SIEMENS

Ingenuity for life

Comprehensive infor-
mation management
with COMOS Lifecycle

COMOS – Making data work.

COMOS – Making data work.
Better quality decision-making throughout the plant's entire lifecycle

COMOS Lifecycle
Comprehensive information management

COMOS PQM
Structured project and plant documentation

COMOS Walkinside
Powerful 3D visualization

COMOS Mobile Solutions
Global, mobile plant management

COMOS Solutions

COMOS
Introduction

COMOS
Lifecycle

COMOS
Solutions

2/20

COMOS – Making data work.

With COMOS, Siemens is the only company in the world to offer the process industry a software solution for the integrated management of plant projects – from engineering and operations to modernization as well as dismantling.

COMOS ensures that engineers and operators can access all project-relevant data at all times, across all company levels and in all project phases. COMOS offers a seamless flow of information by providing a common database. Because all data is always available and up-to-date, it depicts the actual as-built status of a plant at all times.
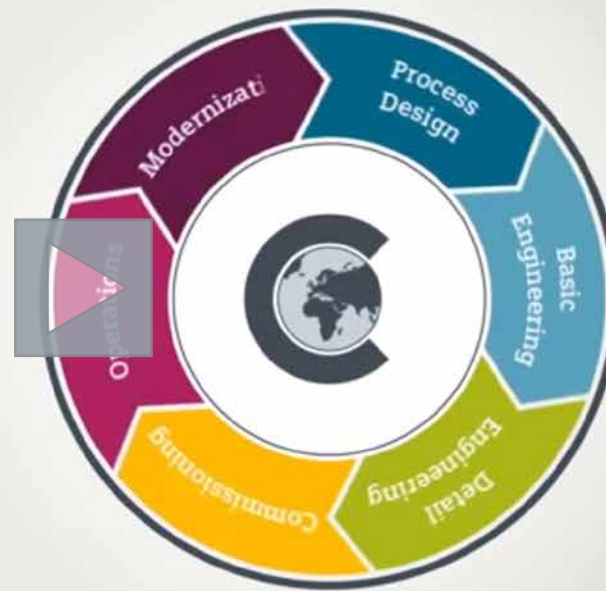
Download our
Image Brochure

Explore our
Business Value Calculator

COMOS
Introduction

COMOS
Lifecycle

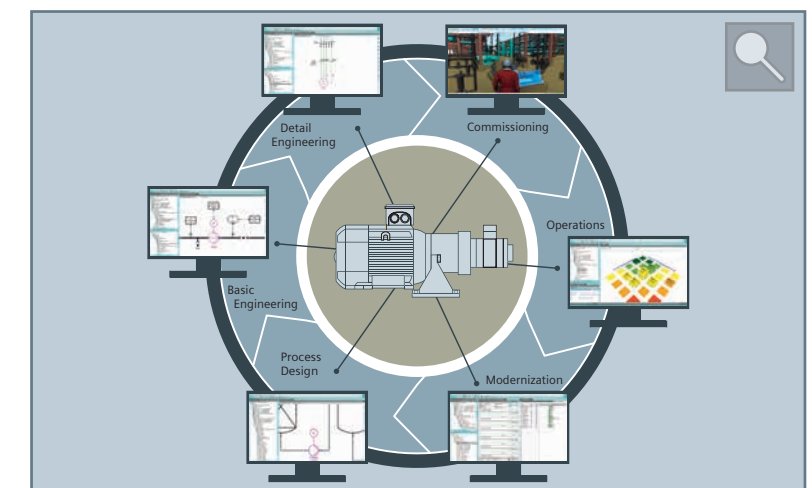COMOS
Solutions

3/20

How do **you** manage data?

COMOS - Making data work. Information mobility over the entire plant lifecycle

This way, COMOS lays the foundation for greater reliability in decision-making and more efficient processes throughout the entire plant – for a lasting improvement in competitiveness.

All software solutions are integrated with each other and cover all lifecycle phases – from process design to basic and detail engineering to operation and modernization.

They can be individually implemented, as required, or employed as stand-alone solutions.

COMOS is based on a uniform database which provides all information in an object-oriented manner. The open software architecture facilitates optimum integration of third-party systems and allows for seamless integration in existing EDP landscapes.

