



STUDY ON SYSTEM APPLICATION PRODUCT (SAP) FOR ACHIEVEMENT OF ORGANISATIONAL VISION, MISSION AND OPERATIONAL PERFORMANCE

**Mr. Amol R. Nikam, Mr. Abhijeet S. Kale , Mr. Narendra S. Thorat ,
Mr. Akshay D.Narode, Mr. Sumit S. Sherkar**

ABSTRACT:

General implementation of SAP PP REM Cycle is done on SAP ERP software. We have taken sample product of company that is Finish, semi-finish, and raw material. We have assumed different aspects for REM cycle for storage location, plant location and vendors etc.

We use this sample product for performing SAP repetitive manufacturing process using ERP software. In order to reduce production time and improve productivity SAP ERP software is used. Once the product and process is finalized, its production will be done in mass quantities for REM cycle carried

Keywords: *SAP,ERP,REM cycle*

INTRODUCTION

Company manufactures product in large numbers and production is quantity based and period based not order based. Repetitive manufacturing is mainly used for the production scenario with high product stability, high repetition rates and low product complexity. In master data production version and cost collector is must where this is not mandatory in discrete manufacturing. Instead a total quantity is produced in a certain period at a certain rate. Products pass through production in a relatively steady flow.

1. Continuous & Mass production base manufacturing.
2. Quantity and period base manufacturing.
3. In repetitive manufacturing the same product is usually produced over a longer period of the time on one production line.
4. The product is not produced in lot

STEPS OF REM CYCLE

MM01: Material Master

1. ROH
2. SFG
3. FG CS01: Create BOM

CR01: Create Work Center CA21: Create Routing



MM02: Change Material (FG & SFG) MD61: Create Plan Independent Requirement MD02: MRP run MD04: Stock Requirement List KKF6n: Cost Collector

MFBF: Confirmation

The detailed sequence of T-Codes for REM including Std cost estimate.

Material master - MM01BOM - CS01

Price Planning - KP26 Work Center - CR01 Rate Routing - CA21

Material Master Change, enter production version - MM02 (MRP 4 View) Product Cost Collector - KKF6N

Costing - CK40N Back-flush – MFB

PROCESS OF REM

- FERT (finished products) finished products are produced by the company itself. Since they cannot be ordered by Purchasing, a material master record of this material type does not contain purchasing data.
- HALB (semi-finished products) Semi-finished products can be procured externally (sub-contracting) as well as manufactured in-house. They are then processed by the company. A material master record of this material type can contain both purchasing and work scheduling data.
- ROH (raw materials) Raw materials are always procured externally and then processed. Since raw materials cannot be sold, a material master record of this material type contains no sales data.

BENEFITS

1. To increase the company growth rate and Good business communication system.
2. To achieve high Return On Investment (ROI)
3. To improve business process and operations

2. LITERATURE REVIEW

The Jawad Akhtar has explained Production Planning and Control with SAP® ERP (2019). The Production Planning component in the SAP ERP system plays a critical role in the logistics functions of the company to accomplish this. This component enables the company to benefit from historical data to prepare a forecast, which can then be used in sales and production planning. From an initial sales plan or sales orders from customers, to the highly integrated and complex chain of interdependent activities in Logistics in the SAP system, the PP component reflects its strength, both in planning and execution. It seamlessly integrates with sales, procurement, quality, maintenance, projects, human capital, finance, and controlling functions of the company. Learn the step-by-step approach to configure and implement three different production types in PP: discrete, process, and repetitive manufacturing. The book will first lay the initial foundation in the form of configuration, and will then explain how the configuration impacts actual business processes. The configuration



to business process approach is maintained throughout the book.

Erik Hofmann and Marco Rush et al, 2017 have explained in the paper entitled "Industry 4.0 and the current status as well as future prospects on logistics" that, the goal of shedding light on the young and mostly undiscovered topic of Industry 4.0 in the context of logistics management, thus following a conceptual research approach. At first, a logistics-oriented Industry 4.0 application model as well as the core components of Industry 4.0 is presented. Different logistics scenarios illustrate potential implications in a practice-oriented manner and are discussed with industrial experts. The studies reveal opportunities in terms of decentralization, self-regulation and efficiency. Moreover, it becomes apparent that the concept of Industry 4.0 still lacks a clear understanding and is not fully established in practice yet. The investigations demonstrate potential Industry 4.0 implications in the context of Just-in-Time/Just-in Sequence and cross-company Kanban systems in a precise manner. Practitioners could use the described scenarios as a reference to foster their own Industry 4.0 initiatives, with respect to logistics management.

