



## Part II:

### ERP into detail – Processes and modules

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#### ERP Into Detail – Different Processes across the system

- Procurement Cycle
- Material Planning
- Manufacturing
- Inventory & Warehouse Management
- Sales Order Management
- Enterprise Asset Management & Customer Service
- Program & Project Management
- Human Capital Management
- Financial Accounting
- Management Accounting

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## How to model? BPMN: the basics for the process



### Events

- Something that happens. A start and an end.
- Always min. 1 start and 1 end needed.



### Activities/task

- Something that needs to be done.
- Either by a person or a machine.
- At least 1 needed.



### Gateway

- Split or merge
- Not necessary, but common



### Connectors

- Sequence flow, provide direction

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## How to model? BPMN: the basics for the data



### Data

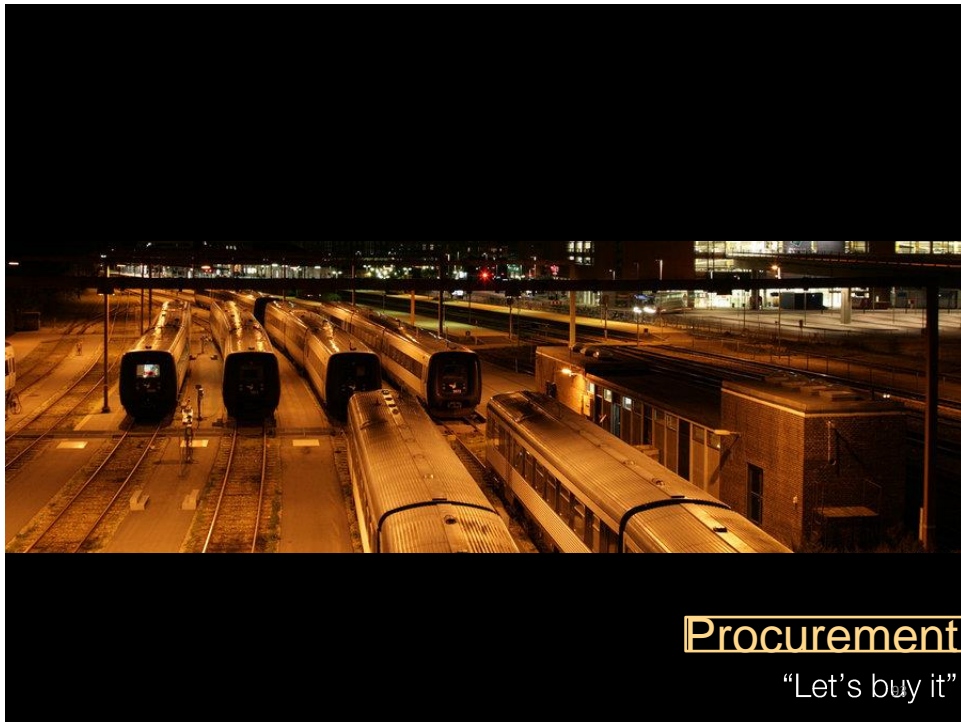
- To show what data is sent or moves through the process
- Example: an order
- Example: Form 24.7C bis



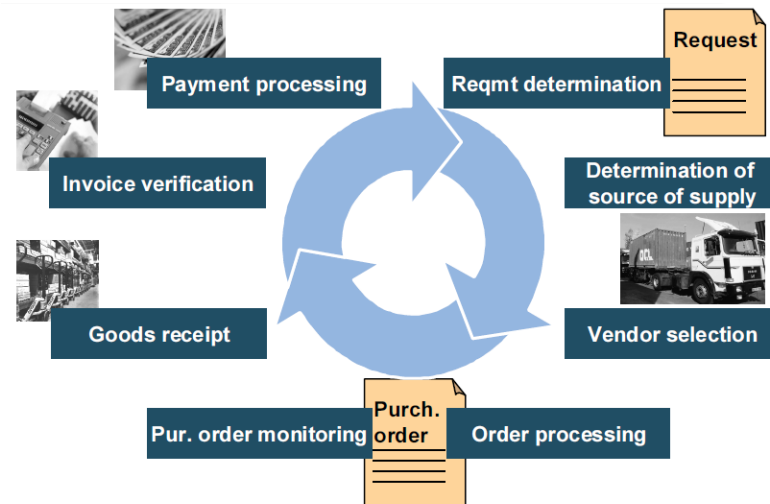
### Association

- To connect to artifacts or data objects
- Has no impact on the flow, just informational