Object orientation in COMOS: All object specifications are available everywhere and at all times.

COMOS
Introduction

COMOS
Lifecycle

COMOS
Solutions

4/20

COMOS Lifecycle –
Efficient plant management during all lifecycle phases

Based on COMOS Platform or via web-based solutions COMOS Lifecycle allows comprehensive information management throughout all plant lifecycle phases, regardless of functional assignment.

This allows you to profit from maximum reliability in decision-making and from worldwide access to data and documents, for example, via mobile devices and through the secure integration of internet-based services.

Find all information about COMOS Lifecycle on the following pages.

To find out what advantages COMOS offers for your personal requirements, **click here** and you will reach our website with more information.

Empower your data value – Discover targeted, practical COMOS applications!

COMOS
Introduction

COMOS
Lifecycle

COMOS
Solutions

5/20

COMOS PQM –
Structured project and plant documentation

The engineering and operation of a plant requires numerous documents which are very important for information brokering, tracking and quality control. With extensive functionalities, COMOS Project Quality Management (PQM) offers valuable support in the areas of document planning and development, automated document distribution, import of external documents, revisioning, versioning and archiving.

COMOS PQM enables the complete and holistic technical mapping of the plant in one database. All project stakeholders can access this database within the framework of their assigned rights – an invaluable advantage in comparison to island-like solutions, which are always prone to data loss and inconsistencies.

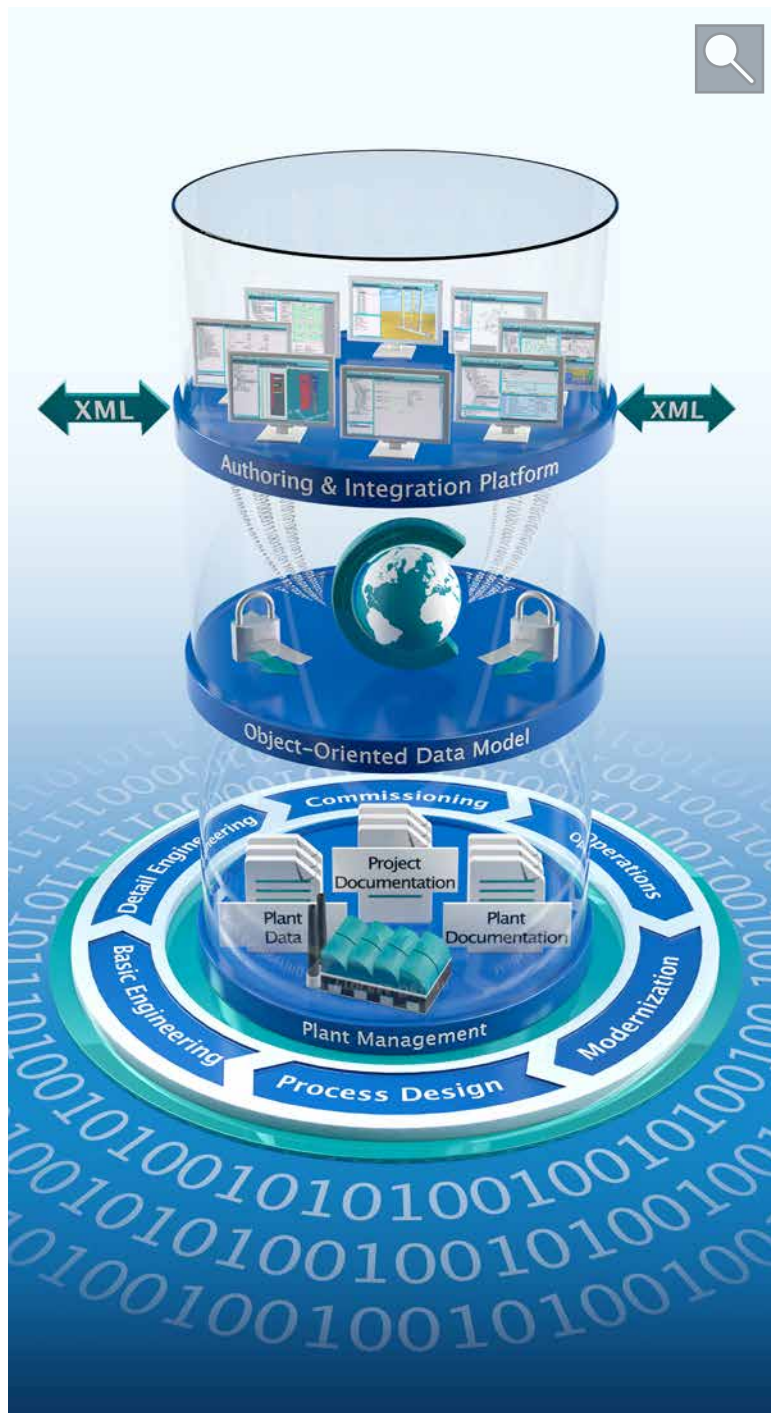COMOS PQM   COMOS Walkinside   COMOS Mobile Solutions

