SIEMENS
Ingenuity for life

Siemens Digital Industries Software

# Facilitating quality management with Opcenter Quality

## Quality control for productivity advantage

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**When our customers manufacture products with the desired quality and at the highest level of productivity, we refer to this as their productivity advantage.**

# Gaining a productivity advantage

Siemens has integrated the experience gained from decades of process consulting and more than 4,500 software installations in its Opcenter Quality solutions.

As a well-established business partner of manufacturing companies across the globe, our goal is to help make industrial companies more successful. When our customers manufacture products with the desired quality and at the highest level of productivity, we refer to this as their productivity advantage.

**The productivity advantage**

- Valuable process optimization
- Significant cost reduction
- Intuitive quality control

*"Using our quality management model, many companies have already recognized that complaint management is a profitable success factor with immediate effect. This potential is tapped with the complete support provided by an integrated quality management software."*

*Dr. Robert Schmitt*
*Professor and Chair of Metrology and Quality Management*
*RWTH University Aachen*

*"An integrated quality management system, reinforced by a cross-company software solution, is indispensable in the planning, control and monitoring of process and corporate quality, especially among global enterprises. Individual, standalone solutions can be replaced with a single homogeneous system."*

*Dr. Roland Jochem*
*Professor and Head, Quality Science Department*
*Berlin Technical University*

*"Uncompromised quality can only be produced if all areas of our organization – the corporate organism – focuses on quality with every bone in their bodies."*

*Dr. Bert Leyendecker*
*Professor of Production Management*
*Koblenz University of Applied Sciences*

# Managing complexities

### Improving quality, securing margins

Product quality governs the success of manufacturing companies. Efficient quality management leads to a sustainable reduction in costs and facilitates the development of quality products with a high degree of customer satisfaction.

The Opcenter Quality comprehensive quality management software from Siemens Digital Industries Software allows you to manage the complexities and fulfill the highest quality requirements.

### Quality management benchmark for larger companies

We have developed standardized software, which we have continuously improved based on the knowledge obtained from more than 4,500 projects. Opcenter Quality software helps you achieve the desired quality in your product manufacturing process.

### Quality management for smaller companies

Siemens Digital Industries Software is well aware of the special quality management system requirements of smaller and medium-sized companies. Our products also offer smaller production companies the opportunity to transform product excellence into world class quality.

### Quality management for laboratories

In the material processing industry the quality assurance, administration, organization and documentation of laboratory specific processes are all efficiently supported by quality process management (QPM) solutions from Siemens Digital Industries Software. The system provides optimal support for good manufacturing practice (GMP) and good laboratory practice (GLP) guidelines and International Organization for Standardization (ISO) IATF 16949:2016, German Institute for Standardization - European standard (DIN EN) ISO 9001:2015.

# Productivity management

Siemens Digital Industries Software offers a proven cross-industry productivity management solution. The software provides production, quality and traceability management tools to support the optimization of your product lifecycle processes.

Our products facilitate transparency into production processes and enterprise resource planning (ERP) to enable prompt intervention in the event of target deviations. Our solutions are often used with existing ERP systems and represent an integral component in the support of risk management, providing real time information on your company's production and quality situation.

Embracing lean management principles, our solutions enable complete transparency and process optimization. The compliance management software allows you to control corporate administration and production processes, as well as processes involved in compliance with practices, laws and guidelines.

**Benefits**

- Reduction of process times
- Reduction of quality and defect costs
- Key performance indicator (KPI) management and transparency
- Lean management methodology support
- Corporate compliance support
- Vulnerabilities analysis, best practices, implementation in existing information technology (IT) environment and employee training

Siemens Digital Industries Software offers a proven cross-industry productivity management solution.

# Continuous improvement process

The plan-do-check-act (PDCA) cycle describes the phases of the continuous improvement process and forms the basis of all quality management systems. The cycle is designed to promote a consistent and sustainable improvement of production processes.

**Plan** involves analysis of the actual status, the development of potential improvements and the compilation of conceptual realization.

**Do** embodies the practical realization of the concept.

**Check** generates reports and checks results of the test run and sets the standard.

**Act** involves wide-scale implementation of the new standard and regular monitoring through audits.

**Industry-specific standards**
Siemens Digital Industries Software has channeled industry-specific requirements into its industry solutions. This enables us to offer you a unique range and depth of functions within the scope of a single software solution. Individual project requirements are integrated to save resources. Experienced experts offer first-class process consulting for complex challenges and ensure that the system integration is carried out according to your plan.

# Eliminating resource waste

Many production companies are aware of resource waste that occurs in their production facilities. The source of this waste, however, is often unclear. To save costs and enable sustainable competitive improvements, a firm must identify all information relevant to the production process.

The Opcenter Quality solutions support continuous improvement of the production process. Our Opcenter (MOM) solution provides full use of machine capacities and resources as well as control of variants. It also enables reduction in inventories, lower rework costs, optimization of product development, system integration and product-in-use processes. In addition, the solution provides you with complete traceability of products, components and batches.

With our manufacturing operations management solution, you are likely to realize shorter production times, improved quality and lower costs. Machine and plant transparency enable faster reactions and support decision making. The Manufacturing Execution Systems Association (MESA) estimates the use of manufacturing execution system (MES) software to help companies achieve a 56 percent reduction in cycle times. Furthermore, half of all quality costs, which account for 5 to 8 percent of corporate turnover, can be attributed to suboptimal quality control, poor quality management and the lack of prevention measures.

# Employ a single, fully integrated solution

Many of the top 100 automotive companies rely on the Siemens Digital Industries Software solutions, a single, reliable and fully-integrated set of solutions that addresses production, quality, traceability and compliance. Integrated client capability and multi-language options mean that our solutions are well suited to global applications. Integration with your existing ERP environment as well as production-related integration are just two of our key competencies. Our intuitive solutions are scalable and can be expanded to meet your requirements while simultaneously reducing your process times. We provide an integrated tool for standardized reporting and the ad hoc analysis of current issues.

**Benefits**

- Return on investment (ROI) in considerably less than a year
- System standardization and homogenization
- Reduction of manual activities and paper documentation
- Centralized data basis
- Standardized reporting
- KPI visualization for better decision processes
- Reduction of defect and quality costs
- Shorter process times
- Complete transparency
- High degree of investment security
- Integrated system aimed at achieving zero-defect production

# Realizing a fast return on your investment

With the Opcenter Quality solutions, most companies realize an ROI within the first year of implementation. The ROI period is dependent upon how quickly you implement the productivity measures. Maximum benefits for your company can be achieved following an immediate project launch. Market and customer requirements, such as the need for traceability as a proof method, can be attained in a short period of time and can help secure follow-up orders.

