I&P - Plant Maintenance

Overview

The SAP PM application component provides business with a comprehensive software solution for the management of all maintenance activities that are performed within a company. PM in SAP stands for Plant Maintenance.

This SAP module contains the following major activities:

- description of Technical Installations (Functional Locations & Equipment) and management of general/technical information related to it (bill of materials, procedure, documents)
- Management of Preventive Maintenance, including Inspection management - all measures which maintain the ideal condition of a technical system. The purpose is to maintain the high availability of technical systems, for example, production plants, in the long term for the business.
- Management of Repairs (corrective maintenance) - all measures which restore the ideal condition of a technical system. The purpose of maintenance processing comprises several levels, which do not necessarily all have to be implemented in full. Therefore, it is possible to process a repair using many planning stages, such as preliminary costing, work scheduling, material provision, resource planning and permits. However, it is also possible to react immediately to damage events causing production shutdown, and to produce the required orders and shop papers with the minimum of entries in the shortest possible time.

This module is highly integrated with the following others SAP modules:

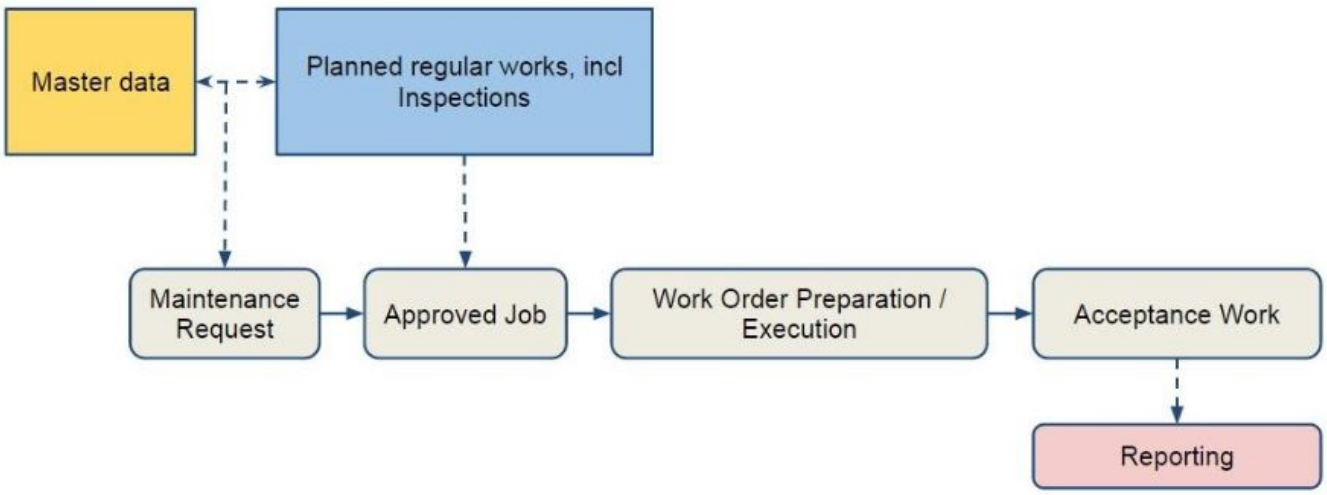
- MM (Material Management) for reservation/ordering spare parts or services
- QM (Quality Management) for detailed information about measurements (ex calibrations)
- CO (Costing) for cost accounting / reporting
- HR (Human Resource) for activity tracking.

Key Performance Objectives in Maintenance include

- Maintaining a high level of OEE (Overall Equipment Effectiveness)
- Maintaining an optimal balance between Cost of Breakdown vs. Cost of Prevention
- Utilizing concepts such as TPM, RCM etc. to contribute in Lowering Operating costs and minimize adverse effects on Equipment, Operating resources and increase efficiency.

Global view of the Maintenance Process in the SAP PM module:

Plant Maintenance consists of three broad areas of: Master Data, Maintenance Processing* & Preventive Maintenance (* : including - in RCS - a Solvay's development for Safety Management).



