Q-DAS CAMERA® Concept:

Standardization Is the Key to Success!

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Why reinvent the wheel when you can access existing and well established standards? The Q-DAS® software products are standardized products that have grown continuously in the course of time due to our customers' requirements. Still today, the range of users becomes wider. All the flexibility and configuration options we offer today help us to adapt the respective application directly to the needs of our customers. The Q-DAS CAMERA® Concept is a kind of tool box leading to an efficient implementation of the products without requiring any individual software developments. This saves time and reduces implementation costs.

Standards in All Phases of the Implementation

You can obtain an additional benefit during the implementation of a performance measurement system evaluating the processes comprehensively. However, you need a certain degree of consistency in all phases of data flow and data processing. You may reach this consistency due to established standards. Individual programming, by contrast, is time-consuming, cost-intensive and will not be developed any further which makes upcoming updates and upgrades difficult to install.

The implementation of a performance measurement system must meet the requirements of small enterprises with a minor number of data sources to be connected and have to provide a comprehensive solution for mid-size businesses and conglomerates, too, enabling a complete integration, sometimes even across locations. True to the motto: Everybody gets what he needs in order to gain reliable statistics for an increase in efficiency!

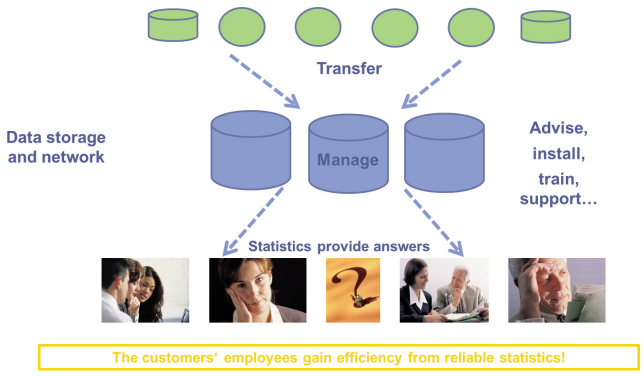


Figure 1: Customer requirements

Standards for Recording and (Real-time) Evaluation of Data

A company applies measuring and test instruments of different manufacturers in order to fulfill inspection requirements metrologically in an optimal way. However, each instrument possibly has its own format for transferring or storing results. Smaller portable measuring instruments might only transfer the measurement result but larger measuring devices often include an individual measuring program and thus transmit definition data including measurement results from the measuring program.

The Q-DAS® software products procella® and O-QIS support more than 150 measuring instruments and multiplexer boxes by default (RS232 serial interface or USB) and they thus have the ability to take over measurement results from instruments of various manufacturers virtually through "plug & play". If you need to connect a measuring instrument that has not been supported yet, we can integrate it after examination and include it in the standard range of supported interfaces. So the list of measuring instruments that can be integrated grows continuously due to the market requirements of our customers.

Larger measuring and test instruments and SPC systems including an individual measuring program transfer definition data in addition to the measurement result. Even these instruments and systems support the **Q-DAS® ASCII transfer format** which is an industry standard and widely used in the market. It allows for data transfer without difficulty. Integrated export options in the measuring software of different manufacturers guarantee prompt processing of the measurement results without requiring any extra conversion effort. Additionally, **AQDEF (Advanced Quality Data Exchange Format)** defined based on the Q-DAS® ASCII transfer format standardizes specified contents of data transmission for a comprehensive selection and analysis of data later on. The same applies to the transfer of process parameter values from PLCs for a comprehensive evaluation / assessment of processes.