COMOS
Introduction
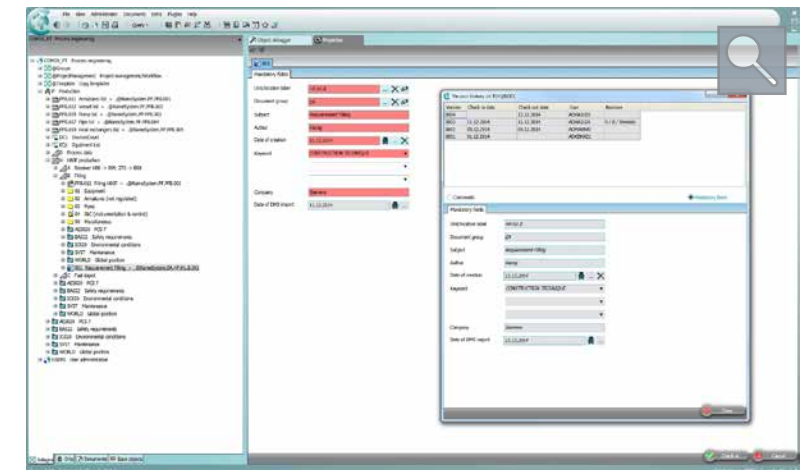
COMOS
Lifecycle

COMOS
Solutions

Separation of project and plant documentation

Tracking of version history

Intelligent generation of project documentation

Projects are usually executed in clearly defined phases, for each of which numerous documents are relevant. Particularly in highly regulated industries, such as pharmaceuticals or food and beverages, there are strict rules governing the creation of project documentation. For this purpose, COMOS offers simple configuration tools with which relevant phases and the respective documents can be selected as templates from a catalog on a project-specific basis. As soon as a new phase begins in the project, the documents are then generated automatically.

Workflow-supported operations and tasks

Structured workflows within the company are supported by COMOS Workflows and Tasks. These can be configured as required and adapted to corporate or departmental specifications. A typical example of a workflow-supported process is the checking and releasing of documents so that process steps can be initiated automatically, the relevant personnel notified, and their task supported by an easy-to-follow dialog.

Management of test plans

COMOS offers the possibility of selecting the objects to be tested directly in the P&ID. This involves setting up a test plan in the corresponding project phase that can be manually augmented with particular test cases. The tests can be carried out and then logged online or in hardcopy form. The results are summarized in a clearly laid out report.

