



The Future and Chances of Maintenance

From Cost Center to Economic Value

Maintenance Today and Tomorrow

TODAY: inflexible, inconsistent, decentralized

The maintenance of technical plants is often regarded as a mere cost center without added value. However, nearly each organization also has to face the increasing requirements of the markets. Therefore it becomes necessary to detect previously untapped potentials of the own organization in order to be able to react with optimized workflows to the various challenges.

What has been done so far?

Nowadays, the domain of maintenance is often dominated by an unorganized “paper chaos” with an abundance of paper-based documents and forms. These individual, isolated solutions mostly go along with an IT-based “multi-tool strategy” using the most various software programs like e.g. Excel, Access, Outlook, etc.

Some organizations respond to such decentralized and inconsistent structures by integrating the planning and control of maintenance into an overarching ERP solution. Attempts like this, however, involve a tremendous effort as the maintenance has to be implemented into an existing, predetermined and thus “rigid” ERP infrastructure. Moreover, a later, demand-oriented adjustment of such solutions to new tasks is by no means easy and in most cases goes along with a high effort in time and cost.

TOMORROW: flexible, centralized, intelligent

The greater part of the costs of a business are allotted to maintenance and repair measures. Reason enough to manage plants more efficiently using a computerized maintenance management system (CMMS) and to streamline processes.



What does the future look like?

SI®/PAM is a CMMS system that can be applied across industries. It optimizes and lastingly improves a great number of workflows.

Benefits of SI®/PAM in the most various fields:

- Complete recording of the technical plant documentation
- Intelligent shift logs, for compliance with legal requirements (among other things)
- Standardized maintenance owing to central planning and organization
- Recording of validatable data for the key performance indicators
- Greater work safety e.g. in the context of isolations

Based on specific customer requirements, this brochure will illustrate in what a flexible and demand-oriented way SI®/PAM can be applied to these various, however interdependent levels of operation management and maintenance.

Central Storage of Asset Documents

“I need a system where I can store all plant documents relevant for maintenance and where I have the latest version quickly on hand at all times.”

The actual situation

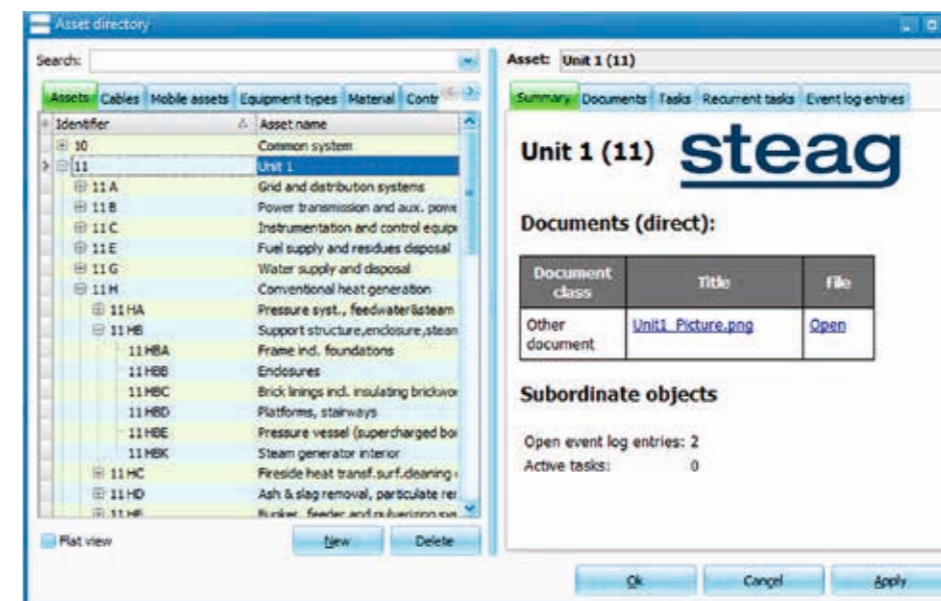
In many companies, important technical documents like e.g. plant data or technical drawings are either preserved paper-based or stored in digitized form on one or several PCs and on network drives, respectively. This type of “storage” prevents an efficient structuring right from the beginning. Saving documents locally will prevent authorized persons from retrieving them when necessary. Sometimes, data are not saved in the “storage” network drive in a structured way either, so that e.g. documents relevant to authorities have to be searched for first. In addition, with a procedure like this, the specific history of possible plant installations and retrofittings will not be discernible unambiguously, making it even harder to find up-to-date documentations.

