrate their existing data with the rest of the project data
- improved decision-making for efficiency in construction management
- validated project data for handover and commissioning.

AVEVA NET – Product portfolio

The diagram shows the various capabilities of AVEVA NET. We explore the benefits these bring to both the operations and engineering, design and construction phases on the following page.
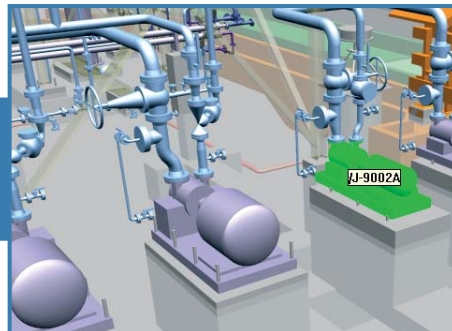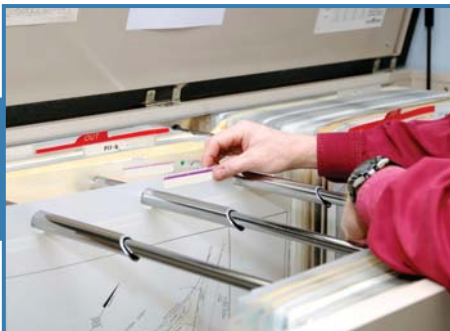
Note how the gateways and connections to other applications form an integral part of the solution.

Operations

Data Capture and Validation

Data and Document Control

Project Execution Control

Gateways for Engineering Tools

Enterprise Integration Adaptor

Digital Information Hub

AVEVA Plant and Marine Connector

Gateways for Third Party Authoring Tools

Enterprise Integration Adaptor

Engineering design and construction

The core of all benefits

AVEVA NET's capabilities are driven by the presence of the Digital Information Hub, a centralised, secure, collaborative data manager, that is completely application-neutral. Data of any type, produced using any program, can be managed within it and made accessible and useful to any application, whether built by AVEVA, or originating from third parties.

The Digital Information Hub does not create artificial divisions to cope with the differing information needs of the Operational and Engineering Design and Construction phases; from one environment, it simply serves both sets of users with equal facility.

AVEVA NET capabilities and their benefits – **Operations**

Data Capture and Validation

This capability of AVEVA NET assembles items of information from all sources – existing digital data and documents, paper and microfiche documents, as-built surveys and photographs – and automatically creates intelligent associations between them, eliminating costly manual intervention and time-consuming manual search.

This capability also has functions that enable customers to validate information by flagging missing items and inconsistencies. These might take the form of an absent heat rating or maintenance schedule for a pump, for example, a tag that appears out of sequence, or a non-standard date format. As we have seen earlier, this means that AVEVA NET can start to build up a full and reliable model, even where digital information never previously existed, and even after many years of operation.

Data and Document Control

This element ensures the reliability and currency of information across all the major stages in a plant or ship's development – as designed, as operating and as built – through its unique ability to formally request, activate, record and manage change. Information maintained in this way prevents competent personnel from making costly mistakes because of poor decision support.

Gateways for Engineering Tools

Interoperability is an AVEVA NET watchword, and nowhere is this more apparent than in its collection of gateways. The Gateways for Engineering and Design Tools enable AVEVA NET to integrate with other AVEVA engineering and design tools – Diagrams, P&ID, ISOMET, Instrumentation – as well as third-party engineering and design tools that may be in use by subcontractors.

Enterprise Integration Adaptor

One of AVEVA NET's strengths is its ability to integrate with specialist non-engineering applications and share its information with them. The Enterprise Integration Adaptor enables AVEVA NET to integrate tightly with operations tools, maintenance tools and ERP tools, enhancing their scope and making it possible to take operational decisions with significantly reduced financial and procedural risk.

AVEVA NET capabilities and their benefits – **Engineering, design and construction**

Project Execution Control

This element enables efficient, error-free project execution by making available a project dashboard for information sharing, through which the key project management 'pain points' – engineering data and document management, engineering change management, and engineering data vault requirements – can be easily managed. In addition, Project Execution Control also includes tightly integrated materials management in AVEVA VPRM.

Plant and Marine Connector

AVEVA NET's ability to act as a powerful information management platform in complex engineering projects is demonstrated by its connection to the range of solutions in AVEVA's Plant and Marine brands – trusted, proven technologies, in use worldwide every day of the year.

Gateways for Third-Party Authoring Tools

Once again, AVEVA looks beyond its own horizons with these gateways to third-party design and office tools. Comfortable using a spreadsheet, but need to know that behind it sits some serious engineering intelligence? Like the convenience of a desktop design package for mock-up, but need to know that the output can be properly stored, cross-referenced and treated as a bona fide piece of early project information? AVEVA's Gateways for Third-Party Authoring Tools enable AVEVA NET to act as the glue that binds these different types of information together.