In order to provide operators on site directly with relevant information about the process and to inform them about critical deviations, a task-oriented visualization and alarm monitoring of data in real-time is indispensable. Independent of the connected data source, the display of results shall be based on a standardized layout and the alarm messages shall comply with uniform rules for SPC monitoring. Nothing is more confusing for an operator than applying different software products of various manufacturers to each measuring task, since each software product normally has its own graphical user interface and calculation of SPC criteria. However,

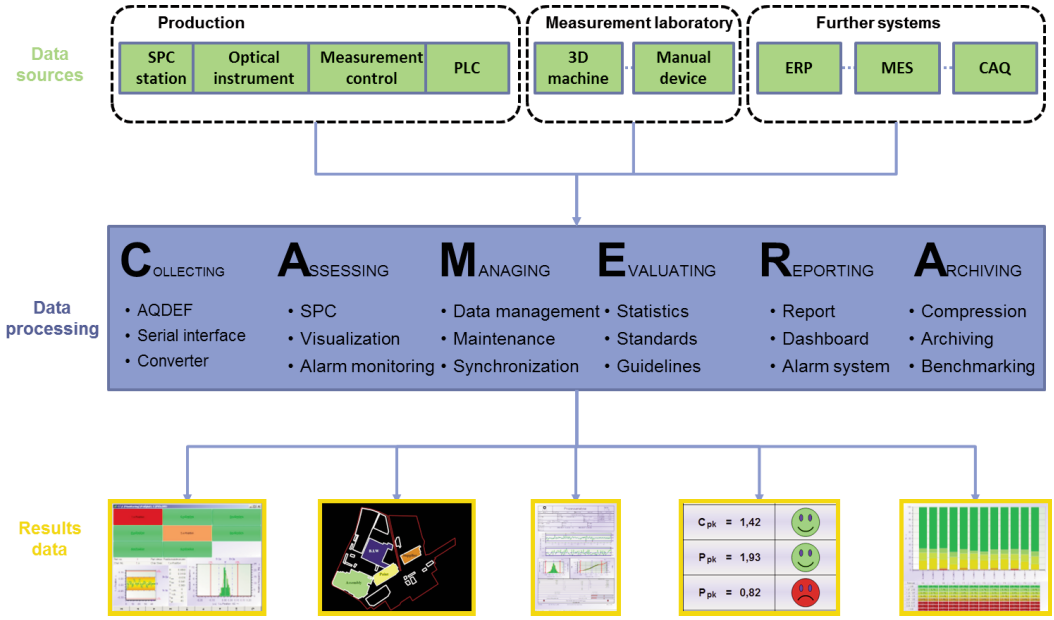


Figure 2: Q-DAS CAMERA® Concept – Standardized tools for monitoring / evaluating processes

the Q-DAS CAMERA® Concept offers procella® and Q-QIS, two products that do not depend on any manufacturer and whose flexibility avoids exactly this problem.

Uniform Data Storage

Merging locally recorded data in a central data pool and providing these data immediately to the respective users in the company plays a central role when implementing a performance measurement system. Being informed about critical deviations too late might affect the production process seriously. An important aspect is that the data pool contains all relevant data. You must not store information in different databases or in different formats. Tools and database functions of the Q-DAS CAMERA® Concept guarantee that all relevant information is available in a central data pool immediately. You store data in standard databases (MS-SQL, Oracle, i.e. no manufacturer-specific data storage) that most companies already apply and the respective customer's IT department administers. This approach does not produce any additional hardware costs since you only need available database servers. You just have to provide for additional data memory requirements that you may forecast for the implementation of a performance measurement system through calculations based on experience. This fact provides planning reliability!

Standardized Evaluation and Reporting System

The option to evaluate and assess data automatically in accordance with certain specifications (standards, corporate and association guidelines) provides the basis for the application of a performance measurement system and the reproducibility of results. A validated evaluation creates confidence and acceptance (internally and externally) and forms the basis of each performance measurement system. Nothing is more annoying than the dubiousness of calculated statistics! The most important feature of the Q-DAS CAMERA® Concept is the evaluation strategy. You may define statistical calculations and specifications specific to each customer or access already integrated standards. So the evaluation strategy offers a safe basis for your decisions.