Revising, versioning and archiving

Internal and external documents can be revised easily and securely with COMOS PQM. Once the document has been edited and reviewed by the relevant employee, it can be released by the responsible person in a final step. The released document is then available as a PDF and can no longer be edited. The history such as author, review steps, person responsible for release etc. is attached to the respective object in the form of metadata.
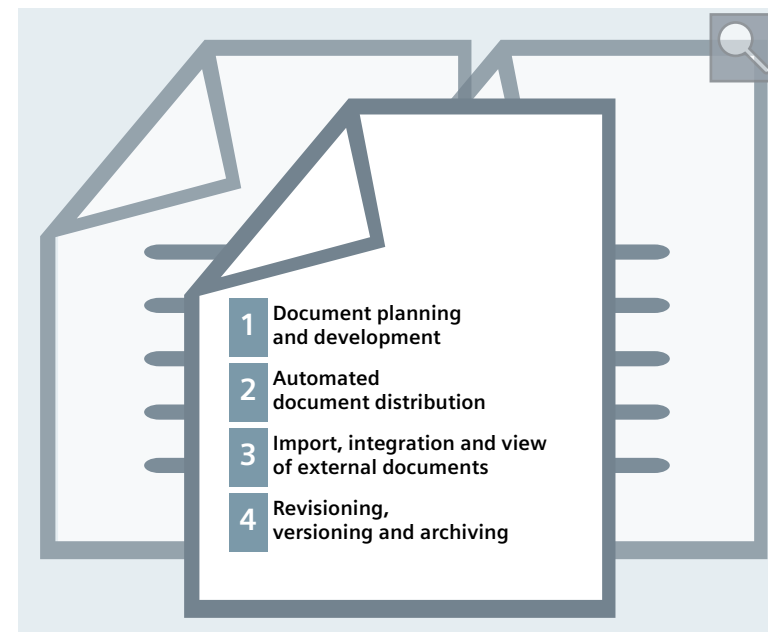
Documents can be released with a digital signature using the innovative eSign technology. Modifications to PDF documents with a digital signature are captured and stored in history. Responsibilities can be clearly assigned and documented, which ensures legally compliant release, tracking and archiving. Stamps can be integrated into the PDF with eStamp technology to indicate the validity or invalidity of the contents of documents.

All documents are automatically archived in COMOS. Archiving is performed with versioning: If a document is edited, a completely new version of the document is created. All previous versions of the document are retained and can be accessed at any time. No data is lost and you can always trace who made which changes to the document at a specific time. If necessary,

old versions can also be recalled and declared to be the current version once again. You can individually set the number of versions of a document that are saved in the system.

Automated document distribution

The systematic and controlled distribution of documents, e.g. to subcontractors or suppliers, takes place in the form of transmittals. The documents contained in these transmittals can be individually edited and then reimported into COMOS as a unit. All import and export steps are logged and, in the event of modifications, documents can be versioned.

Import, integration and view of external documents

Documents in a broad variety of data formats can easily be imported and exported in COMOS via individually configured interfaces. Thus, connections to all common Office programs can be created. On the basis of Microsoft Excel or Access, documents can also be imported in bulk. As standard, more than 450 CAD and Office formats can currently be viewed in COMOS. In addition, a configurator enables the individual use of any other external viewer.

1	Document planning and development
2	Automated document distribution
3	Import, integration and view of external documents
4	Revisioning, versioning and archiving

Structured document management

Discover our successful
Project References

Your benefits with COMOS Project Quality Management at a glance:

- Comprehensive technical plant documentation reduces project lead times

- Working layer technology provides secure project engineering

- Higher quality of data and documents

- Archiving of previous project states simplifies troubleshooting

- Information exchange with external applications through customized interfaces

COMOS PQM   COMOS Walkinside   COMOS Mobile Solutions

COMOS
Introduction

COMOS
Lifecycle

COMOS
Solutions

9/20

COMOS Walkinside –
Powerful 3D visualization

A new dimension in engineering, training and plant operations

The usage of intelligent 3D models makes plant engineering, operation and maintenance safer and more efficient. COMOS Walkinside is a powerful 3D virtual reality visualization software solution which directly accesses all plant information to display the current status of a plant using visually appealing and realistic 3D graphics. COMOS Walkinside enables the usage of 3D engineering data from the basic and detail engineering phases to the as-built phase during operation, providing completely transparent plant information in real-time throughout the entire plant lifecycle. Highly complex process plant 3D models can be visualized immediately, while the navigation is easy and game-like.

Applying COMOS Walkinside as a "3D Asset Portal" allows all project stakeholders and decision makers easy and fast access to all plant information, thus ensuring common understanding of its current state.

COMOS PQM   COMOS Walkinside   COMOS Mobile Solutions

COMOS
Introduction

COMOS
Lifecycle

COMOS
Solutions

10/20

Usage in engineering

During the engineering phase, EPCs must share their 3D models with their clients e.g. for regular design reviews, based on the aligned project milestones. As COMOS Walkinside provides all stakeholders with a common and easy-to-use 3D view of the actual project state, Design Reviews can be executed already in this early phase – spanning all disciplines. Not only process engineers, automation engineers, or further engineering disciplines, but also management, representatives responsible for safety at work or maintenance managers can contribute

to higher project quality and cost savings through avoidance of costly changes during the construction and commissioning phases. These reviews are supported by the software e.g. through integration of avatars (virtual characters) for virtual walkthroughs, redlining, comments and the creation of videos. The integration with existing 2D data such as P&IDs or project documentation in particular creates enormous opportunities.

