Siemens Digital Industries Software

Teamcenter Quality

An enterprise-wide quality management system

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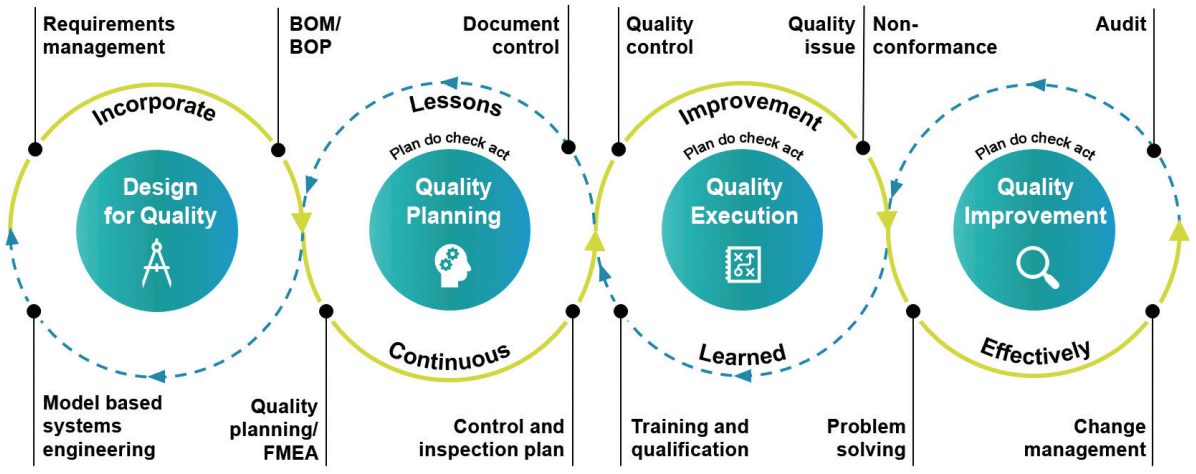
Extending quality management to engineering and manufacturing domains

Companies are challenged to reduce product and operating costs while improving quality to distinguish their products and gain a competitive advantage. Every effort must be made to improve efficiencies among teams that can be distributed across the globe.

Teamcenter® software for product lifecycle management includes Teamcenter Quality, a software product family that works seamlessly with several domains on the Teamcenter collaboration platform. Leveraging additional elements of the Teamcenter portfolio, Teamcenter Quality provides a closed-loop approach from design to manufacturing on the shop floor and back.

Holistic quality for new product introduction

A new product begins its lifecycle as a requirement. Using modern methods of product development, it evolves to a system, then a logical structure until becoming a virtual product. Using advanced product quality planning (APQP) and production part approval process (PPAP), companies can monitor and approve project quality through respective milestones. The Teamcenter Quality Failure Mode and Effects Analasys (FMEA) software provides tools to identify and mitigate risk in the virtual product and process structures. Teamcenter Quality Control Planning and Inspection software helps companies create inspection plans for checking critical characteristics on physical products. Any product deviations are recorded in a nonconformance and resolved through Teamcenter Quality Problem Solving software with effective root cause analysis methods. The common change management feature distributes the changes to all stakeholders in the loop, so that the product development process continuously improves, reducing time to market of new products and total cost of quality of existing products.



Components of the Siemens quality solution

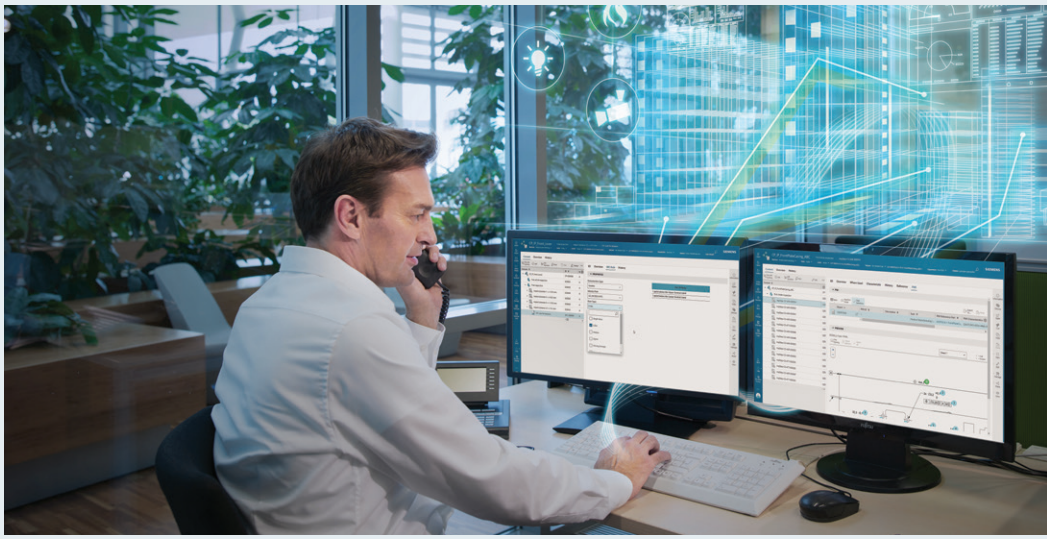
Quality can be defined as the enabler for excellence. The Siemens quality offering helps companies by supporting the entire product lifecycle, from planning to production and back to the lessons learned for a new planning iteration. This holistic solution performs functions in all stages, positively impacting product and process quality and efficiency throughout the product development process.