### Industry-specific areas of application

- Automotive (OEM, tiers, tire manufacturers)
- Heavy equipment and special machinery
- Electronics
- Semiconductors
- Aerospace and defense
- Medical devices
- Energy

*“QMS software helps us improve process transparency, enabling further growth.”*

*Juergen Stuhlmueller*
*Head of Quality Assurance*
*Liebherr-Components Biberach GmbH*

*“QMS improves process transparency and is an integral part of the continuous improvement process.”*

*Imet Leshko*
*Quality Management*
*Schlote GmbH & Co. KG*

*“The introduction of QMS has enabled us to increase the transparency of quality management at Georg Fischer. Following implementation of the individual modules and monitoring of the corrective actions put in place, we saw an increase in customer satisfaction.”*

*Michael Edbauer*
*Head of Quality Management and Logistics*
*Georg Fischer Automotive*

*“Opcenter Quality supports direct and close collaboration between quality managers in different business fields and/or plants to help tear down the sometimes thick walls between their worlds.”*

*Harald Deutsch*
*Quality Manager*
*Miba*

# Introducing quality management

The quality of products and processes throughout the product lifecycle is a prerequisite for achieving company goals. Quality largely determines the competitiveness of all manufacturers, and high quality standards require integration of quality processes in all manufacturing companies.

Opcenter Quality supports product ideation, realization and utilization.

### Research and development, construction and work scheduling

The basis for high product and process quality is established in areas of research and development, construction and work scheduling. Opcenter Quality helps support these processes with:

- Advanced product quality planning (APQP)/project management
- Failure mode and effects analysis (FMEA)
- Control plan
- Process flow chart
- Inspection planning
- Product part approval process (PPAP)

Interfacing with product data management (PDM) and ERP systems provides consistency of master data. Interfacing with all commercial computer-aided design (CAD) programs helps you efficiently execute inspection planning, including first sample inspection (FSI) and first article inspection (FAI) processes.

### Procurement, manufacturing and assembly processes

Product manufacturing has always been a classic field of application for computer-aided quality (CAQ) systems. Executing incoming goods control with Opcenter Quality based on random samples and dynamic tables is an important aspect of that. The supplier assessment tool incorporates processes for determining product and/or quality delivery and the evaluation of delivery reliability. Subjective criteria, such as price-performance ratios or supplier reaction times can also be considered.

Inspections carried out within product manufacturing are documented in the Statistical Process Control (SPC) inspection module. This module can handle inspections carried out during product development, such as maturity level analyses, as well as inspections monitored within the scope of SPC.

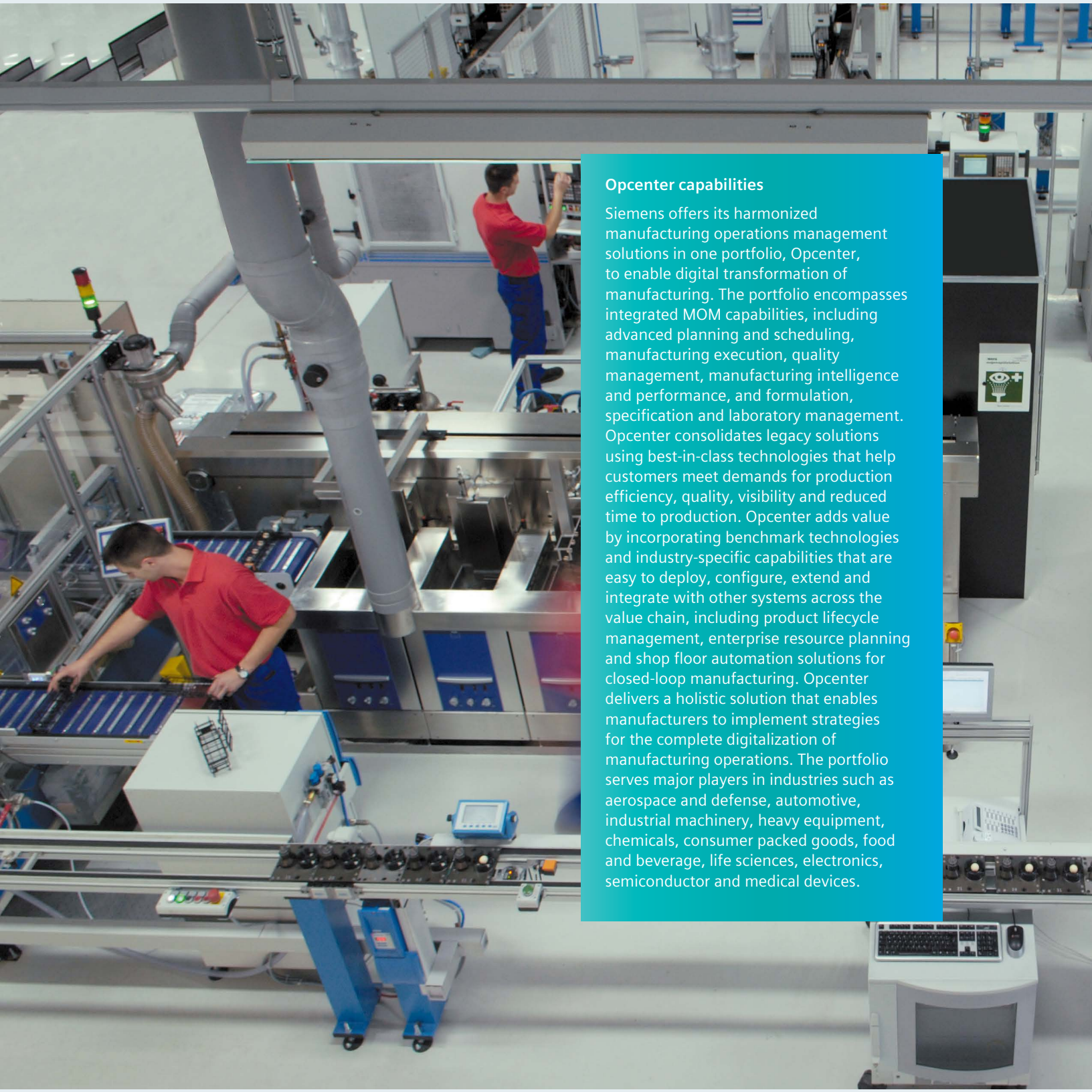
The Gage Management module is a multi-phase solution that can help you implement gage calibration and administration processes. Gages are required for planning and executing inspections and, therefore, are subject to traceability documentation.