Using the highly realistic 3D VR model for marketing and sales purposes is an additional promising option: By creating movies of plant

walkthroughs and further possibilities offered by the virtual reality presentations (e.g. through the use of 3D glasses or other equipment) impressive presentations can be developed far beyond the existing standard.

Highly efficient virtual training

Even before the construction of the plant, COMOS Walkinside Immersive Training Simulator (ITS) enables the operators to completely immerse themselves in their future work environment. This allows commissioning times to be significantly reduced and the retention of key knowledge within the company to be safeguarded and documented. Optimally trained personnel help to substantially minimize the risks of incidents or unplanned shutdowns.

The virtual training can be adapted for familiarization with the environment (e.g. location of valves, pipes or equipment) and, based on this, intensified through practice of Standard Operating Procedures (SOPs). The operating behavior in unscheduled events, however, such as fire, gas leakages or accidents, can also be represented with the ITS to practice the correct behavior with specific exercises.

Immersive Operator Training with COMOS Walkinside

The possibility of training several people in parallel in the same 3D model not only improves the collaboration within teams, but also their communication with other key stakeholders (e.g. control room personnel).

The content of all training scenarios can be created easily by the instructor himself through an intuitive Scenario Editor, as well as by the individual configuration of the avatars, which can be done by the trainees.

Powerful in plant operations

Through the possibility of accessing plant data that is always up to date, the operating personnel receive all the necessary information in real-time to make effective decisions. For example, they can quickly see where equipment is located and how they can best access it and retrieve related maintenance information. Based on that, maintenance activities can effectively be simulated, planned and executed.

COMOS Walkinside supports efficient remote plant operations. Experts do not necessarily have to be on site (e.g. an oil rig), as they have access to data and documents from nearly any location in the world through the "3D Asset Portal". That saves a lot of traveling expenses and effort. Real-time data and alarms are available and immediately represented in the 3D model, to ensure that actual information is

also available onshore at any time. In addition, the daily work planning between onshore and offshore can be efficiently planned and coordinated.

↗ Discover our successful
Project References

↗ COMOS Walkinside demo at the HMI
Podcast

Be immediately made aware of important tasks

Integrated Operations with COMOS Walkinside

COMOS PQM   COMOS Walkinside   COMOS Mobile Solutions

COMOS Introduction   COMOS Lifecycle   COMOS Solutions

Your Benefits with COMOS Walkinside at a glance:

- Faster project execution, commissioning and "time to market" through improved collaboration

- Cost savings through consistent plant information available at all times

- Fewer incidents and accidents

- Higher plant availability

- Safe and efficient plant operations

COMOS PQM   COMOS Walkinside   COMOS Mobile Solutions

COMOS
Introduction

COMOS
Lifecycle

COMOS
Solutions

13/20

COMOS Mobile Solutions– Global, mobile plant management

The demand for engineering software for mobile plant management continues to rise. The popularity and prevalence of mobile devices is also increasing in plant management. There is a specific demand for apps and services tailor-made for a specific application. These should be easy to use and take into account the growing importance of collaboration and information exchange in globally networked projects.

Apart from the immediate availability of information and scalable data management, easy access to and exchange of data are becoming very important. There is a particular demand for low-cost options for the effective and efficient integration of external users, such as subcontractors, into projects.

COMOS PQM   COMOS Walkinside   COMOS Mobile Solutions

COMOS
Introduction

COMOS
Lifecycle

COMOS
Solutions

COMOS Mobile Document Review – the COMOS iPad app

The COMOS Mobile Document Review iPad app gives COMOS users the opportunity for the mobile use of data and documents. At any time or place – for example in meetings, while traveling or during a tour of a plant – plant documents can be revised using the "redlining" functionality, checked and released, and revision states can be managed. Documents from the COMOS database are transmitted via the Web server as PDF files to the iPad of the correspondingly authorized COMOS user, who can then edit them offline. The available redlining functions include freehand drawing, insertion of comments and the integration of photographs taken on site.