Quality planning

Quality project management supports the complete product development process, across all areas of the company with traceability for all deliverables for better collaboration of engineering, manufacturing and quality management.

Failure mode and effects analysis provides an advanced tool for identifying and mitigating risks from potential failures in the virtual product and process structures to avoid potential costly defects with damaging effects during the lifecycle of the real product.

Control and inspection planning holds the process steps and activities to control critical elements during manufacturing processes where potential risks could not be mitigated completely but controlled systematically to identify defective parts.



Quality analytics

Advanced search capabilities for all levels of quality deliverables allow companies to drill down into the data using interactive filters based on the results to understand the context quickly and efficiently.

Reports and dashboards are built-in functions that include company-wide predefined standard reports or advanced search queries for individual or common use that can be shared throughout the user base.

Traceability enables users to traverse along all linked quality processes to quickly connect them.

Audit logs capture changes on quality data with clear identification of personnel and details of modifications for higher transparency.

Teamcenter reporting and analytics enhances the Teamcenter Quality product family with a sophisticated analytics tool integrated into the Teamcenter user interface for monitoring all required key performance indicators (KPIs).

Quality assurance

Quality data can be captured in Siemens manufacturing execution systems (including Opcenter™ software) for improved usability on the shop floor.

Nonconformance management captures all deviations from the quality execution system during inspection with an intelligent failure catalog for immediate solution and a systematic problem-solving process.

Continuous improvement

Quality issue management enables companies to record quality issues throughout the company by all users as a central solution for transparency of quality issues about repetition, severity and whether issues are resolved in a problem-solving process.

Customer complaint management provides the ability to record complaints from customers with all relevant information for a complete propagation of the data to internal problem-solving processes.

Problem solving allows users to find and eliminate root causes effectively, considering all internal knowledge bases as a comprehensive root cause analysis and corrective and preventive action management tool to support sustainable product and process improvements.

Quality action management centralizes the administration of all quality-related activities and monitors status company-wide with automated escalation mechanisms for securing on-time closure of quality actions.

Supplier quality

Supplier assessment enables the evaluation of suppliers with checklists and ratings to better understand their capabilities.

Supplier quality approval manages supplier projects to control deliverables submitted by the supplier and accepted by your company.

Supplier quality issue provides the capability to record quality issues for a supplier.

Streamlined, accessible user interface

Teamcenter Quality is exposed through a modern and innovative web-based user interface accessible on any modern computing device without a client or plug-in installation. The touch-enabled, intuitive interface is optimized to support both mobile and desktop devices. The interface can be easily tailored to fit your business, allowing you to minimize user training and foster quick adoption throughout your enterprise.

Artificial intelligence assisted user interface

The user guidance with Teamcenter Assistant functionality predicts and suggests future steps based on the current user context. The suggestions are based on collective users' histories of commands within the context. This capability delivers greater efficiency and higher productivity during all quality management processes, for both expert and novice users.

Platform for collaboration and change management

The Teamcenter collaboration platform combines several domains under a common platform – including project management, product lifecycle management, simulation, manufacturing planning and many others. Companies can benefit from common user and organization management for all participating domains. The extensive workflow capability is the basis for all guided processes within the domains and the user experience is aligned around all domains with the modern web client, Active Workspace. Teamcenter Quality leverages these platform capabilities and many more. Companies can expand to different domains with less user training efforts and reduced IT footprint.