### Final inspection, service and sales

By using Opcenter Quality, you will have optimum support for all processes, from the creation of customer-specific inspection reports with individual characteristics from various manufacturing processes to documentation of the final inspection.

The use of the Concern and Complaint Management (CCM) module enables your complaint acquisition, analysis and evaluation processes. The timely handling of complaints is of particular importance in the automotive industry. The automatic portal request – supporting German Automotive Association (VDA)/quality data exchange (QDX) standard format – plays an important role. The resulting evaluations and vulnerability analyses are of great significance to the further development of products and processes.

Opcenter Quality supports product ideation, realization and utilization.



**Opcenter capabilities**

Siemens offers its harmonized manufacturing operations management solutions in one portfolio, Opcenter, to enable digital transformation of manufacturing. The portfolio encompasses integrated MOM capabilities, including advanced planning and scheduling, manufacturing execution, quality management, manufacturing intelligence and performance, and formulation, specification and laboratory management. Opcenter consolidates legacy solutions using best-in-class technologies that help customers meet demands for production efficiency, quality, visibility and reduced time to production. Opcenter adds value by incorporating benchmark technologies and industry-specific capabilities that are easy to deploy, configure, extend and integrate with other systems across the value chain, including product lifecycle management, enterprise resource planning and shop floor automation solutions for closed-loop manufacturing. Opcenter delivers a holistic solution that enables manufacturers to implement strategies for the complete digitalization of manufacturing operations. The portfolio serves major players in industries such as aerospace and defense, automotive, industrial machinery, heavy equipment, chemicals, consumer packed goods, food and beverage, life sciences, electronics, semiconductor and medical devices.

Significant process optimization is carried out in the product planning, development and construction phases.

# The product lifecycle

### Product optimization

Significant process optimization is carried out in the product planning, development and construction phases.

APQP planning includes: planning; product design and development; process design and development; product and process validation; series production phases; and, in feedback, assessments and corrective measures. With consistent use, development processes can be accelerated and teamwork optimized.

### Product realization

A perfectly planned product requires procurement and production processes in order to achieve the desired quality. Suppliers must be monitored to confirm adherence to supplier agreements. Process optimization in the production process means production preparation and production support, an integral part of product manufacturing.

Key performance indicators are used to evaluate the processes including parts per million (PPM) rates, process capability (Cpk) values and defect Pareto analyses. The track and trace of all quality data helps validate the complete documentation of your product's quality history.

### Product utilization

A further phase of the lifecycle begins with the delivery of a product. From a quality point of view, product-in-use support is mainly carried out within the scope of customer management and includes consulting for effective product application and customer support in the event of quality problems.

The exchange of information between customers and suppliers is a major source of input in the product design process. The optimization and improvement of product and process quality are supported by current and future developments in terms of lessons learned.

Today's use of quality-based systems is increasingly shifting over to the product design phase. Practical experience has shown that, in the future, CAQ systems will mainly be seen in the areas of product planning, product development and product construction.

IATF 16949 and VDA/AIAG requirements prescribe the use of a QMS system in the product development phase for the full documentation and analysis of all relevant quality data.

# Project management

Siemens Digital Industries Software project management solutions help you support the complete product development process across all areas of the company, including research and development, construction and work preparation.

The project management maps allow you to consider both the customer and supplier as well as administer complex projects for new developments and change projects. Templates help reduce the administration effort; and all phases of project results are detailed in a Gantt diagram.

The core focus of the solution is action management, which gives you tools to help meet deadlines and due dates, recognize possible project delays and provide avoidance options. The project management is linked to advanced product online quality planning, which allows you to keep all data current. The project management solution also features cost control capabilities that provide you with target and actual comparisons.

### Benefits

- Efficient visualization of all phases of the quality planning processes
- Effective project control for cost optimization and resource management
- Consistent monitoring of project actions
- Increased project transparency
- Greater adherence to customer deadlines and schedules
- Avoidance of multiple inputs
- Optimization of advanced product quality planning and continuous documentation of relevant quality data

# Advanced product quality planning with FMEA

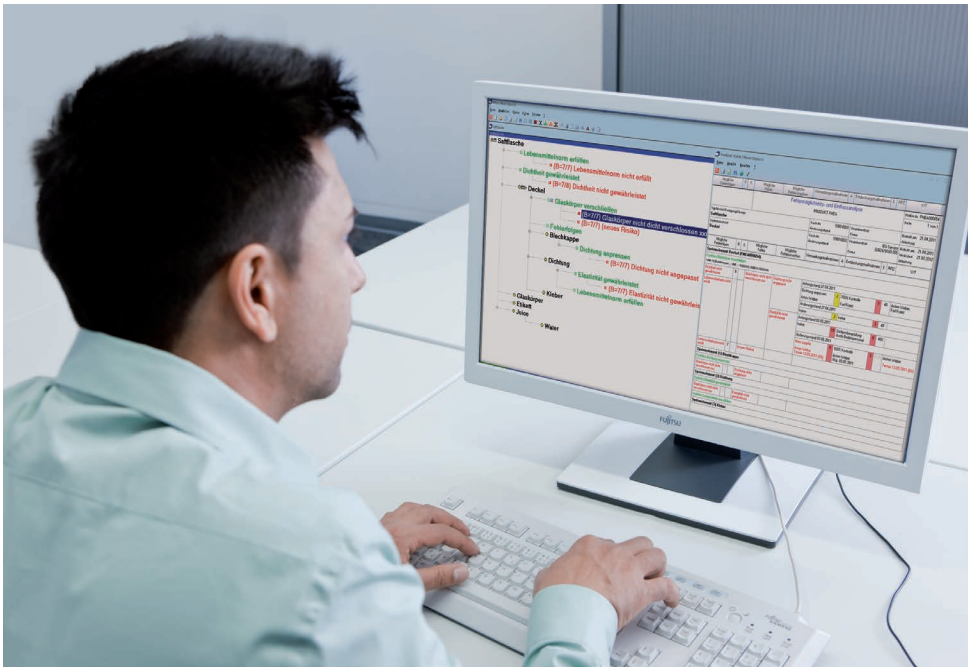
The Failure Mode and Effects Analysis (FMEA) module is used for the creation of various types of FMEAs (system/product/process) using a systematic procedure for development, assembly and process engineering.

Combining the product and process FMEAs into a hybrid allows you to allocate project characteristics, even at an early stage, to monitor functions in terms of compliance. At the same time, this process forms the basis for the automatic acceptance and generation of a control plan for the creation of a process flow chart.

