SAP Quality Management in SAP S/4HANA Cloud and SAP S/4HANA

Product Management SAP QM, SAP SE
November 2018
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Agenda

SAP Quality Management in SAP S/4HANA Cloud and SAP S/4HANA

- Overview

- Current Status

- Miscellaneous
Overview
SAP S/4HANA
Cloud and On-Premise Delivery Schedule*)

Quarterly innovation cycle
Annual innovation cycle
Continuous innovation

*) This is the current state of planning and may be changed by SAP at any time
Quality Management in SAP S/4HANA

Brief Overview

- Closed loop inspection planning incl. FMEA (Failure Mode and Effects Analysis) and control plan
- Stability study
- Master data and change management
- Supplier management

Plan and perform calibration inspections for test equipment

Plan, perform, and monitor audits such as supplier, system, product, and process audits

Inspection plans e.g. for goods receipt
- Inspection planning within routings and master recipes for production
- Planning of procurement control
- Planning of delivery control
- Dynamic modification of inspection scope

Automatic creation of inspection lots
- Results and defect recording
- Usage decision and release of stock
- Statistical process control (SPC)
- Sample management
- APIs for integration of complex measuring systems

Manage supplier, customer, and internal complaints
- Capture quality costs
- Record defects

Manage quality relevant documents by using SAP S/4HANA Document Management (DMS)

Evaluate data from quality inspections, quality notifications, and audits

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Quality Management in SAP S/4HANA Cloud

Brief Overview

• Inspection plans e.g. for goods receipt
• Inspection planning within routings and master recipes for production
• Planning of procurement control
• Planning of delivery control
• Dynamic modification of inspection scope

Preconfigured core processes within Quality Management

• Quality Management in Procurement
• Quality Management in Discrete Manufacturing
• Quality Management in Stock Handling
• Quality Management in Sales
• Quality Management for Complaints from Customers
• Quality Management for Complaints Against Suppliers
• Quality Management of Internal Problems
• Nonconformance Management
• SAP Fiori Analytical Apps for Quality Management

Product Development

Quality Planning

• Master data management

Quality Inspection

• Automatic creation of inspection lots
• Results and defect recording
• Usage decision and releases of stock
• Statistical process control (SPC)

Complaint Management

• Manage supplier, customer, and internal complaints
• Record defects
• APIs for recording defects

Document Management

Analytics

• Evaluate data from quality inspections and defects

• Manage quality relevant documents by using SAP S/4HANA Document Management (DMS) for different objects in QM

Scope differs from SAP S/4HANA to SAP S/4HANA Cloud. See Feature Scope Description for details.
### Fiori Apps in QM at a Glance

<table>
<thead>
<tr>
<th>Fiori App</th>
<th>Type</th>
<th>SAP S/4HANA 1709</th>
<th>SAP S/4HANA 1809</th>
<th>SAP S/4HANA Cloud 1811</th>
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*) Scope differs from S/4HANA to S/4HANA Cloud. See Feature Scope Description for details.
### Cards for the Quality Engineer

<table>
<thead>
<tr>
<th>Card Description</th>
<th>S/4HANA 1709</th>
<th>S/4HANA 1809</th>
<th>S/4HANA Cloud 1811</th>
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<td>Inspection Severity for next Inspection Stage</td>
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<td>Quality Levels for Inspection Lots</td>
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<td>Open Quality Tasks By Planned End</td>
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<td>Open Quality Tasks By Processor Assignment</td>
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### Cards for the Quality Technician

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<thead>
<tr>
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<th>S/4HANA Cloud 1811</th>
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<td>Inspection Lots with Open Results for Insp. Points</td>
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</tr>
<tr>
<td>My Tasks</td>
<td>-</td>
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<td>X</td>
</tr>
</tbody>
</table>

*) Scope differs from S/4HANA to S/4HANA Cloud. See Feature Scope Description for details.
SAP S/4HANA
Fiori Launchpad for Different QM Roles

Typical transactions/apps are combined in business catalogs and assigned to different roles

Supported Roles:
- Quality Planner
- Quality Technician
- Quality Engineer
- Quality Manager
- Calibration Technician
- Quality Auditor
SAP Fiori Theme for Classic Applications
One Visual Design Theme for All SAP Applications

Existing QM transactions with new Fiori theme (for example, QE51N) that are called from the Fiori launchpad

Characteristics:
- Text toolbar instead of icons
- Right-aligned labels
- New icons
- Merged SAP Fiori header
- Tabs with SAP Fiori visualization
- New footer with processing and closing actions
Current Status
Quality Management in SAP S/4HANA Cloud and SAP S/4HANA

Current Status
Monitor Quality Level

Cards on the Overview Page

New cards for monitoring quality levels:
- Quality level for inspection severity
- Skip rate for inspection lots
- Skip rate for characteristics

Worklist with actions:
- Tighten
- Reset
Analyze Quality Levels
Analytical App with Skip Rate and Other Analytical Capabilities

Identify all data that relates to the dynamic modification of the inspection scope by using the data from past inspection valuations.
Manage Quality Info Record for Procurement

- Limit the release of supply relationships to a specific time frame and a maximum delivery quantity.
- Several block functions are available, for example block purchase order.

