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Ingenuity for life



Secure asset management with COMOS Operations

COMOS – Making data work.



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



COMOS MRO
Targeted service and
maintenance management



COMOS Shutdown
Efficient planning and
safe execution of plant shutdowns



COMOS Operations
Secure asset management



COMOS Portable & Direct
Easy and intuitive feedback
directly from the plant



COMOS Inspection
Intelligent inspection management

COMOS Solutions

COMOS – Making data work.

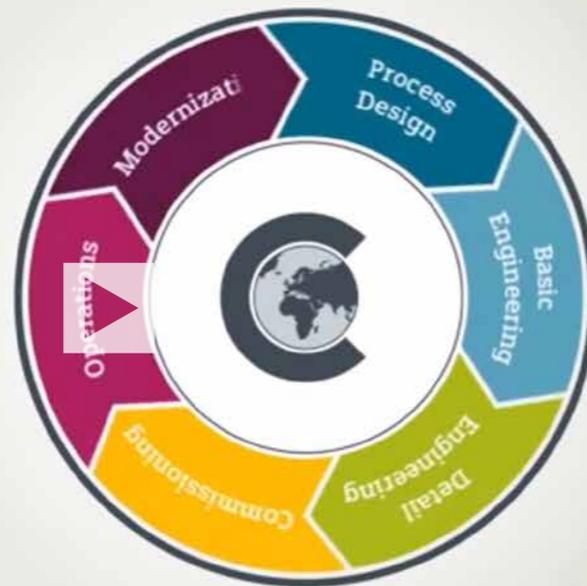
With COMOS, Siemens is the only company in the world to offer the process industry a software solution for the integrated management of plant projects – from engineering and operations to modernization as well as dismantling.

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.

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How do **you** manage data?



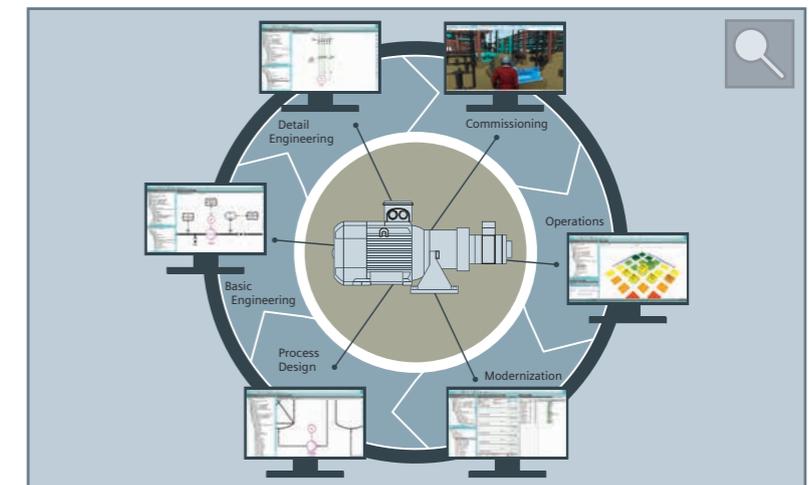
Global collaboration and interoperability with COMOS

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 Operations – From Integrated Engineering to Integrated Operations

COMOS Operations is the first choice when it comes to implementing an efficient plant support strategy. All data from the engineering phase can be reused in the operational phase.

Available applications include solutions both for maintenance during ongoing operations and overhaul during shutdown. Via special user interfaces, the measures initiated in the field or workshop can be directly reported.

Find all information about COMOS Operations 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 MRO – Targeted service and maintenance management

COMOS MRO encompasses the complete management, engineering and organization of operation and maintenance, including plant documentation, all in one system. You always have access to the latest engineering data in COMOS. This means that any changes to the plant due to service and maintenance processes are immediately available in the engineering data.

COMOS MRO supports all established maintenance strategies. The intuitive application of COMOS MRO offers comprehensive, clear and redundancy-free processing. The time spent on secondary tasks is drastically reduced, plant operating times are increased while costs are lowered at the same time.

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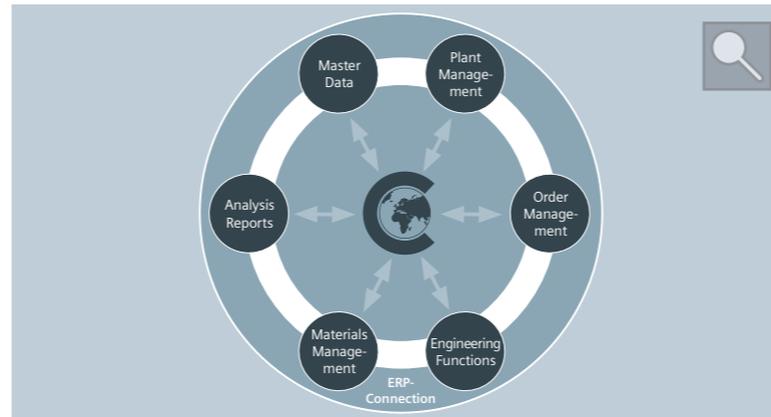
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Secure asset management with COMOS Operations