3.1. OBJECTIVE

1. To Create and revise of production quantities on a period and quantity base (reduction in individual lot and order-specific processing).
2. To reduce the production control effort and simpler back-flushing tools (with the option of using the full scope of the PP functionality).
3. To optimize production & operation, reduce cost and to increase the sale.

3.2. PURPOSE

1. SAP repetitive manufacturing cycle is used for production planning and control in a repetitive manufacturing environment
2. We can use repetitive manufacturing as either make to stock REM or make to order REM such as in the automotive industry

3.3. SCOPE

Application Areas:

1. Industry Type: Mechanical engineering, Consumer goods, electronics, and many more
2. Tact-based Flow manufacturing
3. Period based production Mass production

3.4. Methodology

ASAP mean accelerated SAP and it was released long time ago. To be honest I don't remember exactly when it

was released but it was long time ago. ASAP was the standard methodology used to deliver SAP application in implementation project until 2015. Its



4. MATERIAL MASTER

- MRP type

The MRP Type Key determines whether and how the material is planned. You have the open in browser PRO version Are you a developer? Try out the HTML to PDF API pdfcrowd.com The MRP Type Key determines whether and how the material is planned. You have the following options: PD – Relevant for Material Requirement Planning ND – No Planning in SAP VB - Manual reorder point planning (Consumption based planning) VM- Automatic reorder point planning (Consumption based planning) VV - Forecast based Planning X0 - External Planning i.e., APO or BAAN or I2 or MES or any other external planning system. MRP types can also be configured to the requirements, but most of the times, standard MRP types are used.

- Material Requirement Planning – MRP Type “PD”

The planning is carried out for the quantities planned through planned independent requirement or quantities planned through incoming sales orders (made-to-order or made-to-stock). The planning is done with respect to the master plan. • The planning process does not consider any forecast information or historical consumption patterns. Material planning is done only for absolute requirements/demands on hand. • The available stock is determined by the planning run (that is required to meet the demands) by including the following in an equation as shown below – = Plant stock (considered as receipt) + scheduled receipts from production and purchase – all the demands from sales order, material reservations and planned independent requirements. If the available stock does not satisfy the demand then procurement proposals are raised to cover the demands. Alternatively we can interpret it as – fulfillment of the incoming demands by all the receipts.

- Manual Reorder Point Planning – MRP Type VB

Consumption based planning is a type of planning which is triggered based on consumption of stock. It can be based on the past consumption history based on a forecasted value or it can be based on the current consumption levels.

The best example of consumption based planning can be Reorder Point Planning, where the planning for a



given material is triggered when the stocks fall below a

reorder point. On the other hand you can also have a forecast based planning where planning is carried out based on forecasted figures for the material (forecast based on historical data)

In the case of Manual Reorder Point Planning (MRP Type VB), when the Plant stock & firm receipts for a given material fall below reorder point, the planning for the material is triggered (a planning file entry is created). For this to happen, you would have to enter the Reorder level manually in MRP 1 view of the material master (as in the case of manual Reorder Point Planning) or the reorder point can be automatically calculated by the system (as in automatic Reorder point planning).

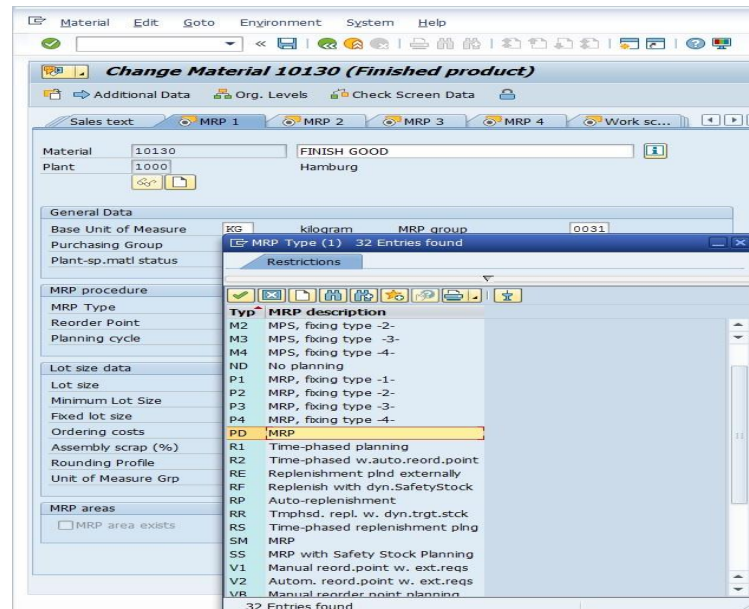
In the Reorder Point Planning, we usually maintain a “safety stock” (entered manually in MRP 1 View of the material master – though not mandatory) to use it as handy stock in the period when the order is placed with the vendor and the material is being transported to the plant – material is on its way to the plant or warehouse (this is called replenishment lead time). The Safety stock can also be calculated automatically by the system using the “Dynamic Safety Stock” concept. You should also maintain the replenishment lead time, as accurately as possible in the material master.