The change management capability communicates product and process changes throughout the company in a workflow-guided manner. Teamcenter Quality is seamlessly integrated in this change management capability from both directions. The changes can be triggered within Teamcenter Quality affecting the complete organization, or changes made in other domains can also affect quality processes. The common change management capability is the basis for better collaboration between domains and faster exchange of current information.

Product lifecycle management integration

Two-way visibility of connections between product and quality data
Quality processes referencing product or process data result in visibility of the reference from the respective product or process. The owner of the product or process has an overview on all quality references wherever the product or process was used, for example, referenced in a problem-solving process or in recorded quality issues. On the other hand, the responsible quality personnel can see the details of the product or process and directly contact the owner (engineer, manufacturing planner, etc.) located at a different site.

Leveraging 3D visualization
If computer-aided design (CAD) files are stored and maintained in Teamcenter, all users of Teamcenter Quality can visualize 3D data related to the bill-of-material. The 3D visualization in the Active Workspace client allows the quality user to have detailed insights on the inner design of the product.

Flexible viewing options, including the ability to turn visibility of components on or off and zoom in and out, enable users to easily understand detailed product information directly in the 3D model.

Integrated to bill-of-process
If the Teamcenter Manufacturing Process Planner is used by the manufacturing group in your company, operations data is captured interchangeably with the quality operations planned for shop floor inspections. The Teamcenter Quality control and inspection planning solution holds all inspection definitions in executable operations within the superior bill-of-process for a common execution in the shop floor execution systems.

Extensibility

Extensibility to connect to external systems

Teamcenter Quality leverages all data transfer capabilities of the widely known Teamcenter collaboration platform. There are multiple ways to connect data from external sources as information for the quality user, whether from enterprise resource planning (ERP), customer relationship management (CRM) or other systems. The relevant data can be provided in many ways – as views without data replication or as frequently synchronized data between the external system and Teamcenter Quality. The external information can be mapped to existing data models of Teamcenter Quality or custom data models with custom appearance for a seamless user experience.

Extensibility through low-code application development

Companies using Teamcenter Quality can leverage the Mendix™ platform for low-code development to create, integrate, deploy, manage and iterate modern business applications at scale. A Teamcenter Mendix connector is available to expose core functionalities of Teamcenter Quality to your own Mendix application, whether it is a web page gathering information from several systems or a mobile app for groups of users to handle topics quickly and easily.

Extensibility of data model and workflow

Teamcenter allows extensions of the data model to business processes beyond the implementation of Teamcenter Quality. Because it is a widely used global platform across industries, Teamcenter offers a highly knowledgeable community for extending Teamcenter data models.

The workflow capability, one of the most used features in Teamcenter, is delivered with a set of prepared workflow building blocks. Using the building blocks, you can reflect your company's business processes for creating, maintaining and approving quality deliverables. Although the workflow building blocks cover many complex workflow scenarios, it is possible to extend it with custom additions.

Summary

Siemens solutions help customers face the challenges of the digital era by enhancing product development processes with a holistic quality approach that supports faster time to market while complying with norms and regulations.

The Siemens Quality offering on the Teamcenter collaboration platform provides numerous benefits to customers who close the loop between engineering, manufacturing and quality management domains.

Teamcenter Quality keeps product development, quality planning and continuous improvement processes in synchronization and maximizes the value of the change management and configuration management capabilities of Teamcenter. Core quality processes can leverage and interoperate with product design and 3D data using a common change management process.

Benefits to customers using Teamcenter Quality:

- Improved collaboration and reduced coordination effort through aligned workflows for quality, manufacturing and engineering teams
- Improved reaction time, schedule management, and quality standards compliance with project management that monitors all quality processes, product development and manufacturing planning
- Reduced potential high failure costs with guided FMEA
- Reduced residual risk of product or process failures through planned inspections
- Systematic long- and short-term resolution of nonconformances
- Higher process transparency with traceability, dashboarding, reporting, data logging and analysis
- Continuous improvement through lessons learned
- Effective reduction of rework and repeated defects
- Ease of use through streamlined user interaction
- Better understanding with visualization of 3D models in all common formats
- Single source of truth for product, process and quality data and other information standards
- A common definition of variability and quality that leverage the product configuration backbone
- Highly configurable, extensible and reliable enterprise collaboration platform with modern web-based user interface
- Connectivity to execution systems
- Low-code extensibility

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. Xcelerator, the comprehensive and integrated portfolio of software and services from Siemens Digital Industries Software, helps companies of all sizes create and leverage a comprehensive digital twin that provides 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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