Chapter 6

Quality Control

Quality Notification

Problem Processing

The quality notifications component of the QM module is a system for collecting, documenting, and controlling problem cases, especially notifications pertaining to poor-quality products or services. The notifications can include internal malfunction reports as well as external complaints filed against vendors or by customers. The system maintains different types of quality notifications for different purposes. During the processing of maintenance tasks, the quality notifications can also be supplemented by special types of notifications from the PM module.

Structure of the Quality Notification

The quality notification header contains a description of the subject matter, and depending on the type of notification, a list of the various objects affected by the notification (for example, material, inspection lot, vendor, customer, and customer order). Subordinate to the quality notification header are the elements relating to the diagnosis of the problems, such as the types and causes of the defects, and the tasks and activities taken to correct the defects. It is possible to define tasks and activities to be undertaken immediately, without regard to the diagnosis.

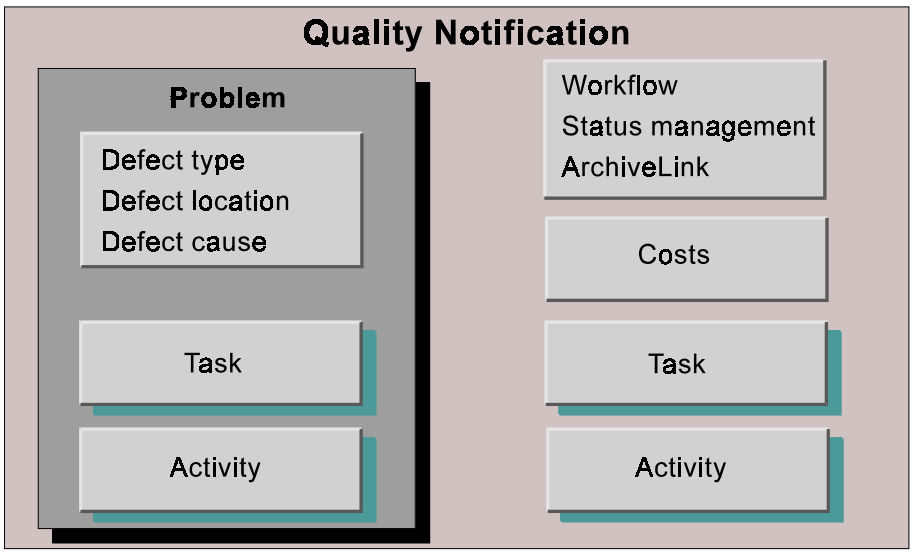

Figure 6-1: Structure of the Quality Notification

Processing the Quality Notification

Once the facts of a problem have been put into writing from the point of view of the person making the report, the problem is subjected to an initial technical analysis and the affected objects and responsible parties are documented in the notification. At this point, it is possible to define and process the measures to be carried out immediately and to settle the costs associated with these measures. A diagnosis of the problem may then follow, which identifies the individual defects by type, location, and cause. Once the corrective actions to eliminate the defects have been carried out and the costs for these actions have been settled, the problem notification reaches its conclusion. The actions taken are reflected in the status of the individual tasks and in the overall quality notification. The user can assign priorities to the quality notifications and have the system suggest submission and completion dates based on these priorities.

Defect Diagnosis

Quality notifications can generally be traced back to defects in products or services. In addition to locating the defects, the diagnosis should also reveal the causes of the defects and serve as the basis for taking corrective actions.

Defect Type
Defect Location
Defect Cause

A quality notification may contain several problem or defect items. A clear description of the individual problems or defects must include the type of defect and, as a rule, the location of the defect. Terms such as defect type, defect location, defect cause and task are coded as master data in the central catalogs. As a result, they can be evaluated automatically. Furthermore, these codes can be supplemented with text.

Additional information is available for each problem item; for example, there are data fields for the defective quantities, the number of defects of a specific type, a defect classification, and a reference to a master inspection characteristic. For the affected quality characteristics it is also possible to record quantitative data for each defect item, such as the actual value and the target value. If defects are found in a group of assembly items, the location of the defect can be pinpointed more precisely by referencing a bill of materials item where the defect was found.

Systematic Defects
Consequential Defects

Defects are normally said to be the result of unrelated, random events. Systematic defects and consequential defects must therefore be classified differently, so the statistical analyses of the defect data do not lead to false conclusions. If a defect is suspected of being systematic in nature, the system can determine if an identical defect data record was previously recorded for the same reference object in any other quality notification. Consequential defects can be linked to a sequence by referencing primary defect items.

Tasks and Activities

The structure of the quality notification differentiates between tasks that are carried out to initiate immediate action and tasks that are carried out as corrective actions.

Tasks (Immediate Action)

The purpose of a task for an immediate action is to provide an immediate response to the acute problem that produced the quality notification, in order to prevent any further damage from occurring. These types of tasks are assigned in the quality notification header and can be initiated without having to specify a defect or defect cause.

Tasks (Corrective Action)

The purpose of a task for a corrective action is to eliminate the defect and the causes of the defect, in order to prevent it from reoccurring. Tasks for corrective actions are assigned to an individual defect item.

Activities

In addition to the tasks, so called “activities” can also be stored in the system. An activity merely documents that a specific action should be or was carried out. In contrast, the task documents the decision that has been made. A task also has its own status sequence which provides a means of monitoring the completion of the activities associated with the decision.

Automatic Follow-Up Actions

The user can link the tasks with self-defined, automatic follow-up actions. He can employ the system functions to trigger the follow-up actions; for example, he can initiate inspections or block the affected material from being used in certain commercial operations.

Communication

Message Control

To process and document the internal and external communication that may result from a quality notification, a link is established to the SAP office communication system. The electronic media in the system can reduce the communication efforts to a minimum.