As a CMMS system, COMOS MRO supports the structured filing and management of all maintenance-related data. This way, plant data, plant structure and plant history, as well as information about plant personnel and business partners, can be clearly represented and managed. You can easily assign qualifications and roles to personnel and ensure the assignment of jobs. Through the cooperation of the individual disciplines and departments and a clearly structured management of the different areas of responsibility, workflows can be optimized significantly. All processes and



Management, planning and organization of operations and maintenance

workflows can be analyzed and documented with COMOS MRO. The results can be used to update work processes and further improve them through the analysis of weak spots. This information forms the basis for strategic planning on the management level.

The integration of ERP applications makes use of functions in COMOS MRO for optimum monitoring and control of resources, such as demand indications, availability checks, inventory management and many more.

Flexible implementation of maintenance measures

For optimum maintenance, the individual components can undergo a risk analysis in COMOS and be evaluated according to different criteria. The results can then be used to draw specific conclusions as to which maintenance method should be used. A clear structuring and systemization of preventive and reactive maintenance measures will then take place.

Risk-based maintenance will be carried out based on regular audits of safety aspects, legal guidelines, etc. As a result, plant and production downtime is reduced to a minimum.

Reactive maintenance takes well-timed measures based on the equipment's condition. It responds to error messages or specific events. The occurring problem is first analyzed and then remedied immediately, if possible.

With COMOS, you can locate the cause easily thanks to completely traceable chains of events and then determine it. Resources can be economically managed and used, because the maintenance package is optimally matched to the respective plant.

COMOS MRO – Benefits at a glance

- Complete system integration for better planning accuracy
- Reduction of unproductive times to a minimum
- A high degree of automation reduces administrative effort
- Optimized planning reduces the need for stock of materials
- Improved identification of weak spots reduces the failure rate
- Individual modification of measures lowers maintenance costs
- High efficiency leads to shorter amortization period



COMOS Shutdown – Efficient planning and safe execution of plant shutdowns

For some industries, large-scale maintenance of the plant or several components is necessary in a very short and limited period of time. The plant is usually shut down completely for a short time so that the units in the plant can be checked and serviced. Such process requires detailed and comprehensive planning.

All eventualities must be taken into consideration, because each day without production is expensive; deviations from the plan are virtually impossible and the process has to run very smoothly. This requires a lot of coordination between all disciplines and departments involved in the process. If operation and maintenance of the plant takes place in different systems, communication is extremely difficult and time-consuming.



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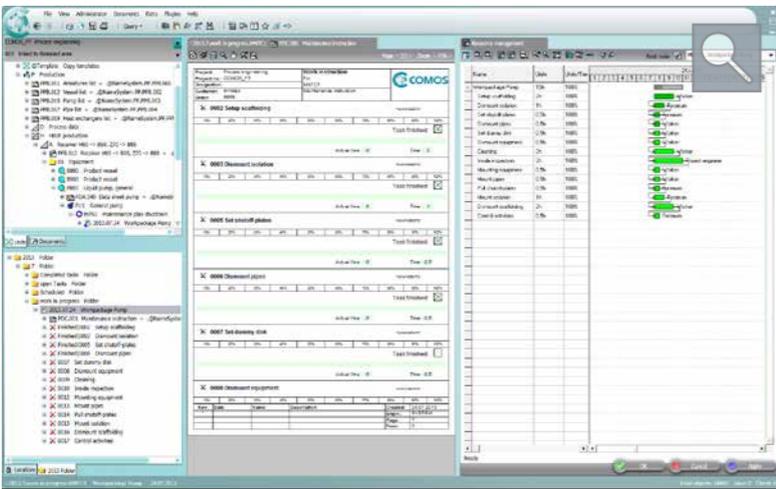
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Example: Working steps and resource planning for the exchange of a pump.

With COMOS Shutdown, the plant operation and maintenance functions all reside on one system. This means all phases of the plant shutdown are processed in one system. It ensures that everyone involved in these activities always has access to the latest data.

Based on COMOS MRO, COMOS Shutdown supports the critical shutdown planning phase with numerous functions. The scope of COMOS Shutdown includes estimating, scheduling, coordination, progress assessment, and reporting; all executed on one system. This approach enables optimal communication and allows shutdown planning to take place precisely and safely.