Card for Q-Info Records with Exceptions:
- By Release Date
- By Block Level

Colors are used to highlight some quality info records:
- Red: Flagged for deletion
- Yellow: Have exceptions
- Blue: In draft status

Work list with actions:
- Remove Block
- Flag for Deletion
The view “Materials Without Quality Info Records” displays a list of materials with missing quality info record. A new quality info record can be created with reference to a material.
Quality Management in SAP S/4HANA Cloud and SAP S/4HANA

Current Status
Cards on the Overview Page
- Inspection Lots without Inspection Plan
- Inspection Lots with Open Results Recording, no Inspection Points
- Inspection Lots with Open Results Recording for Inspection Points
- My Tasks
Record Inspection Results
Card on the Overview Page, Worklist and UI for Entering Results

Monitor and check the number of lots with open results recording and navigate to the corresponding app.
Record Inspection Results
Worklist based on Master Inspection Characteristics

Worklist at the level of master inspection characteristics. Several characteristics across inspection lots can be selected and processed at one go.
Inspections During a Production Operation with Inspection Points

Record results during production on a regular basis*).

*) Support of the following inspection points: time-related and no relation
Record Inspection Results in Table Form

Inspection results for several master inspection characteristics for different inspection lots can be recorded in a tabular form on a single screen.
Manage Usage Decisions
Card on the Overview Page, Worklist and Object Page for Usage Decision

Make a usage decision for inspection lots in order to complete the inspection process.
Manage Statistical Control Charts

Card on the Overview Page and Worklist

Manage Control Charts

Card for Action Limit Violations:
- By Work Center
- By Material

Actions:
- Calculate and Activate
- Recalculate
- Complete

Statistical process control to monitor and control production processes
Quality Management in SAP S/4HANA Cloud and SAP S/4HANA
Current Status
Problem-Solving Process (In Addition to Quality Notification)

Defect creation

By Hand
Manually recorded defect (e.g. mobile)

By Results Recording
Automatically created defect triggered by inspection characteristic rejection

By Sensors
Transferred e.g. from sensors via OData

By CoPilot
Manually provided by quick create

Problemsolving

Quality Task
Streamlined problem-solving process

8D / CAPA
Standardized problem-solving process according to 8D including
- Root cause analysis
- Corrective and preventive actions
- Collaborative scenarios

Quality Notifications
Create Q notifications and assign defects

Machine Learning Use Cases:
- Propose defect codes based on text or photos
- Search for similar problems and provide proposals for root causes and corrective and preventive actions
New Defect Handling
Based on Quality Notification Data Model

The new defect is no longer assigned to a quality notification. Nevertheless the same database table is used.

New features within the defect:
- Defect category to support different use cases
- Statuses
  - Created
  - Not Relevant
  - In Process
  - Completed
The new task is also disconnected from the data model of the quality notification. Nevertheless the same database table is used.

Currently a task is always assigned to a defect. Multiple assignments are possible.
With the embedded camera a photo can be taken and assigned as an attachment to the defect.

Currently only defects with defect category „Generic Defect“ can be created manually.

With reference to a defect multiple quality tasks can be created. It is possible to assign a processor and a planned end date.
Simplified Defect and Task Management (2/5)
Further Processing of a Defect (Desktop)

Worklist for defects to display or edit them.

Status changes are either possible in the object page or in the worklist for one or more defects.
As soon as a planned end date is entered, a planned end time can also be specified. Date and time are always based on the time zone entered in the user master record.

Assigned quality tasks are displayed in the defect object page. Tasks can be displayed or changed.
Simplified Defect and Task Management (4/5)
Further Processing of a Quality Task (Desktop)

With “My Tasks” and “Process Quality Tasks” a personal list of tasks can be displayed in order to navigate to a task to process it further.
A quality task can be forwarded via workflow. Process quality tasks is embedded into the unified inbox called My Inbox.
Monitor and Manage Defects
Cards on the Overview Page and Worklist

Navigation from a card to an analytical list page to manage defects.

Cards displaying defect frequencies:
- Top defective codes
- Top defective materials
- Inspection lots with defects
For generic defects a notification can be created to continue the problem-solving process.
“Manage Quality Tasks” is a worklist with analytical capabilities mainly for the quality engineer.