In Re-order point planning, the incoming demands are not considered as issues, in other words the incoming demand plays no role in planning or creation of procurement proposals. MRP waits for the cumulative of the “Stock + Firm receipts” to fall below the re-order point so as to trigger creation of a procurement proposal. The procurement proposal is created for a quantity equal to the Reorder point or equal to a fixed lot size maintained in the material master. If procurement open in browser PRO version are you a developer? Try out the HTML to PDF API pdfcrowd.com proposal already exists for the material with quantities greater than the proposed quantity (a manually created one), the system would not create a new one.

It is always recommended to use fixed lot sizing procedure so that every time the stock falls below the reorder point, the system can procure the fixed lot size, instead of using its own planning brains and ordering the quantity mentioned in the reorder point.

5. MASTER VIEWS

5.1. MRP 1 View The MRP 1 View is a place holder for defining the Planning methods and lot sizing procedures of a give material at a plant/storage location level. If you are going to have a particular material planned in SAP, then you can go ahead and create a MRP views (MRP 1, 2, 3, and



6. MASTER DATA

6.1. Bill of Materials (CS01)

- Definition**

Bill of Materials in any company is used for production or subcontracting activities. It gives you a list of components required to manufacture a product for a given base quantity.

It is normally created by the product development team and changed over the product lifecycle by the same team.

Uses - A Bill of Material contains the list of components/subassemblies required in desired quantities to produce a certain base quantity of the header material

- Creating a Bill of Material**

To create a Bill of material (SAP BOM), you need to enter the following:

Enter the following on the selection screen –

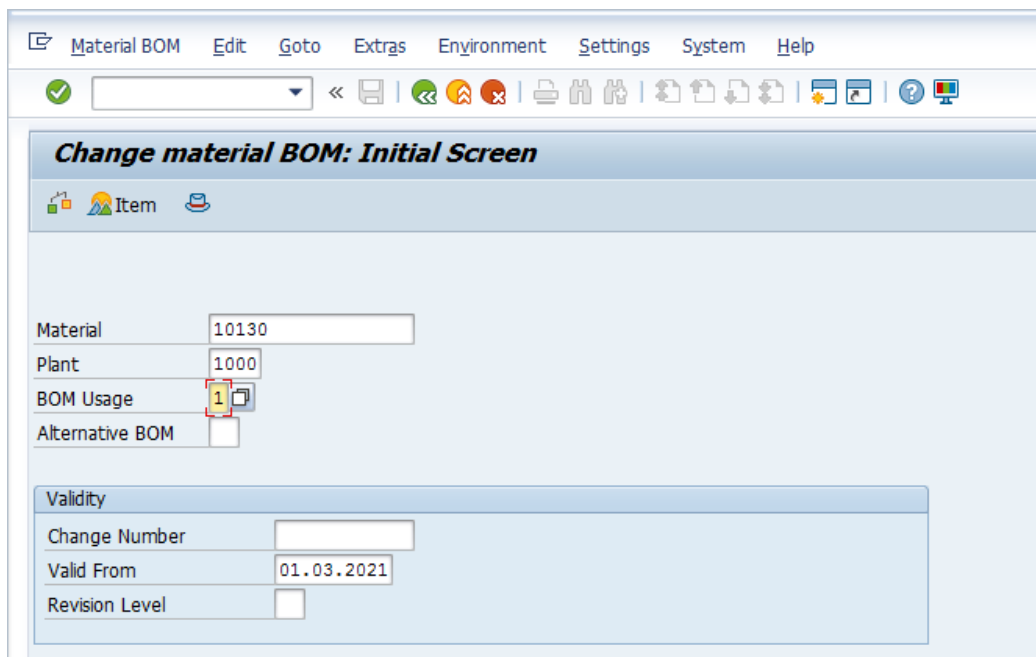


Figure.6.1.1: Bill of Material

- Material

Enter the material number for which you are creating the Bill of materials.