The Opcenter Quality solution helps you define system elements, functions and failures. You can create links for the verification of failure consequences and causes and to induce corrective actions. The solution also provides you with a graphical visualization function, risk analysis and a comprehensive range of evaluations.

## Benefits

- Adherence to a standardized nomenclature in accordance with VDA/AIAG FMEA harmonization
- Basis for efficient formatting of the control plan and process flow chart
- Access to common master data
- Integrated actions management
- Feedback from the product-in-use phase (complaint/service)



# Advanced product quality planning

The control plan describes the product and process quality from raw materials and necessary process steps to dispatch. Documentation, including reliable revision information, stays in parallel with development progress through all stages of the process.

With the FMEA structure and process flow chart you can provide input for creating an automatic control plan. Furthermore, you can also create a control plan by importing data from a series of inspection plans.

Using an export function, you can generate individual inspection plans for defined elements of the series: for example, incoming goods, preproduction, assembly and final inspection. Integrated workflows help you verify the necessary consistency in the event of changes.

Working with master data and the link with gage management gives you a high degree of standardization. Consequently, processes can be streamlined for efficiency and optimum support is provided for your shop floor employees.

### Benefits

- Efficient creation of the control plan using import and export functions
- Optional automatic extrapolation of a process flow chart
- Integrated change management in APQP supported by integrated work flows
- Optimization of required processes for creation and maintenance
- Working with standards as a prerequisite for lean management/lean manufacturing

# First sample inspection


In using the First Sample Inspection module, you can define product and process relevant inspection criteria to map inspections for the following areas:

- First sampling/first piece release
- Purchase parts/raw materials
- Production/assembly
- Laboratory
- Final inspection/quantity based, random inspections

System integration is an important aspect in helping you safeguard the change management process. The master data also constitutes a central basis for inspection planning.

The creation of inspection plans is conveniently supported with group and/or family inspection plans.

Using the graphical inspection planning functionality allows you to visualize mechanical industry drawings as well as map printed circuit board layouts for the electronics industry. Interfaces with commercial CAD programs provide tools for the graphical execution of inspection planning and first article inspection processes.

The work schedule or working step/operation-oriented inspection plans form the basis of automatic data generation from ERP orders, such as material bookings or production orders.

### Benefits

- Processing of all inspection-relevant information
- Avoidance of duplicate activities and defects with a reliable data transfer from drawings to evaluations
- Rationalized/unified inspection strategies and operating procedures

# APQR: Advanced Planning Quality Radar

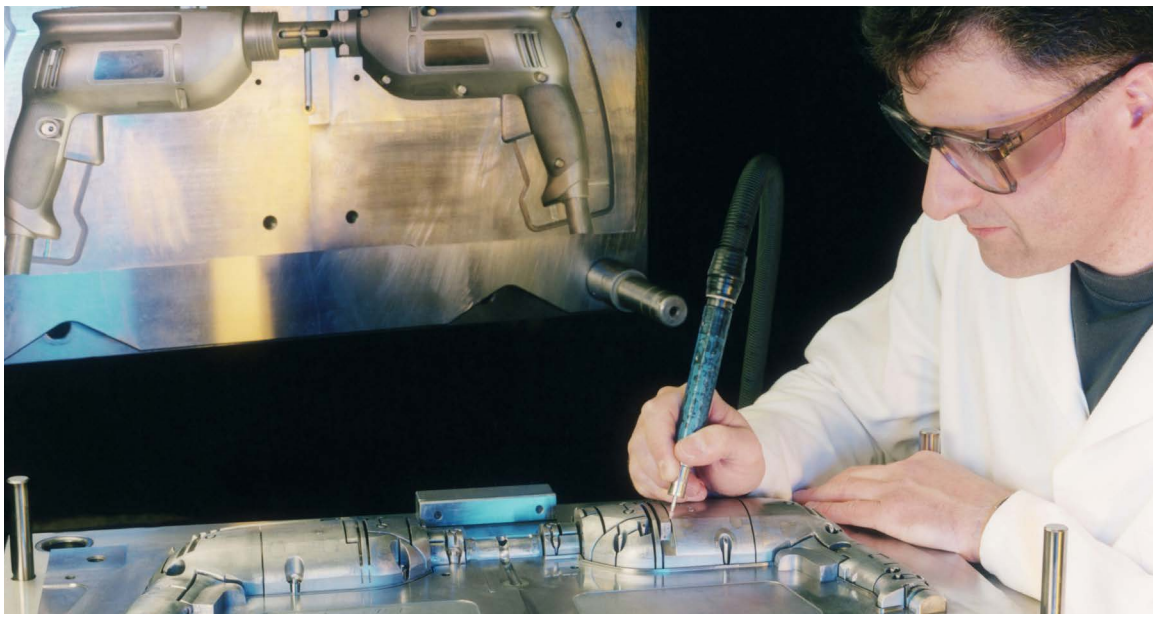
Advanced Product Quality Planning (APQP) is a group of procedures and techniques adopted for the engineering and developing of a new product. This methodology, recognized as best practice, is especially used in the Automotive Industry. All manufactures and their suppliers (especially Tiers-1) must provide a clear evidence of a structured quality planning for product and process, and this is also required from the ISO 9001 and IATF 16949 standards. It is important to build a quality plan to deliver a robust product and to satisfy customer's needs.

Opcenter Quality along with the Quality Radar offers the "best in class" solution for a continuous quality planning. The Quality Radar functionality supports at a central point the preview and handling of all quality-relevant items regarding different parts of a product. It includes FMEA, control plans, and inspection plans with the characteristics and drawings.

**Benefits**

- Overview of all relevant quality information of a product or a project
- Central distribution knot for characteristics along the product life cycle to manage different quality objects in an easy way
- Usage of engineering data for the central creation of FMEA, Control plan, Flow Chart and Inspection Plans
- A simple way to handle engineering changes without rewriting the quality documents by providing a clear overview of the status of quality document.
- Continuous change management process along the whole PDCA Cycle plus collaboration with Engineering Departments

# Gage management



The gage management system provides tools for managing your gage types (such as mechanical, electrical, test rigs and gages) and for documenting all procedures involved in the gage history (including gage calibration, issue/return and repair).

Gage selection is a vital requirement in achieving standardized documentation of relevant quality product and process data. You can create individual reports in the variable list (inventory, status or inspection prompt, reminder lists) that help you identify and monitor deadlines for each gage.