What is to be achieved?

Important technical documents not only have to be available quickly and specifically at all times, but also have to be made accessible to all authorized persons when needed. The latest documents should always be ready. Also regarding the compliance with guidelines and requirements by the authorities, a central acquisition of the technical plant documentations must grant the possibility for classifications to receive an overview of all relevant documents.

The special features of SI®/PAM:

- Central database for storing documents
- Adding documents to each object
- Multiple linkage of documents
- Freely configurable document types with corresponding metadata
- Full text search via metadata and document content
- Linkage with documents outside of the CMMS system



Current documents available at any time in the module “Asset directory” of SI®/PAM

Documenting the Plant Operation

“I want to specify plant problems and their causes to be able to proactively take measures that verifiably increase the availability of the plants.”

The actual situation

In many companies, plant defects are only recorded rudimentarily if at all, and the events and circumstances leading to the problems are assessed highly individually. Therefore various, relevant causes of faults are either not considered in respective documentations at all or only to a limited extent, which makes them hard to track in retrospect. This results in unnecessarily long downtimes and a decreasing productivity due to poor plant availability.

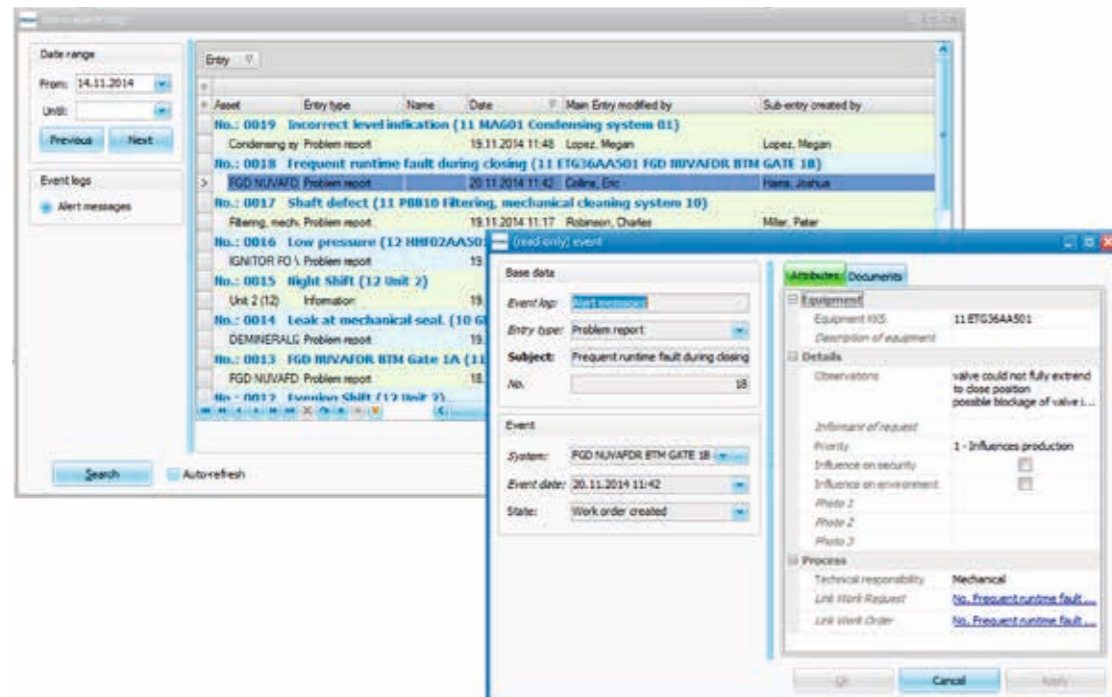
What is to be achieved?