- Plant

Enter the plant; if you are creating plant specific Bill of Materials.

- Validity Dates

When you are creating a Bill of Material, you have to “Valid from date” as today’s date or the BOM creation date. It is always wise to enter the “Valid from date” which is before or equal to the Work center validity date, the cost center validity date and the production version validity date.

- BOM Usage

Enter the BOM usage, which would specify the ultimate use of the BOM, i.e., a BOM whose usage is production can only be used in production or SAP PP, a BOM whose usage is Sales and Distribution can be used only for explosion in SAP SD (for example

- variant configuration purposes and a Maintenance BOM would be used for Maintenance orders and a costing BOM will be used of costing purposes only to evaluate the product cost.

Therefore we can say that a BOM usage decides the end use of the BOM.

A BOM with a “Universal Usage” can be used for Production, Sales, costing, maintenance.

Usage	Description
1	Production
2	Engineering/Design
3	Universal
4	Plant Maintenance
5	Sales and Distribution
6	Costing
7	Empties

7 DETAILED REM CYCLE

Repetitive Manufacturing is a process by which material can be replenished as per the requirement the

Repetitive Manufacturing is a

Following procedure shows the REM cycle

Task 1:

First, get an overview of the menu structure for the Repetitive Manufacturing functions.

1. The Repetitive manufacturing menu is in the production folder *SAP Menu* → *Logistics* → *Production* → *Repetitive Manufacturing* The main master data is also available in production folder: SAP Menu → Logistics → Production → Master Data

2. The following transaction takes you to customizing for Repetitive manufacturing
SAP Menu → Tools → Customizing → IMG → Execute Project Transaction code: SPRO

SAP Reference IMG → Production → Repetitive Manufacturing

3. List the Logistic master data used for Repetitive Manufacturing.

Logistic master data: Data is created initially from the selected parameters of the product

- Material Master: FG material – SFG material - ROH material -or RAW Material (ROH)
- BOM: the BOM contain list of required components for the product in the BOM of the FG material contains SFG material and the BOM of the SFG material contains the ROH material because the FG id dependent on the SFG and SFG dependent on the ROH.
- Fig. shows the BOM of the FG material



9. CONCLUSION

As per our work we have performed the various scenarios and their effect on replenishment of stock and transfer of the stock. We conclude that the conventional REM system is not suitable for the big industry and the lot of difficulty has been founded. SAP Repetitive Manufacturing (REM) is one of the types of manufacturing processes supported by SAP. For each industry, there is a manufacturing process that is more suitable than the other factors such as production rates, consumer demands and product complexity have an influence when selecting the manufacturing process.

Repetitive Manufacturing is most suitable for manufacturing scenarios which involve period-based production and where the product produced remain unchanged over a longer period. There is a steady flow through production and semi-finished products are often directly processed without interim storage. The components are staged at lines periodically and anonymously. There is reduced control effort and a period-based cost controlling. A raw material for production is consumed and product delivered, there is lesser time wastage. The key features of SAP Repetitive Manufacturing that we have studied like Master Data in REM and the REM process along with REM cycle that proven to be more effective than conventional Repetitive Manufacturing process.

So instead of using conventional REM system has to replace by the REM by Using SAP system so that to reduce manual card handling and order-entry activities. It clarifies communication with suppliers. Enables real-time visibility of demand signals. Speed analysis of supplier performance. Allows efficient analysis and adjustment of REM. Using the RFID or scanner and barcode system interfacing with SAP ERP so the existing REM is performed and the stock transfer is easy and flexible in industry and replenishment is only triggered when a material is actually required.

REFERENCES:

- [1] Jawad Akhtar, "Production Planning and Control with SAP ERP"
- [2] Erik Hofmann, Marco Rusch, "Industry 4.0 and the current status as well as future prospects on logistics", Computers in Industry, 22 April 2017, Vol No. 89, pp. 23-34,
- [3] SAP AG, "TSCM42 Planning & Manufacturing II", SAP AG, Vol.No.2, 2011, pp.570-615 and pp.628-639.
- [4] <https://help.sap.com/viewer/4d35e322f79d4744abeda0b9caaab5a4/6.06.19/en-US/2f6ab6531de6b64ce1000000a174cb4.html>
- [5] <https://help.sap.com/viewer/48b24fbadbee4e0b9dae0e2b72762e68/1809.002/en-US>