Business Workflow

The functions of the SAP Business Workflow component can be used to find addresses, send messages, and control the further processing of business tasks.

ArchiveLink

Accessible in the quality notification, the SAP Archivelink function can be used to archive and manage the printed or electronically transmitted documents such as a telefax. Outgoing documents printed or transmitted by fax are stored simultaneously in an optical archive. Incoming documents can be recorded with Archivelink, assigned to a quality notification, and sent to the responsible parties using the SAPoffice functions.

Additional information about SAP message control, SAP Business Workflow and SAP Archivelink functions can be found in the appropriate brochures.

Quality notifications comprehensively support the processing and documentation of problems cases.

Why are quality notifications a universally applicable and flexible tool for processing problems?

Quality notifications support the documentation of problems, diagnosis of defects, processing of measures, and settling of costs. Quality notifications are linked to the quality inspection in the QM module, as well as to the general message control and the Workflow components of the SAP System.

Quality Costs

The Controlling (CO) module is responsible for processing costs in the SAP system. The purpose of this module is to centrally consolidate and analyze the comprehensive costs of a company across all business and process sectors. The quality-related costs or quality costs are also included.

It is expedient to use the CO module to manage the quality costs, because the QM module records only the costs incurred within the scope of an inspection as inspection costs or those incurred while processing quality notifications as internal and external defect costs. Other quality-related costs can flow into cost accounting from other modules too, such as defect prevention costs for training measures originating from the Human Resources (HR) module.

Evaluations can be made to show how the quality costs relate to the inspection lots, inspection results, and quality problems. To do so, the user can send selected confirmation data to the Quality Management Information System, where it is consolidated into key figures. On the basis of this information, the user can identify excessive inspection and defect costs for individual materials, vendors, etc. and introduce appropriate measures to reduce the costs.

Inspection Costs

The inspection costs are based on the activities that are confirmed by the inspectors. The costs calculated for one or more inspection lots are collected in a cost accounting order and then debited to the appropriate cost objects. Other costs, such as those for material consumption, can also be charged to this order.

Defect Costs

The costs associated with a quality notification can be settled if a cost accounting order has been assigned to the notification. This order serves as a cost collector for the confirmed activities and other costs such as those related to warranties or scrappings. Rework orders can also be charged to this cost collector. In this respect, all defect costs associated with a quality noti-

fication can be debited on a cost-by-cause basis and analyzed with the tools provided by the controlling module.

The quality costs recorded in the QM module or in other modules of the R/3 System are planned, settled, and analyzed with the help of the Controlling (CO) module.

Why is it expedient to process the quality costs with the help of the Controlling (CO) module?

All company costs flow into the Controlling module. If the quality-related costs can be identified, the conventional controlling methods can be used to optimize these costs.

Evaluations

Various tools are available in the QM module for evaluating the stored quality data:

- the Quality Management Information System
- SAP predefined reports
- logical databases as the basis for customer-designed reports

Quality Management Information System (QMIS)

The Quality Management Information System is a part of the Logistics Information System. The system collects data from the quality inspections and quality notifications and places it in a separate statistical database, where it is summarized by period and evaluated. The system writes data into the statistical database online or in the batch mode and summarizes it on the basis of daily, weekly, or monthly periods. The summarized data in the QMIS is maintained in its own database and is therefore available on a long-term basis, independent of the operative data.

When the user is analyzing data, the QMIS permits the user to examine the operative data from different views. The user can thereby control the mix of the key figures and the depth of information.

Standard Analyses

Flexible Analyses

The QMIS offers the user a selection of standard analyses as well as additional, user-defined flexible analyses to analyze the data. Standard analyses use SAP-defined information structures to update the operative data in a statistical database. With the flexible analyses, the user applies his own information structures to access the desired SAP data and to make this data transparent. The results of the analyses are initially displayed in list form; for presentation purposes, however, the user can display the list information in graphics form. The QMIS supports the following analytical functions:

- dynamic, interactive selection of performance measures
- drill-down function in several steps
- comparison of performance measures from different compression periods
- Pareto analyses
- ABC analyses with different strategies
- totals curve for performance measures
- correlation between performance measures

Decisions in quality management are often based on the comparison of planning data and actual data. For this reason, the QMIS provides a means

of recording the planning data and comparing it to the summarized-by-period operative data.

For more information, refer to the functional description for Logistics Information System.

Reporting

Logical Databases

Logical databases are available for evaluating master data and transaction data. The databases make it considerably easier to program reports using the ABAP/4 language. When interacting with a report program (or report as it is more commonly called), the logical database retrieves and preselects the data, while the report is primarily responsible for fine tuning the selection and consolidating the data, as well as determining the layout of the lists. Since the data is stored in relational databases, direct SQL read access operations are also possible.

Predefined Reports

Customer-Generated Reports

The QM data contains a number of reports for the direct evaluation of the master data and transaction data. With the objective of making the reports as universal as possible, highly flexible selection criteria are used to access the data. In addition, the user can individually design the layout of the lists generated from the reports. Some of the reports are linked to the SAP graphics function, which permits their output to be presented graphically. On the basis of the logical databases available in the system, the user can design his own reports in the ABAP/4 programming language, allowing him to evaluate the operative and archived data in the manner he desires.

The Quality Management Information System can be used as a planning tool, monitoring device, and controlling instrument at various decision levels.

If the compressed data in the Quality Management Information System is not sufficient for quality control purposes, the user can evaluate the operative and archived data with ABAP/4 reports.

What support does the system offer a user who wants to define his own key figures?

To define his own key figures, the user can

- ❑ create his own information structures in the Quality Management Information System to evaluate the summarized data
- ❑ program his own ABAP reports to access original master and transaction data with the help of logical databases