Master Data

To effectively manage SAP Maintenance activities in a Plant, you need to describe

- **the Maintenance organization within the Company/Plant.**

  This involves the definition of the different entities within the Group and in each site, and how the Maintenance organization within each site is defined in the system.

  This is detailed in this document : **Plant Organizational Structure**

  In summary, SAP PM organizational structure includes the following elements:

  - **Client**: this is highest level of an organization structure. It regroups all the subsidiaries within one corporate group (or geographical area).
  - **Company Code**: regroups one or several subsidiaries of the Solvay group in one country. Each company code has its own balance sheet and P&L statement.
  - **Plant**: Plant is one the most important structures in SAP PM organizational structure. It is a place where manufacturing of products or commercial activities take place. One company code can have multiple plants (in case of different locations in same country).
  - **MaintenancePlant**: is a particular type of Plant, where operational systems are installed, with assets to be maintained.
  - **MaintenancePlanningPlant**: This is a plant at which the maintenance operations are organized. either for its own assets, or for other maintenance plants. In most cases, the maintenance planning plant is same as the maintenance plant, but it can be assigned with multiple maintenance plants.
  - **Plant Section**: subdivision of a maintenance plant into subparts (main areas), for example: production areas /lines, store, utilities, etc.
  - **Location**: code to identify the place where a functional object is physically installed in a plant section. It is used for informative purposes only.
  - **MaintenancePlannerGroup**: group of employees responsible for planning and supervizing the maintenance activities in a plant. Different maintenance planner groups can be created for each plant.
  - **WorkCenter**: identifies the different teams (workers) by discipline (mecanics, eletricians, welders...). Machine /group of machines and subcontractors can also be represented as a work center. Individual employees can be assigned to a WorkCenter.

- the **Technical Installation to be maintained**, thanks to structured Equipment list, with all its technical informations (technical details and characteristics, spare parts, documents, drawings, procedures for repair...).

  In summary, technical installation are described using

  - **Functional Locations :** hierarchical subdivision of the technical installations in a Plant by areas and/or (sub-)functions, from a global view (production units) , down to the elementary process functions.
  - **Equipment :** individual devices (such as motors, pumps, reactors,...)

  Technical information about Functional Locations and Equipment can be detailed, using

  - **Attachement of various documents using the DMS (document management system)**
  - **Classification Data :** technical characteristics of the objects
  - **Bill of Materials / Assemblies** : list of spare parts
  - **Measuring Point :** physical and/or logical locations at which a condition is described

  Click on this link to go to the section with detailed information on Master Data.

Maintenance Processing:-

Planned Regular Work: Detailed data of regular jobs which are periodic & cyclical. It contains the maintenance items, cycle, tasks and the required resources.
Maintenance Request: A maintenance request is a targeted instruction to the maintenance department to perform an activity in the manner described. As in the case with an activity report, malfunction or damage report - Notification.
Approved Job: Work order which contain multiple operations/sub-operations for one or more technical objects. It has information on who is responsible for the job along with the resources - manpower, duration, tools, or spare parts.
Work Order Preparation / Execution: Work order which contain -

- Detailed work sequence documents (permits)
- Material (spare parts) / Services reservation
- Time / Services confirmation

Acceptance Work: Technical closure of work order.
Reporting: Operating reports on costs, Breakdown analysis of technical objects, Maintenance KPI (Mecano) etc.

Click on this link on the details of Maintenance Processing.

Preventive Maintenance:-

The objective of Preventive Maintenance is to avoid system breakdown whereby causing production breakdown. It is used to perform periodic inspections, preventive periodic maintenance tasks & repairs. This is achieved by creating & maintaining maintenance plans, to define dates & maintenance activities planned for technical objects.
Following are the key benefits of using Preventive Maintenance in an organization:

- The activities that are performed in Preventive Maintenance are stored in the form of task lists.
- You define the extent and inspection work, and when the preventive maintenance should be performed with details of the functional location or pieces of equipment.
- You also define the cost-based assignment of Preventive maintenance task lists.
- You can also perform a review to find the cost of preventive maintenance activities to be performed in future.

Click on this link on the details of Preventive Maintenance.