Once the revision is complete, a PDF can be generated and returned to the COMOS database. COMOS Mobile Document Review is intuitive to operate and requires neither prior knowledge of COMOS, nor installation of the engineering solution on the tablet. All newly uploaded documents are immediately visible; management is further simplified by the search and favorite functions.

COMOS Mobile Document View – Viewing selected COMOS documents from SharePoint

COMOS Mobile Document View addresses a larger target group within the company. After configuration, users can view documents for their special requirements and access their versions and revision history. COMOS Mobile Document View permits a specific view of the
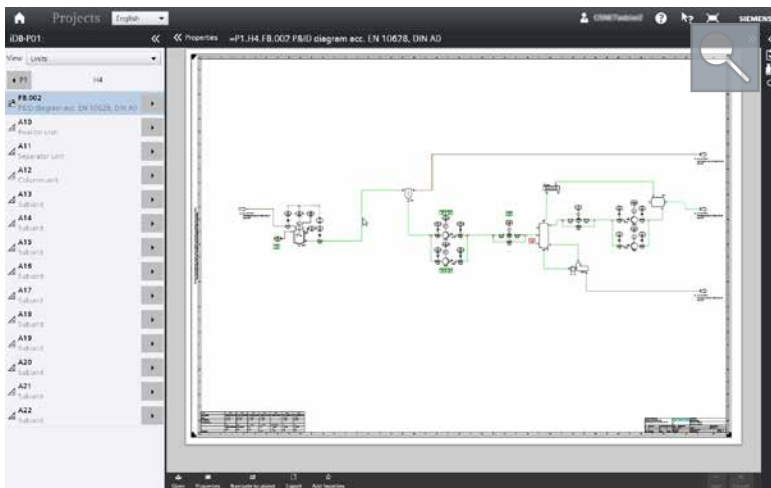
provision of document groups on Microsoft SharePoint sites. In this way, the solution prevents duplicated storage of data and user management in COMOS and SharePoint. COMOS Mobile Document View is easy to operate and requires no expertise in the use of COMOS. This makes the solution particularly suitable for business target groups.

Web-based access to all plant data

Global projects in plant engineering and operation demand access at all times to all relevant project information. Within the scope of the resulting globally networked collaboration, even persons without technical knowledge, or external suppliers, require access to key data and documents of an industrial plant. In addition, engineers frequently have to view engineering data and documents and edit them quickly on the construction site during the planning of a plant project.

The web server-based solutions in COMOS WebView and COMOS WebPQM provide the user with easy access to this information by means of various browsers.

COMOS WebPQM is continuing to follow the path of web-browser-based display and querying of plant data consistently in the direction of web-based engineering. Particularly in large-scale and globally structured projects, COMOS WebPQM offers the possibility to

COMOS Mobile Document Review – the COMOS iPad app

COMOS PQM   COMOS Walkinside   COMOS Mobile Solutions

COMOS
Introduction

COMOS
Lifecycle

COMOS
Solutions

15/20

optimize effective and efficient collaboration along the entire value creation chain.

In this way, placeholders on objects in COMOS can be defined as "web-relevant" in order to then, for example, give suppliers the opportunity to upload documents or edit data at that location. The revision management in the form of versioning is always kept consistently up-to-date in COMOS. Subcontractors can provide relevant engineering data as web attributes in the required form, which ensures that all data remains current at all times and is immediately usable.

The possible need to reformat, check or release the data is now a thing of the past. COMOS WebPQM also allows a document (e.g. an exploded diagram of a pump) to be linked to several objects of the same kind, thus ensuring that any change to this document is always