The Opcenter Quality solution allows you to base your inspection planning on the Association of Professional Engineers (VDI)/Association for Electrical and Electronics (VDE)/German Society for Quality (DGQ) standard 2618. You can document results using variable and attribute characteristics or by adding the scanned calibration protocol to the history. This functionality is enhanced with gage capability evaluations (precision, reproducibility, linearity).

Gage management characteristics include:

- Gage administration with respective German Institute for Standardization (DIN) standards and automatic tolerance determination for rejects and accepts
- Calibration evaluation in tabular and graphical formats

### Benefits

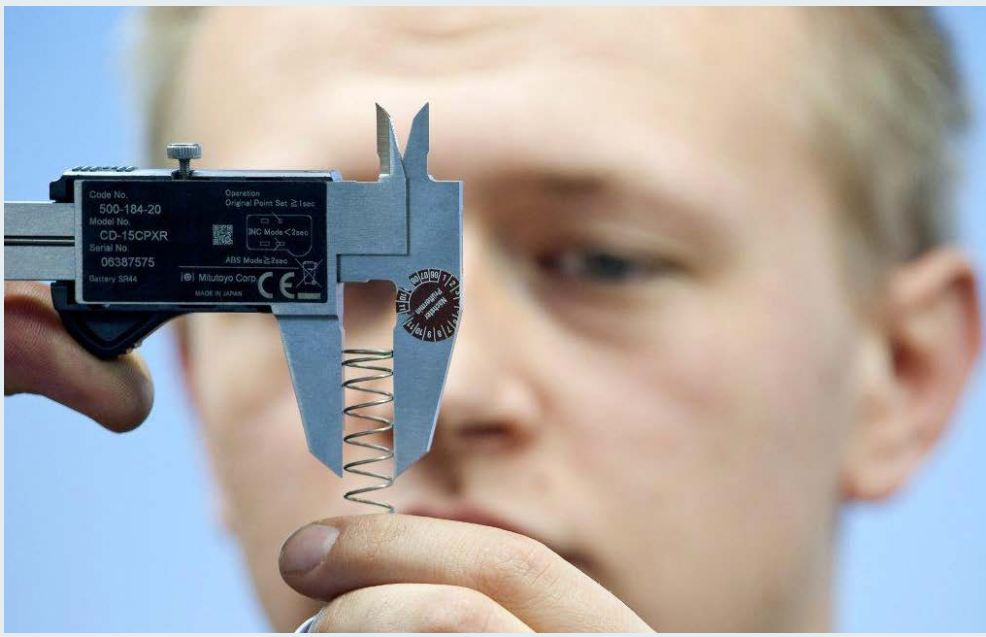
- Administration and monitoring of gages
- Gage management for occupational health, safety and environmental protection
- Support of advanced product quality planning
- Automatic escalation support at multiple gage levels

# Graphical inspection

The Opcenter Quality solutions provide tools to help you support the creation of customer-specific requirements in accordance with the VDA and quality standard IATF 16949/AIAG. You can also administer reports and other documentation managed by the solution in accordance with the respective presentation stage.

Graphical inspection planning is often used for automatic stamping in customer sampling. Following the execution of the measurement (either by the measuring device or other gage), you can input or transfer values.

In the event of supplier sampling, you have the option to digitally share the first sample inspection plan with your supplier. After its return, you can import the updated values to the Opcenter Quality solutions to analyze and document the results. You can also administer required resampling as well as monitor deadlines.




### Benefits

- Standardized documentation and administration of first samples
- Support of first sample templates in accordance with standards and customer specifications
- Efficient first sampling execution with an integrated CAD interface with automatic drawing stamping
- Integrated, automatic polling of links between incoming goods and suppliers' specifications

# Product manufacturing

## Incoming goods inspection

Incoming goods inspections improve quality, especially when problems arise as a result of internal or external defects. The incoming goods inspection supports:

- Acquisition of the characteristic set to a particular inspection status and alignment with the inspection plan defaults
- Delivery evaluation with quantity acquisition

Delivery, characteristic or time related dynamics and the automatic generation of supplier complaints in not okay (NOK) quality management cases help reduce inspection costs. Features for creating supplier inspection reports and label printing for identification of blocked or barred goods are also available.

Using a portal, a supplier can process inspections as online 8D reports that provide the latest available evaluations (such as the inspection of recurrent defects) while simultaneously monitoring the actions initiated by the supplier.

## Benefits

- Comprehensive integration in the ERP system for generation of inspection orders
- Feedback on usage and decisions with subsequent warehouse entry
- Link between delivery and released first article parts
- Management of special releases and design/dimensional deviations
- Supplier agreements (just-in-time/just-in-sequence/ship-to-stock) for reduction of inspection costs
- Online communication with suppliers on delivery complaints, saving costs and time and helping to prevent defects

# Supplier management

By using the Inspection of Incoming/Outgoing Goods module, you can determine the quality criteria of a delivery. The transmission of reliability data from the ERP/PPC system allows you to transfer further supplier assessment criteria. Using defined rules, you can automatically detect deadline and quantity deviations with target and actual data.

These criteria form the basis for your supplier management and are updated with every delivery. Supplier-specific, subjective criteria (such as location, price-performance ration, complaint reactions, user-definable criteria) can be defined and assessed over a defined period of time with the assessment matrix. Supplier audit results are also documented since audit management offers online and offline acquisition. All information is visualized using scorecards.

Scorecards can be sent to the supplier by email or automatically made available via the supplier portal. The supplier project management tool helps you effectively support the latest theme of supplier qualification and maintain centralized storage of all related documentation.


### Benefits

- KPI determination, including extrapolation of required actions
- Transparent presentation of all information to suppliers
- Assessment of product quality, delivery reliability and assessment matrix for subjective criteria
- Effective support with supplier qualification and development

# Statistical process control

By using the Statistical Process Control (SPC) module, you can document relevant inspections carried out within the product manufacturing process, including inspections during product development (such as maturity level analyses) as well as reviews monitored within the scope of SPC. The inspection results acquisition includes:

- Automatic generation of inspection orders for the acquisition of results for prototypes (also maturity level analyses), prior to, and in, serial production (process capability, machine capability)
- Simple, individually configurable acquisition masks
- Control of inspection based on Cpk values
- Alternative acquisition via mobile data acquisition devices (handhelds)
- Graphical acquisition with characteristic-related zoom sections of CAD drawings or photos/pictures for visual inspections
- Inspection monitoring with control charts for variable and attributive characteristics and defect collection cards
- Documentation of process violations (actions, causes) as a basis for internal defect handling or complaint management
- Automatic generation of internal complaints

### Benefits

- Inspection results acquisition for prototypes, pre-series and series
- Operator-friendly due to individual configuration options
- Various evaluations for vulnerability analyses
- Optimization of inspection cycles for the reduction of inspection and defect costs

# Quality process management

The  Quality Process Management (QPM) module can be used by manufacturing companies for raw material checks, production or interim reviews and final inspections. QPM is a laboratory information management system (LIMS) that enables you to manage inspections in research and development, applications technology, competitive analyses, environmental analysis or order-based analytics.