A high plant availability and thus productivity can only be achieved if all relevant persons in a company are informed about the technical status of the plants at all times. This can only be achieved with a complete documentation of all important tasks and events concerning the technical operation of the plants.

Instead of a reactive recording of faults and problems, a proactive condition monitoring incl. logging is required for this, using historical data if necessary. If the causes of faults or recurrent problems can be specified more precisely, it is possible to react in a target-oriented way. Downtimes are thus reduced or even prevented, and the plant availability is increased lastingly.

The special features of SI®/PAM:

- Central input of unpredicted events and information that requires logging in an event log
- Use of the event log by various groups of persons
- Any number of message types per event log at will
- Flexible structure and freely definable data fields
- Safe and consistent documentation of the technical plant operation



Fault indications and the assessment of the fault provide a chance to improve the plant operation lastingly. Necessary precondition: the faults can be documented like in SI®/PAM.

Standardizing Maintenance

“At our company, Production consists of several departments, and each has its own maintenance. We want to standardize maintenance to be able to plan and execute all tasks and measures in this respect faster and thus more efficiently.”

The actual situation

In companies with the most various ranges of production, maintenance is often organized within the departments. Often the individual departments follow different maintenance strategies. Preferred however inadequate tools for this are e.g. spreadsheet programs, but also paper-based means like index cards or forms. Due to the different workflows in the individual departments, the staff members cannot be deployed flexibly for maintenance purposes when needed, e.g. during vacation periods. In addition, a non-uniform maintenance prevents the knowledge transfer across the production and thus the pooling of important know-how.

What is to be achieved?

The procedures of maintenance measures should only be standardized if it really makes sense. Here different approaches can be crucially supported by a consistent, flexible system. This kind of centralization allows to pool the know-how created across all the department and to achieve a

greater efficiency in the planning, control, and execution of maintenance measures. A comprehensive exchange of experiences allows for a predictive maintenance and a better use of the available human resources. In addition, a planned maintenance increases the plant availability, allows to involve other groups of people like e.g. operators of machinery as additional “influencing variables” in this context, and lastingly decreases costs.

The special features of SI®/PAM:

- More efficient, central, and thus simpler organization of procedures and processes
- Transparent representation of planned maintenance measures
- Step-by-step implementation of demand-oriented functions
- Faster and easier implementation of individual requirements
- Field-tested user guidance for fast, productive use



Proving the Economic Efficiency

“Our maintenance department is under constant cost pressure. Therefore I need a system that attests the economic efficiency of our efforts.”

The actual situation

The liberalization of the markets is leading to an increased cost pressure in companies. One of the areas most affected by this is maintenance. It is often regarded as a mere cost factor, not adding the slightest value. For this reason, maintenance staff increasingly have to prove which efforts and activities of their department contribute to the economic efficiency of the organization. The previous, more or less unstructured approach regarding the planning, control, execution, and first of all documentation of maintenance measures significantly impedes such proof. Hardly anything or nothing at all is invested in maintenance, which lastingly impedes the work of the respective departments.

What is to be achieved?

The complete recording of key performance indicators creates a verifiable data base that allows for specific and thus attestable statements on the significance of maintenance within a company. Here an intelligent system constitutes the crucial basis for providing management with regular reports on efficient maintenance measures in a timely manner. In addition, the system enables requirement-specific ad-hoc evaluations for answering topical questions. This way, the maintenance strategies can be adjusted to changing boundary conditions quickly and efficiently, which in many cases leads to a positive influence on the plant availability. Consequently, maintenance is no longer regarded as a mere cost center, but as an important contribution to the added value and thus to the overall economic success of an organization.

The special features of SI®/PAM:

- Central system for recording all key performance indicators
- Complete proof of the efficiency of all maintenance measures
- Reportings by mouse click according to previously defined criteria
- Ad-hoc evaluations on specific questions at any time
- Flexible system that can be adjusted quickly and in a requirement-oriented way
- Consistent document management



Increasing the Work Safety

“As an operator of technical plants, I am subject to the documentation requirements for work safety. Therefore I need a system that allows me to efficiently plan and document the relevant workflows and inspection cycles according to the legal requirements.”