COMOS Shutdown also makes analysis and post-processing of the shutdown very simple. Empirical values such as duration, problems during execution, etc., can be integrated in planning of the next shutdown phase to make it safer and more efficient.

Detailed evaluation of previous shutdowns can be used to optimize the shutdown procedure.

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COMOS Shutdown – Benefits at a glance

- Complete shutdown cycle in one system
- A uniform database enables improved communication
- Optimized planning for effectively used resources
- Integration with other COMOS solutions increases efficiency
- Detailed evaluation of prior events helps optimize future shutdowns

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COMOS Portable & Direct – Easy and intuitive feedback directly from the plant

The execution of maintenance work and the associated feedback are optimally supported by COMOS Portable & Direct. This optimized application for feedback of maintenance data makes messages regarding the immediate status of maintenance tasks available to planners. This means planners always have a good overview of the entire situation and can respond to any difficulties quickly and in an appropriate manner.

COMOS Portable enables easy input using a mobile device. COMOS Direct is available on a terminal station in the plant. Feedback is entered directly into the system. This approach drastically reduces the risk of errors as well as the expenditure of time and workload compared to a paper-based method.

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Optimal plant availability is key for cost efficient operations



COMOS Portable - reliable asset information on mobile devices

COMOS Portable is the ideal solution for maintenance work on the plant premises. Maintenance orders can be conveniently downloaded to the handheld device, such as a PDA or smartphone, and are available to the respective employee anywhere and at any time. This makes it unnecessary for users to copy down the tasks and it allows them to work untethered. Using an RFID chip, the equipment is identified on-site with the portable device. Once maintenance is complete, the steps are entered into the handheld device. There are no additional steps, which makes the feedback process from the field easier and more secure.

COMOS Direct – easy and intuitive feedback directly from the plant

COMOS Direct is designed for central feedback in the workshop or in the field. Each technician is equipped with a card reader and a barcode scanner for easy login and identification. Due to the exact assignment of the maintenance object to the respective technician, the terminal interface displays only the current task to be processed. Entries regarding time, material and maintenance can be made directly using the touch screen.

Plant maintenance with COMOS Portable

COMOS Portable & Direct – Benefits at a glance

- Improved efficiency during maintenance due to optimal information management
- Direct entry into the system reduces error potential
- User-friendly interface simplifies work



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COMOS Inspection – Intelligent inspection management

COMOS Inspection enables non-destructive material testing in perfect interaction with other COMOS applications. You can use COMOS Inspection to precisely determine and specify the inspection points for the scheduled measurements with the help of COMOS Isometrics. These inspection points can be scheduled to be inspected at the same intervals as used by COMOS MRO, which makes for an optimized inspection process. This prevents covering unnecessary distances and means that measurements are implemented in a timely manner.

The measurements may be made on-site with mobile ultrasound or x-ray devices and the components are inspected at the specified inspection points for erosion, corrosion and condition of the welding seams.

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The measured values are fed directly into the COMOS system by the mobile measuring devices via an interface.

The complete data is automatically analyzed in COMOS, but measurements of individual inspection points can also be combined and compared. Based on the analysis done on prior inspections, COMOS projects component conditions. This provides a detailed overview of the service life of the individual components and gives you an idea of when a certain component may have to be replaced.

This data can be integrated in all applications and represented in the different COMOS documents.

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COMOS Inspection – Benefits at a glance

- Complete integration in the COMOS system
- More efficiency due to interaction with other applications
- Data collected in the field can be integrated in COMOS
- Automatic status calculation of components reduces workload

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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*	
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Position*	
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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.*

* Required field

Submit

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!

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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.

CMMS

CMMS stands for "Computerized Maintenance Management System". Maintenance processes are supported or controlled by the CMMS software.

ERP

ERP stands for "Enterprise Resource Planning". An ERP system is an application software that is responsible for planning the resources of a company.

Risk-Based Maintenance (RBM)

Risk-Based Maintenance is a maintenance method for plants and technical devices which evaluates risks and consequences in the event of a failure. This evaluation helps to optimally determine maintenance measures or maintenance cycles and considerably minimize the risk potential.

Preventive Maintenance

Preventive activities are executed to adopt corresponding measures before an error occurs, if necessary. Such activities can be based on runtime, for example. This strategy is applied when a considerable loss of production is expected, legal requirements call for it or the plant breakdown would constitute a serious threat to people and equipment.

Predictive Maintenance

The principle of predictive maintenance is based on the prompt evaluation of immense measured values. Measuring is focused on the state of individual components. These data have to be analyzed almost in real-time according to specified algorithms to forecast the required maintenance from smallest changes of the measured data.



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Security information

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions only form one element of such a concept. For more information about industrial security, please visit <https://www.siemens.com/industrialsecurity> .



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