QPM provides capabilities to help you log inspections of individual samples or extremely complex samples, including intricate individual checks with several components.

QPM supports:

- Analysis of orders for customer data management
- Framework orders for grouping inspections that belong together yet contain different content
- Laboratory orders for unique identification of the sample subject to inspections based on customer tolerances and specifications

Process-related/in-process inspections in terms of SPC can also be realized with the maintenance of quality control charts and verification of process-relevant criteria.

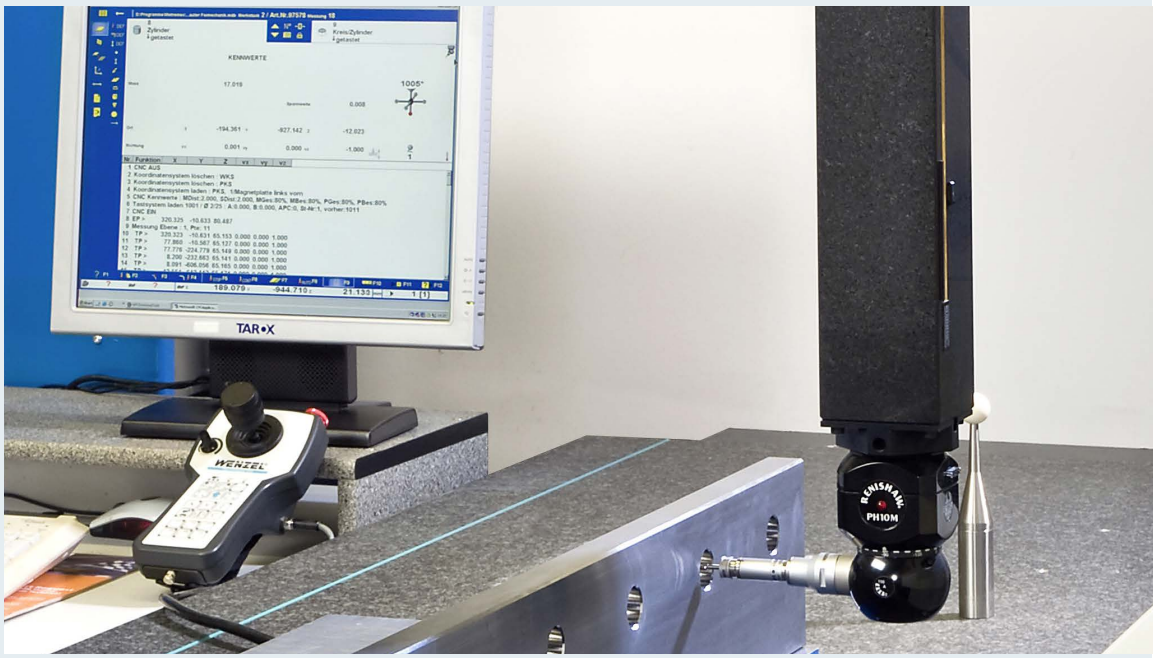
Further functionality includes:

- Sample management
- Stability analyses
- Recipe management
- Certificate creation
- Resource, cost and expense management

**Benefits**

- Combines quality and laboratory aspects into a single entity
- Provides validation and audit trail support including implementation of requirements in accordance with the United States Food and Drug Administration (FDA) part 11
- Efficiently supports all laboratory requirements, including complex inspections

# Quality main control




The Quality Main Control module provides you with cross-departmental visualization of quality problems and an overview for the head of production, foreman, shift leader and quality manager.

Inspection orders marked in red denote imperfect quality (process not under control and/or not capable). Following the selection of an order, defective characteristics are shown in red in the next step. The available evaluations are characteristic related, including control charts showing defect types, causes and actions. The control chart macro helps you simultaneously monitor multiple characteristics. A scheduler enables the automatic update of these control charts and the project manager is automatically warned of process violations by way of a work flow.

Macros can also be defined for visualization of the first pass yield (FPY), the process KPIs that show the percentage of parts in the production process tested as okay (defect free) during the first inspection. All NOK parts are classified as reject parts and designated for rework.

## Benefits

- Transparent presentation and monitoring of current quality situation in the production process and areas of incoming and outgoing goods controls
- Preliminary stage for detailed data analysis including drill-down functionality

# Real-time analysis

The analysis of data is an important function of a computer-aided quality and production management system. Starting with visualization, KPIs are identified, defined and assessed. The analysis forms the basis of your continuous improvement process since vulnerabilities are detected and respective actions initiated in order to optimize both the product and process. The Opcenter Quality solutions feature comprehensive graphical and tabular evaluations in the classical inspection areas such as incoming goods control, production inspections and outgoing goods control.

Examples include:

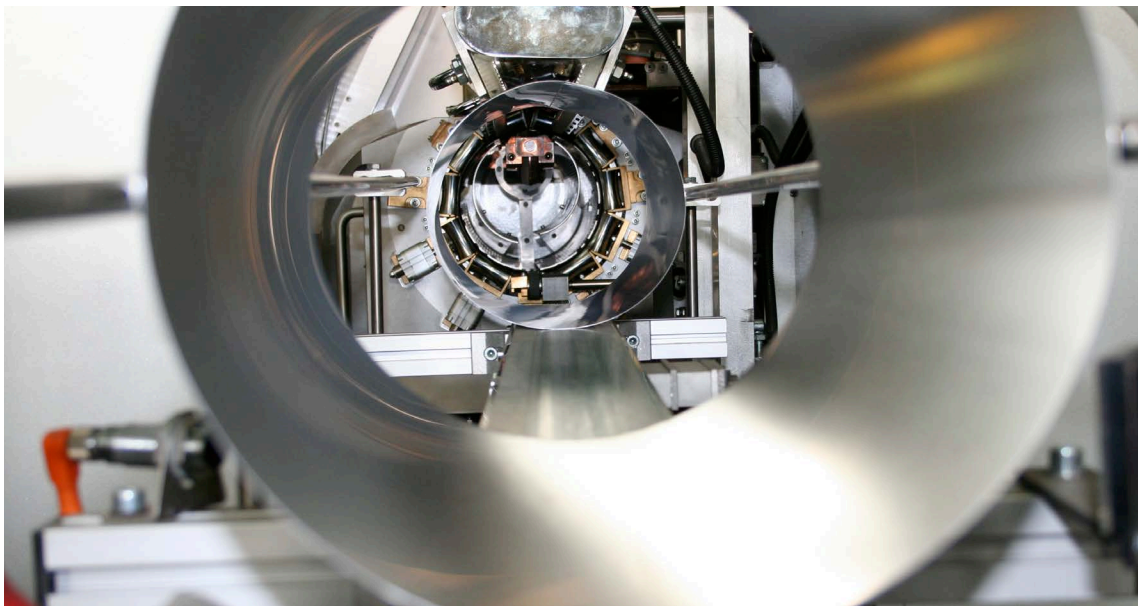
- Control charts for all characteristics
- Defect collection cards
- Probability graphs
- Histograms
- Box plot method
- Statistical calculation
- Distribution tests