The actual situation

The responsibility for work safety is more and more devolved to the operators of technical plants. Many companies, however, are still having problems to plan and execute their workflows and inspection cycles according to the legal requirements. Also, a corresponding documentation of work safety measures is mostly unorganized and fragmentary. Therefore the legal documentation requirements on the organization and implementation of work safety are often not fulfilled.

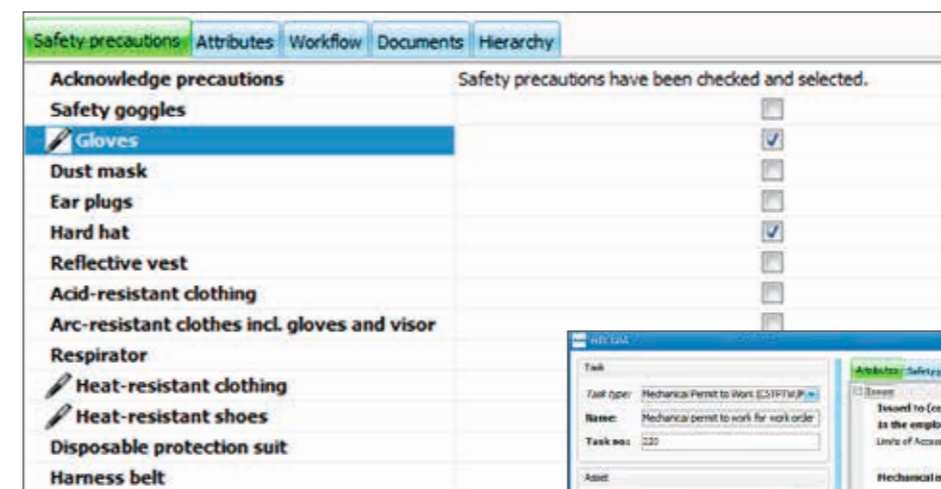
What is to be achieved?

To fulfill the above-mentioned requirements, it is not only necessary to improve the procedures for the planning and execution of work safety measures, but they also have to be documented according to the most various specifications (e.g. Employers' Liability Insurance Association, TÜV, etc.). A task with a very high responsibility is the isolation

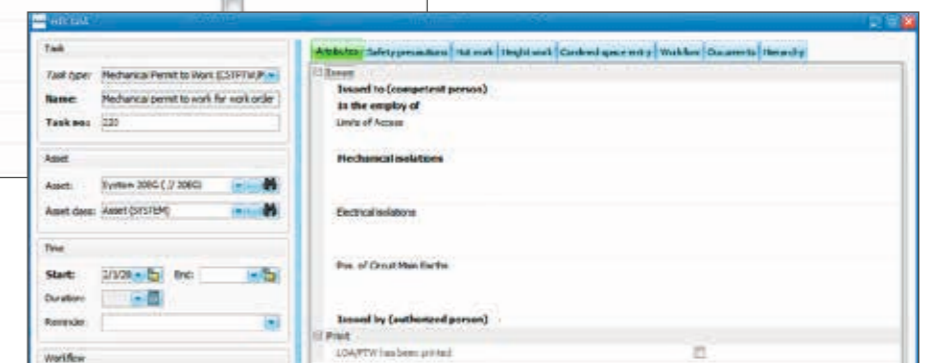
of plants and components. This process requires a safe procedure during an isolation and, in this context, also the unambiguous issuance of a permit to work. A safe isolation with an unambiguous identification of the point of isolation and coordinated workflows is not only intended to increase the work safety, but in addition also serves to protect the responsible persons.

The special features of SI®/PAM:

- Clearer planning and execution of workflows and inspection cycles
- Greater work safety by preventing switching errors
- Lower time effort by reducing transit times
- Complete documentation for fulfilling the documentation requirements
- Automatic generation of all documents vital for the documentation requirements



With SI®/PAM, isolations can be planned and executed. This increases the work safety and creates a complete documentation.



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