Enterprise Integration Adaptor

One of AVEVA NET's strengths is its ability to integrate with other specialist applications, and share its information with them. The Enterprise Integration Adaptor enables AVEVA NET to integrate tightly with project management, materials management, planning, construction management, commissioning and ERP tools, enhancing their scope and making it possible to take engineering decisions with significantly reduced financial and schedule risk.

How **AVEVA NET** delivers its benefits

At the heart of the AVEVA NET approach is the concept of 'objects' representing physical parts, such as a valve, pipe or pump. Associated with an object are all types of data required throughout the life of the plant or ship, such as: engineering data (specifications, P&IDs and isometrics); project management data (cost information); resource data (work packs and material specifications); and so on.
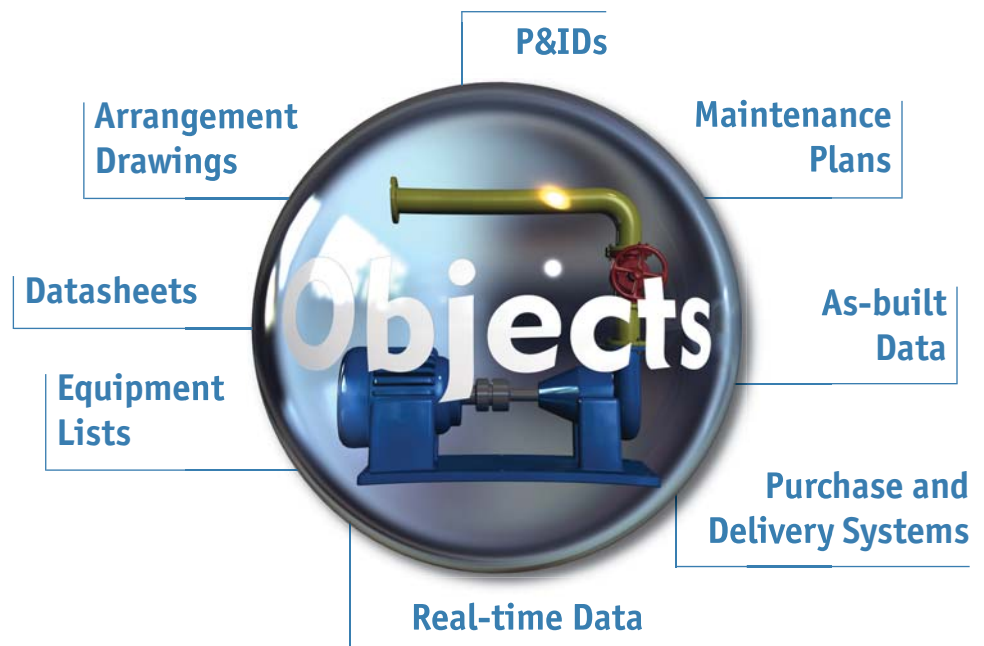
But physical elements are not the whole story. AVEVA NET also provides connections between the object data and the workflows, business processes and human resources applicable to that data, and manages any changes and new data created.

AVEVA NET ensures consistency of all data and provides integration between design, project management, ERP and operations applications.

By harmonising all data into one common format, regardless of the applications that created that data in the first place, AVEVA NET provides an application-neutral information management platform that manages the data throughout the lifetime of a plant or ship. AVEVA NET makes use of the ISO 15926 standard for data.

An object may be physical, but it is, in turn, linked to many other objects which may or may not be.

AVEVA NET harmonises information into one common format, which enables all kinds of objects to intercommunicate and increases the quality and completeness of the information at the user's fingertips.

P&IDs

Arrangement Drawings

Maintenance Plans

Datasheets

As-built Data

Equipment Lists

Purchase and Delivery Systems

Real-time Data

AVEVA NET – from paper to digital: **a User Case**

A recent example of AVEVA NET's ability to be deployed successfully into an operations environment was in a revamp project.

In these situations, the age of the plant often means that information is partly held in non-digital form (e.g. paper or microfiche) and typically exists in many different physical copies, making effective management of the information difficult. This was exactly the case here.

Any information that is in electronic form is, in most cases, dispersed over several legacy applications with little or no integration or control.