The certified export interface with qs-STAT software extends the range of possibilities. The module offers a large number of process analysis functions for which cross-order and cross-part measurement values can be selected, sorted, grouped and finally visualized for statistical purposes. Tool capability can be monitored (using a sample of the same diameter for a product group) to help you verify the manufacture of a particular characteristic on a cross-part basis.

**Benefits**

- Continuous improvement of product and process quality
- Availability of multi-level user statistical functions
- Tailored to meet user requirements

# Concern and complaint management



The Concern and Complaint Management module allows you to optimize and align your supply chain procedures with your integrated processes. The solution encompasses cross-company/supplier communication and internal problem solving processes, enabling continuous improvement.

The defect and complaint management solution features real-time, efficient communication. Complaint workflows allow you to activate immediate actions that send information (required for stock level investigations/stocktaking and defect analysis) to designated company departments.

Complaint analysis can be handled in accordance with your 8D procedure, which includes initiation of various actions, cause analyses and efficiency confirmations. The defect cause analysis is complemented by quality management (QM) functionality that supports the Ishikawa method (cause/effect) and the 5-Whys problem solving methodology. If you determine the supplier is the cause of complaints, you can automatically generate a supplier complaint.

Web portals and interfaces include:

- Supplier portal for online supplier exchange
- Simplified acquisition portal for setup of new customer/dealer processes
- Integration in original equipment manufacturer (OEM) portals with exchange of the inspection and 8D reports

### Benefits

- Automated complaint handling for processing time reduction
- Control mechanisms for punctual execution of actions
- Evaluations as a basis for lessons learned
- Transparency of cost acquisition

# Audit management

The Audit Management module allows you to execute external and internal audits, such as system or process audits, with functions including:

- Basic audit planning and derived audit programming
- Audit fine planning with invitation distribution
- Audit execution including acquisition of results and findings
- Creation and distribution of audit reports
- Actions handling and monitoring
- Audit-related and general evaluations

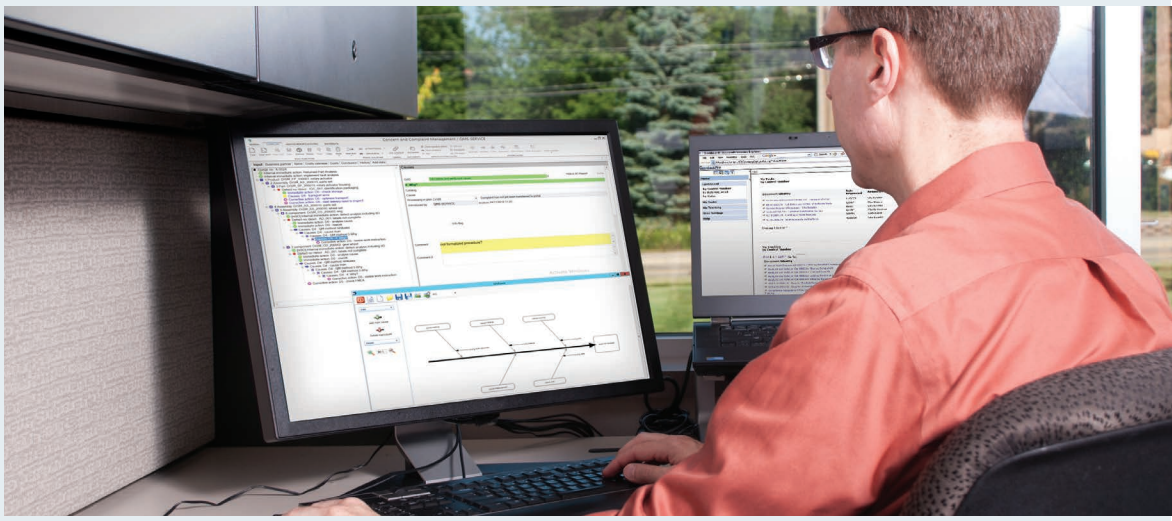
The solution allows you to simplify the audit setup with a provision for standardized and user-definable question catalogs (such as IATF 16949, process audit VDA 6 part 3, environmental audit ISO 14001, process audit VDA 6 part 7 and self-assessment support).

The online audit acquisition option (including execution for suppliers and subsequent import in the productive database) allows you to optimize the process. The definition and assessment of actions in the audit module (or via a web application) enables online feedback on the project manager's actions, contributing to greater work efficiency. The module also features automated actions and deadline monitoring.

### Benefits

- Supports external/ internal audits
- Transparency and traceability of individual working operations
- Reduced documentation and archiving effort
- Transparent overview of pending actions
- Escalation in failure to meet deadlines
- Immediate emailed information to project manager

# Integrating with ERP



Opcenter Quality is able to be integrated with existing, higher level systems. The Opcenter Quality solutions provide you with an integrated, bi-directional solution for the exchange of relevant order data.

The interfaces are applied in accordance with the customer's existing IT landscape. In addition to file-based data exchange, direct database connections are provided.

The following can be exchanged with the ERP level:

- Master data
- Movement data (order data), feedback from incoming goods, production and complaints

An ERP interface provides standardized data stock, helping reduce administrative efforts.

### Benefits

- Data exchange with commercial ERP systems
- Integration of production and quality management with the customer's operations
- Reduced administration effort with integration and alignment of databases

# Simplify quality processes by connecting complex measuring devices

Opcenter Quality provides you with tools to simplify the connection of complex measuring devices, reducing manual inspections and associated costs. Interfacing with superior management systems is of particular importance for executing reliable data exchange among your company's information systems. The acquisition and processing of data from subordinate systems, such as gages, measuring machines, analysis equipment or production facilities, are the main requirements of a production management system.