The worklist allows for example to assign a processor to multiple tasks in one step.
Quality Management in SAP S/4HANA Cloud and SAP S/4HANA

Current Status
Overview Page for the Quality Engineer

**Cards**

- Inspection Lots without Inspection Plan
- Inspection Lots without Usage Decision
- Inspection Lots ready for Usage Decision
- Top Defective Codes
- Top Defective Materials
- Inspection Lots with Defects
- Inspection Severity for next Inspection Stage
- Quality Levels for Inspection Lots
- Quality Levels for Characteristics
- Violated Inspection Limits
- Q-Info Records with Exceptions
- Open Quality Tasks By Planned End
- Open Quality Tasks By Processor Assignment

- SAP S/4HANA 1809
- SAP S/4HANA Cloud 1811
Overview Page for the Quality Technician

Cards

- Inspection Lots without Inspection Plan
  - Status: X
  - Status: X

- Inspection Lots with Open Results Recording
  - Status: X
  - Status: X

- Inspection Lots with Open Results for Inspection Points
  - Status: X
  - Status: X

- My Tasks
  - Status: X
  - Status: X
Results History
Evaluation of Quantitative Characteristics

Aggregated list at the level of characteristics
Mean values
Single values
QM Analytics

Inspection Lot Analytics

Analysis of inspection lots with usage decisions from the last 365 days based on time, inspection type, material and plant.

Accepted and Rejected Lots by Material and Plant
QM Analytics
Inspection Lot Detailed Analytics

Analysis of inspection lots with usage decisions from the last 365 days for categories such as:
- accepted and rejected lots
- rejection rate
- skip rate
- total number of lots
- skip lots
- mean processing time based on time, inspection type, material, plant, supplier, and customer.
QM Analytics
Inspection Lot Detailed Analytics - Example (1/2)

Mean Processing Time

Add Analysis Step

Mean Processing Time by Year and Week

Line Chart

Sorted by: Kalenderjahr, Kalenderwoche
QM Analytics
Inspection Lot Detailed Analytics - Example (2/2)

Mean Processing Time by Year and Week
QM Analytics

Characteristic Analytics

Accepted and Rejected Inspections by Time Series

Analysis of inspection characteristic results from the last 365 days based on time, master inspection characteristics, inspection characteristics, material and plant, and work center.
QM Analytics
Characteristic Detailed Analytics

Analysis of inspection characteristic results from the last 365 days based on for categories such as:
- accepted and rejected inspections
- rejection rate
- skip rate
- mean value
- standard deviation
- Cp and Cpk index
- and so on
based on time, inspection characteristics, master inspection characteristics, work center, plant, material, supplier, and customer.
QM Analytics

Nonconformance Analytics

Analysis of defects from the last 365 days based on time, master inspection characteristics, inspection characteristics, material and plant, work center and plant, defect category, defect code and defect code group, supplier, and customer.
QM Analytics
Nonconformance Detailed Analytics

Analysis of defects with or without notifications from the last 365 days based on time, inspection characteristics, master inspection characteristics, plant, material, work center, defect category, defect code and defect code group, supplier, and customer.
QM Analytics

Nonconformance Detailed Analytics - Example (1/3)

Add Analysis Step

Defect without Notification

Line Chart with Time Axis

Defect without Notification by Created on
QM Analytics
Nonconformance Detailed Analytics - Example (2/3)

Defect without Notification by Created on
Another Analysis Step

Defect without Notification by Material

Printout as PDF
Quality Management in SAP S/4HANA Cloud / SAP S/4HANA
Current Status and Outlook
CEI - Inspection Planning in SAP S/4HANA Cloud and SAP S/4HANA

Goal

Validation of the detailed business scenarios related to Inspection Planning to build it in the direction of Intelligent ERP. Evaluate the points where Inspection Plan can be made more intelligent and smart.

https://influence.sap.com/sap/ino/#/campaign/1471
Miscellaneous
QM in SAP S/4HANA
Roadmaps

Link: www.sap.com/roadmaps

Search by “SAP S/4HANA”

See Chapter:
SAP S/4HANA Cloud
LoB: Manufacturing and supply chain (3/4)

See Chapter:
SAP S/4HANA
LoB: LoB: Manufacturing (2/3) – quality management
S/4HANA

General Information

Link [http://sap.com/s4hana](http://sap.com/s4hana)

SAP S/4HANA

An intelligent ERP suite designed specifically for in-memory computing. SAP S/4HANA offers a personalized, consumer-grade user experience with SAP Fiori, no matter your industry or business size. SAP S/4HANA can help you drive instant value across all lines of business.

- On-premise and private cloud environments, as part of SAP’s Cloud ERP portfolio
- Data-driven decisions with predictive analytics
- Improved automation, efficiency, and agility through machine learning
- Integration between headquarters and subsidiaries with two-tier deployment

Product Documentation

Provides you with product issue description and guidance on how to install, upgrade, and use an SAP S/4HANA system.

Installation Guide

Helps to install SAP S/4HANA

SAP QM in S/4HANA
Innovation Discovery (Planned and Delivered Innovations)

Link: https://go.support.sap.com/innovationdiscovery/

Search by line of business, industry, or search terms e.g. “Quality”

Additional information with details, screenshots, benefits, product features, and availability