Through AVEVA NET, the non-electronic information can be digitised, integrated with the legacy information, managed, controlled and exploited. P&IDs, datasheets, arrangement drawings, isometrics and photographs can be automatically associated with other relevant data.
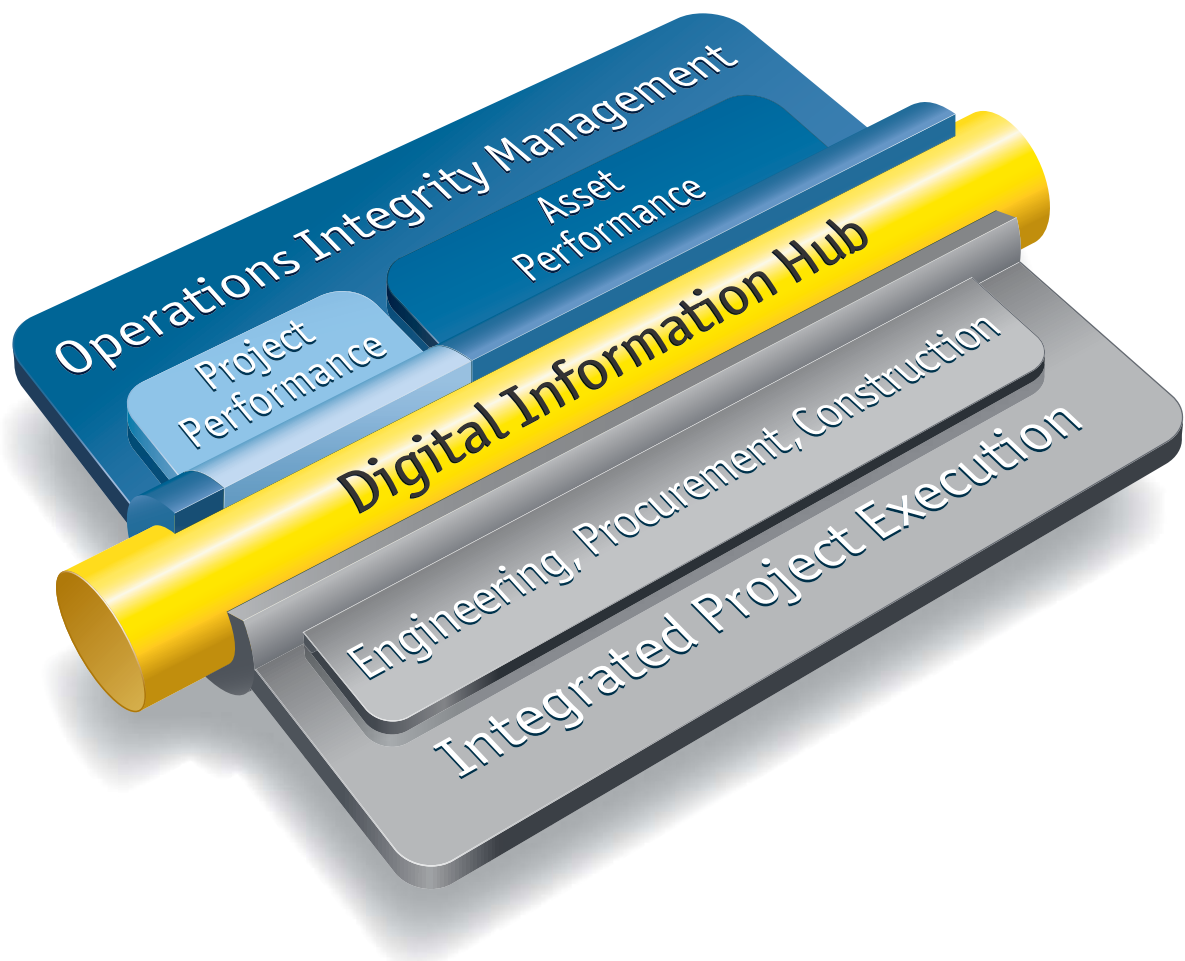
Intelligence (such as the ability to jump from one drawing or piece of data to a related resource, simply by clicking on a hotspot on the screen) can then also be added.

This creates the beginnings of a digital plant that can then be expanded, via AVEVA NET, to incorporate all manner of relevant digital plant data, from 3D design engineering models and operating cost information to real-time DCS/SCADA production data.

AVEVA's complete solution offering – an overview

Solutions that address both operations and engineering, design and construction needs.

▮ AVEVA supplies Owner Operators with an **Operations Information Integrity** solution. This delivers real cost savings in support of operations, maintenance and revamps, through the effective capture, validation, control and change management of data and documents.

▮ AVEVA saves time and money during an engineering, design and construction project with an **Integrated Project Execution** solution. This is achieved by effectively creating, controlling and managing change to the data and documents as the project develops through the engineering, procurement and construction stages.

Since all AVEVA's technology uses the same **Digital Information Hub** for the sharing of data and documents, collaborative processes, such as handover from finished design to operations, for example, can take place much more efficiently and at much lower cost.

AVEVA's complete solution is composed of AVEVA NET (Data Capture and Validation, Data and Document Control, Enterprise Integration Adaptors and Project Execution Control), **plus** the world-renowned AVEVA Plant and AVEVA Marine engineering design suites (depending on your needs). The latter two provide the Integrated Engineering & Design element of the overall solution.

'Since all AVEVA's technology uses the same Digital Information Hub …collaborative processes can take place much more efficiently and at much lower cost…'

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Headquartered in Cambridge, England, AVEVA Group plc and its operating subsidiaries currently employ staff worldwide in Australia, Austria, Brazil, Canada, China, Columbia, Denmark, France, Germany, Hong Kong, Hungary, India, Italy, Japan, Malaysia, Mexico, Norway, Russia, Saudi Arabia, Singapore, Spain, Sweden, South Korea, United Arab Emirates, United Kingdom and the United States of America. AVEVA also has representatives in additional countries around the world.

For more details on AVEVA Worldwide Offices, visit **www.aveva.com/offices**