Opcenter Quality solutions allow you to connect numerous gage types based on standards. The connection of more complex gages, analysis devices and testers, such as 3D or optical measuring devices, is also possible. An additional option enables the acquisition and processing of data, for example, programmable logic control (PLC), directly from your production facility, allowing you to speed up availability of data at every station. The transfer can be fully automatic, occur in the background or run interactively during online operation.

### Benefits

- Support of open platform communication (OPC)
- Event controlled acquisition of data and machine statuses
- Universal configuration of data formats
- Prevention of transmission errors with automated data acquisition
- Real-time data for analysis and control

# Analysis and reporting

### Integrated reports

The integrated reporting function is based on industry quality standards. It serves as a helpful and efficient analysis and control function for business processes in all departments of your company.

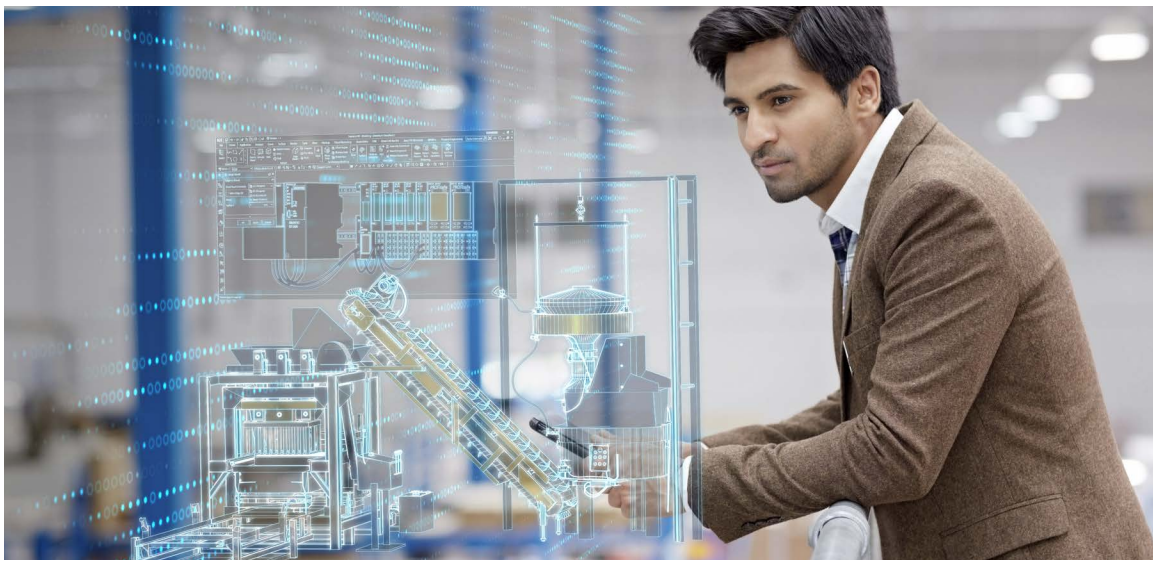
By using the Opcenter Quality solutions, you have access to defined reports that can be used without modification to meet your requirements. The report builder function provides templates that you can use as a guide as you construct other reports.

In addition to using the templates, you may choose to use the personal reports function, which allows you to create your own flexible reports. You can transfer individual applications data to templates (that you previously created using Microsoft Office templates in Excel or Word) and then create your custom report. You also have an option to expand upon the information by adding details available in the database.

### Benefits

- Ability to create new, customized reports
- Best practice reports
- Personal reports for faster, more flexible and convenient evaluation of all relevant quality and production data
- The use of Microsoft Office (Excel, Word) as output media

# Action management



The  Action Management module allows you to centrally plan, control and monitor production actions. The solution provides you with an automatic process that includes escalation procedures. At a glance, you have access to important information on company-wide quality and production schedules. The system helps you actively monitor and handle all in-process actions. Depending on the configuration, delays in the process are automatically transferred. User-definable escalation profiles, which you can allocate to actions, help you verify timely handling. Each action can be directly recalled in the integrated overview, enabling the prompt and efficient response to changes and unforeseen events.

All actions are available for handling in the integrated web portal.

**Benefits**

- Escalation in the event of failure to meet deadlines
- Immediate email information distributed to project manager
- Transparent overview of all pending actions and the use of various filter criteria (such as product, cost center)
- Efficient monitoring of quality and production measures (actions)
- Transparent visualization of deadline status via an integrated traffic light system
- Sustained support of corporate work flows
- Central actions overview
- Central planning and control
- User-definable actions
- Direct access and immediate handling of all actions

# Web portal solutions

The Opcenter Quality web portal solutions offer you an easier and faster exchange of data for APQP projects, actions, complaints and documents.

### Benefits

- Supplier involvement for immediate handling of production part approval process projects
- Status notifications (green, yellow, red) for each project
- Provision of complaints for suppliers
- Concern and complaint management for web portal processing in accordance with 8D
- Acquisition of external complaints, such as those from end customers
- Handling of internal/external measures via the portal
- Processing of actions from other modules, such as FMEA and Audit Management
- Document exchange support including certifications, defect descriptions in the case of complaints, supplier scorecards

# Support, services and training

### Consulting

Siemens Digital Industries Software provides corporate productivity management that focuses on quality and production. We concentrate on your company's processes, from product development and production to maintenance and operation.

In the initial phase we analyze your processes and identify optimization opportunities. Our consulting services enhance the solutions portfolio. From conception to implementation, we offer you consulting, solutions and services from a single source.

### Project management

With professional project management, we assist you through each product phase with the successful realization of your strategies. Following commissioning and startup, you will have continued access to our comprehensive range of consulting services.

### 24/7 support

The Opcenter Quality Center is staffed with experts who can answer your questions on our products and services. Depending on your service level agreement (SLA), the center is open to you any time of day, seven days of the week.

### Training courses

To achieve the optimum application of Siemens Digital Industries Software products and solutions, we offer customers the following training models:

- Train the trainer, small group training within the scope of key user training courses
- Training courses

**About Siemens Digital Industries Software**
Siemens Digital Industries Software is driving transformation to enable a digital enterprise where engineering, manufacturing and electronics design meet tomorrow. Our solutions help companies of all sizes create and leverage digital twins that provide organizations with new insights, opportunities and levels of automation to drive innovation. For more information on Siemens Digital Industries Software products and services, visit siemens.com/software or follow us on LinkedIn, Twitter, Facebook and Instagram. Siemens Digital Industries Software – Where today meets tomorrow.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