A clear, task-oriented and user-specific graphical display of results is essential when communicating results in the performance measurement system. Mere columns of figures might represent the same contents, indeed, but they are inappropriate for users. Most users tend to overlook critical information quickly in a tangle of information. By contrast, clearly structured layouts for result reports make it easy to find information about the desired statistic quickly and show changes over time explicitly. Depending on the recipient of the report, you may change the level of detail for each report within the scope of the Q-DAS CAMERA® Concept. You can even make evaluations and create or send reports automatically at a particular time which is very comfortable and saves a lot of time. These automatisms always inform the user about relevant information automatically.

Implementation of a Performance Measurement System

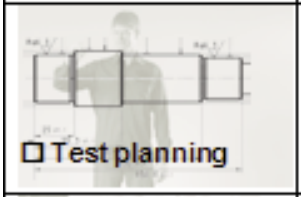
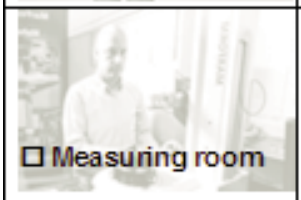
Standardized software products, standardized interfaces and uniform implementation procedures of well experiences Q-DAS employees reduce the effort to implement a performance measurement system. This ensures that the introduction based on the Q-DAS CAMERA Concept is realized within an acceptable period of time and remains within a reasonable budget.

The following questionnaire helps to prepare the implementation of a performance measurement system by clarifying many important aspects in order to plan the implementation efficiently.

Q - D A S®

Preparation
Q-DAS CAMERA Concept

Contact details:					
Company				Location	
Name		Function		E-mail	

Scope:			
Our field of application is:	Our applications are:	We need:	Our requirements are:
 ☐ Test planning	☐ Creation of test plans ☐ Transfer of data from SAP ☐ Transfer of data from CAQ ☐ Integration of CAD drawing ☐ Interface to third-party system: _____	Number of users ____ Number of work stations ____ Number of test plans ____	
 ☐ Measuring room	☐ Real-time visualization of measurements ☐ Connection of manual measuring equipment ☐ Connection of measuring machines ☐ Recording of DMC ☐ Incoming goods inspection ☐ _____	Number of work stations for recording data or visualization ____	
 ☐ Manufacturing/ production	☐ Real-time visualization of measurements ☐ Recording of product characteristics ☐ 100% Inspections ☐ SG Inspections ☐ Variable ☐ Attribute characteristics ☐ Recording of process characteristics ☐ 100% Inspections ☐ SG Inspections ☐ Variable ☐ Attribute characteristics ☐ Recording of DMC	Number of work stations for recording data or visualization ____	
 ☐ Assembly	☐ Real-time visualization of measurements ☐ Recording of product characteristics ☐ 100% Inspections ☐ SG Inspections ☐ Variable ☐ Attribute characteristics ☐ Recording of process characteristics ☐ 100% Inspections ☐ SG Inspections ☐ Variable ☐ Attribute characteristics ☐ Recording of DMC	Number of work stations for recording data or visualization ____	
 ☐ Data storage	☐ Oracle DB server ☐ MS SQL DB server ☐ Other: _____	Data volume per year ____ Number of values per year ____ Retention period ____	
 ☐ QM/QA	☐ Manual evaluations ☐ Automated reporting ☐ Dashboard/web solutions	Number of users ____ Number of work stations ____	

Data sources:			
Type:	Interface:	Amount:	Particularities:
☐ Manual measuring equipment	☐ RS232 ☐ USB ☐ Other	Number of devices ____	
☐ Multiplexers	☐ RS232 ☐ USB ☐ Other	Number of devices ____	
☐ 3-CMM	☐ AQDEF ☐ CSV;TXT ☐ Other	Number of devices ____	
☐ PLC	☐ AQDEF ☐ CSV;TXT ☐ Other	Number of devices ____	

Figure 3: Questionnaire for preparing the Q-DAS CAMERA Concept