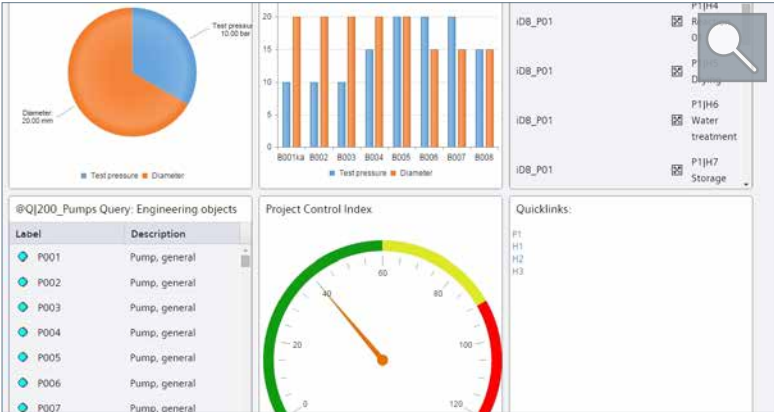immediately followed through on all other affected objects.

Due to the simple, browser-based presentation, COMOS WebPQM involves virtually no training or installation expense, resulting not only in maximum quality of data provision and exchange, but also in significant time and cost savings for project stakeholders.

The new dashboard functionalities present all key information at a glance – regardless of whether this involves project-specific or cross-project evaluations. Users have the project progress and key performance indicators on their personal dashboards at all times – clearly visualized as a status tachometer or diagram. With the aid of preconfigured queries or links set as favorites for each dashboard, important data and documents can be compiled on the web for retrieval with a single click of the mouse.

The task manager shows users immediately what they have to do and by when. They have immediate access to all relevant documents and can thus easily provide feedback, which significantly increases the reliability in the review and release process, also across projects.

COMOS Mobile Solutions for efficient global collaboration

Clearly visualized overview of projects and KPIs with the COMOS Dashboard function

COMOS PQM   COMOS Walkinside   COMOS Mobile Solutions

COMOS
Introduction

COMOS
Lifecycle

COMOS
Solutions

16/20

Your benefits with COMOS Mobile Solutions at a glance:

- Location independent and mobile access to COMOS data and documents

- Efficient work when traveling, at meetings or within the plant

- Intuitive GUI, easy-to-use and clear navigation

- Improved options for global collaboration

- Significant cost and time savings

We look forward to your questions and suggestions! Please fill in the quick and easy contact form below, and one of our experts will be in touch soon.

First name*	
Last name*	
Company*	
Position*	
Street/no.	
Postal code/city	
Telephone	
E-mail*	
Your message	

☐ I hereby agree that my personal data will be used by Siemens and/or Siemens subcontractors exclusively in connection with the requested services. I herewith consent to any further disclosure of my personal data by Siemens Industry if such disclosure is mandatory by law or court judgement.*

Submit

* Required field

COMOS –
Making data work.
For you too!

We are quite certain that your plant data and information are the key to unlocking your potential. If you like to know why we are so sure about this, you should speak personally to one of our experts. Just get in touch with us. We are there for you at all times!

↗ **Visit our website**
siemens.com/comos

↗ **Integrated Engineering: COMOS & SIMATIC PCS 7**
siemens.com/pcs7-paa

Follow us on YouTube
youtube.com/siemens

Follow us on Twitter
twitter.com/siemensindustry

Short and to the point

Object orientation in COMOS
In COMOS, all data relating to the same component (a pump, for example) form a unit – an object. Changes to object specifications are stored in the central COMOS database so that the updated data is available everywhere and at all times.

As-built status
As-built status is the term used to describe the actual status of a process plant at the present time. Because the COMOS database is always up-to-date, it can be accessed at any time using the system.

Open system architecture
COMOS' open system architecture provides an optimal framework for integrating third-party systems. The software can be adapted perfectly to operation-specific requirements and can be seamlessly integrated in existing IT landscapes. As a result, it makes a big contribution to the homogenization of a company's software applications.

Interoperability
Interoperability is the ability of mutually independent systems and technologies to smoothly collaborate by complying with common standards. Information can be efficiently provided without the need for specific intersystem arrangements. This facilitates quick and reliable worldwide decision-making around the clock.

DCC
Documents can be classified and sorted according to their properties with DCC (Document Kind Classification Code). In this way, they are not only available for the associated component, but can be called according to their properties - for example, all TÜV (German technical inspectorate) documents of the plant.

COMOS
Introduction

COMOS
Lifecycle

COMOS
Solutions

Visit our website
siemens.com/comos

COMOS
Introduction

COMOS
Lifecycle

COMOS
Solutions