

Q3-DMMS

Danieli Maintenance Management System: maintenance effectiveness for metals industry profitability

BENEFITS

- Less breakdowns due to preventive maintenance
- Optimized management of spare parts
- Optimized and reduced personnel
- Reduced maintenance costs
- Increased plant availability
- Increased productivity
- Improved product quality
- Increased safety standards
- On-line drawings, instructions and documentation
- ROI: 1 year

PROCESS

The Q3-DMMS is a computerized maintenance management system, specifically designed for the metals industry. It is installed on the Customer's premises to control the preventive maintenance activities (routine and daily maintenance), as well as emergency maintenance, spare parts management, specialist scheduling, outsourcing, planning, equipment costs and fault analysis. The system is interfaced with MES (Manufacturing Execution System) for sharing of the plant production calendar, and with Level 2 automation for synchronization of key equipment data (i.e. worked hours, number of cuts, tons produced, cycles, etc.) with the management of the maintenance work orders, giving the planners an overview of the activities that need to be done within a given timeframe.



The software contains the plant information organized in a hierarchical structure with the plant data (manuals, drawings, data sheets) linked to specific equipment, and the maintenance procedures to be launched together with the work orders of the maintenance program. The Q3-DMMS is fitted with a Business Intelligence tool, which plays an important role in analyzing plant performance together with the maintenance organization. Through a secure TeleService connection, customers receive constant support from Danieli for all their technical

assistance, training and software updating needs.

The Q3-DMMS is fully interfaced with Danieli's Condition Monitoring System (CMS). This system can also be interfaced with the Customer's ERP.

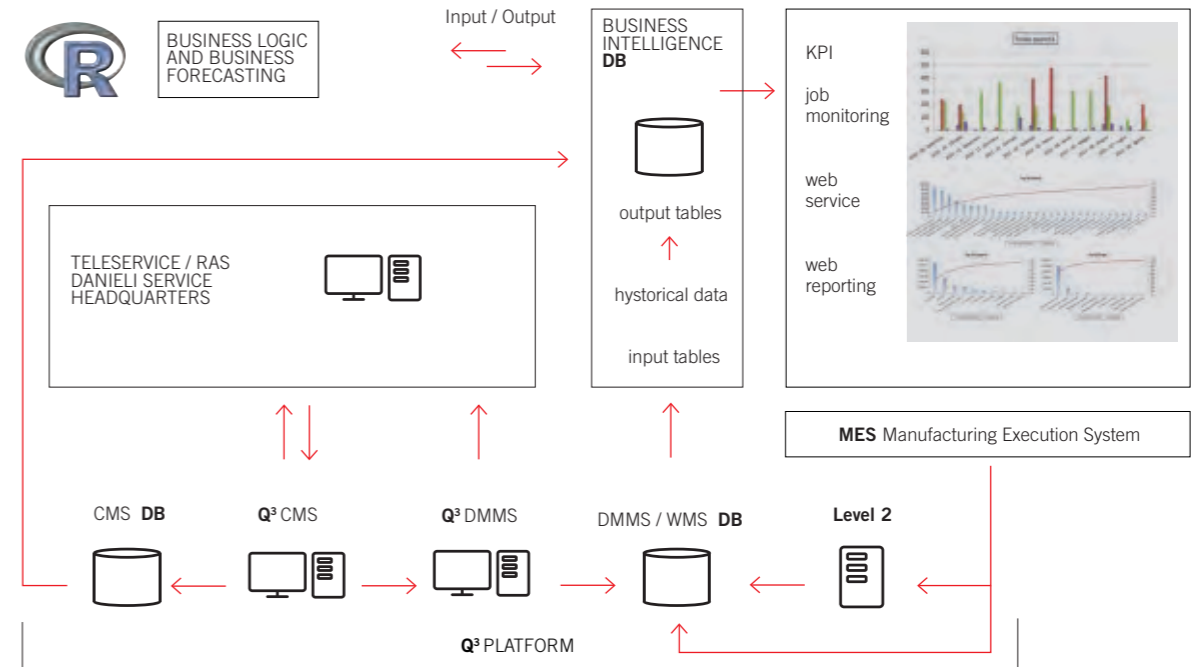
EQUIPMENT

Danieli develops a technical database of the customer's plant, designed to be uploaded into the Q3-DMMS software, which produces an effective and personalized maintenance tool able to manage, with total control, the customer's maintenance organization and procedures.

The main contents of this database are:

> Equipment structure

Each piece of equipment is codified according to both Customer and Danieli code systems and organized in a hierarchical structure with a father/son relationship, in order to maintain the traceability of all the maintenance activities that have taken place over time.

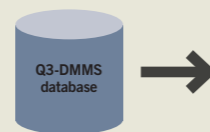




Maintenance database management tool

- > Plant overview control
- > Work order management
- > Users request
- > Fault analysis (symptom / effects / causes / solutions)
- > Maintenance planning (Gantt generation)
- > History of executed works and feedbacks
- > Warehouse spare parts management
- > Components service life
- > Customized reports

Enterprise Resource Planning (ERP) system to provide functionality for all of the maintenance processes.



Equipment structure, work planning and work order.

Easy and tailor made interfaces between Q3-DMMS and Customer's ERP systems for a complete activities control and analysis. Simple and fast access to all plant management modules, working with real-time response for on-line communication of all the key figures in a modern production organization.



> Technical information

The database contains Bills of Materials, spare parts lists, drawings, data sheets, maintenance manuals, and catalogues that refer to the equipment of both Danieli and its sub-suppliers. All the information is linked to the pertinent Equipment Structure position.

- > Team performance;
- > Consumption of spare parts and consumables;
- > Costs;
- > Equipment fault analysis;
- > Analysis of suppliers;
- > Component lifetime, etc.;
- > Forecasting of spare parts consumption;
- > Forecasting of "mean time between failures".

> Maintenance procedures

Contain all the maintenance activities (checks, inspections, lubrications) as standard job guidelines for mechanical, hydraulic and electric activities, with the necessary information: frequency, type of activity, duration, number of operations, tools, materials, spares, consumables, special tools, description of maintenance operations.

PERFORMANCE ACHIEVEMENTS

Our customers who have started using this new approach implementing the Q3-DMMS maintenance strategy are reporting considerably increased plant efficiency with a progressive reduction in breakdown instances and consequent drop in production losses. Thanks to the DMMS, plant availability and productivity rose significantly during the first year of use (even up to 1.5%), with return on investment also showing an improvement.

> Reports

Based on Business Intelligence technology, customized reports are prepared in strict cooperation with the maintenance manager during the on-site tuning of the DMMS, in order to generate documents containing the most suitable and useful information for personalized maintenance management, for example:

- > Analysis of hours worked by the equipment;
- > Mean time between failures;
- > Scheduled/unscheduled stoppages;

Reports

Resulting from the extensive experience acquired in many post-commissioning contracts awarded over the year, Danieli developed the Q3-DMMS as a complete tailored system, to satisfy customer requests and necessities. Customized reports:

- > personnel control;
- > consumption;
- > costs;
- > equipment fault analysis;
- > components' service life, etc;

are defined and created in strict cooperation with maintenance responsible during the on-site tuning of the Q3-DMMS.