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## Procurement – General Process



Source: SAP

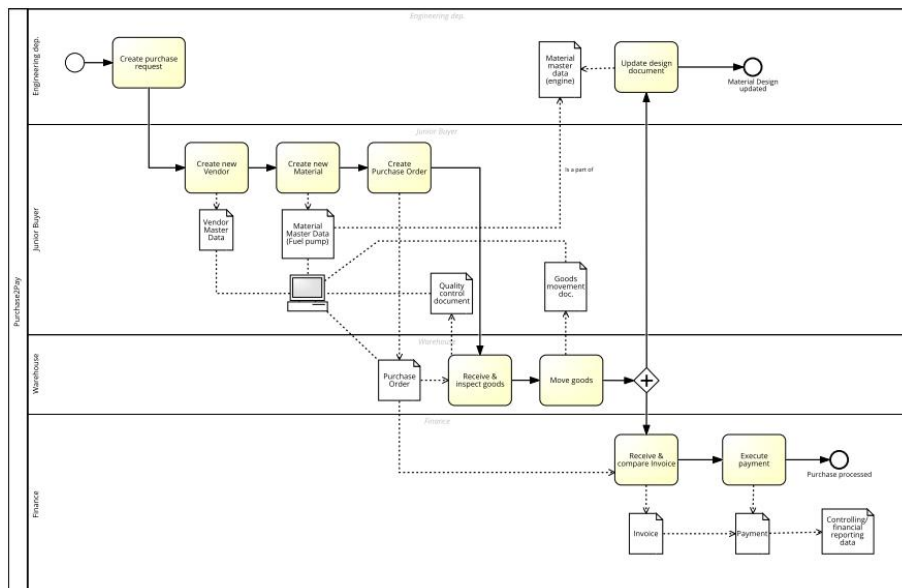
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## Procurement – Business Scenario



The product development department of your car manufacturing company has redesigned the 2liter diesel engine to include a new type of fuel pump. As a result of this, a new vendor needs to be created in the system and a new material as well. The engineering department has informed you that they will need to order a small amount of these fuel pumps, so that they can complete the new design documents of the engine. Since you are the buyer of the company, you will have to create a purchase order. Also, because this is the first time you buy a product from this vendor, you'll have to inspect the quality of the product. Once the product is inspected and the quality is acceptable, you will allow the stock to be used. The invoice will have to be matched against the delivery receipt and a payment will have to be made.

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## Procurement – Business Scenario



Master Data?

- \*Vendor
- \*Materials
- \*Financial Data (e.g. accounts)

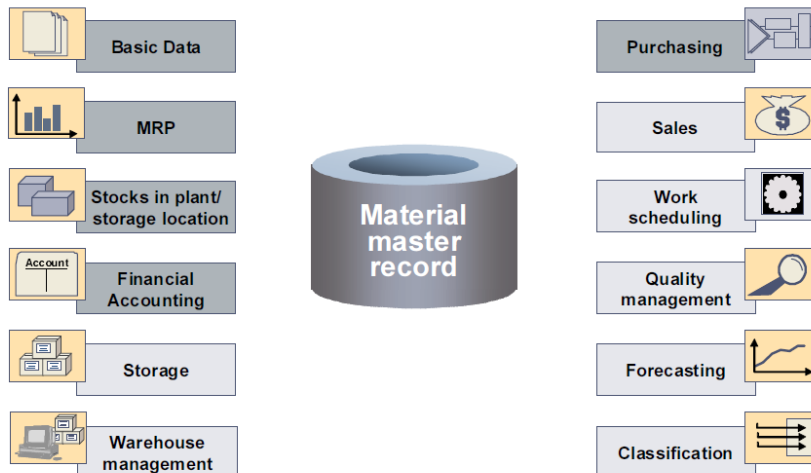
Transactional Data?

- \*Purchase request (not in model)
- \*Purchase Order
- \*Quality control doc.
- \*Good movement doc
- \*Invoice
- \*Payment
- \*Cost accounting data (duplication of financial costs)

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## Procurement : Material Master Data

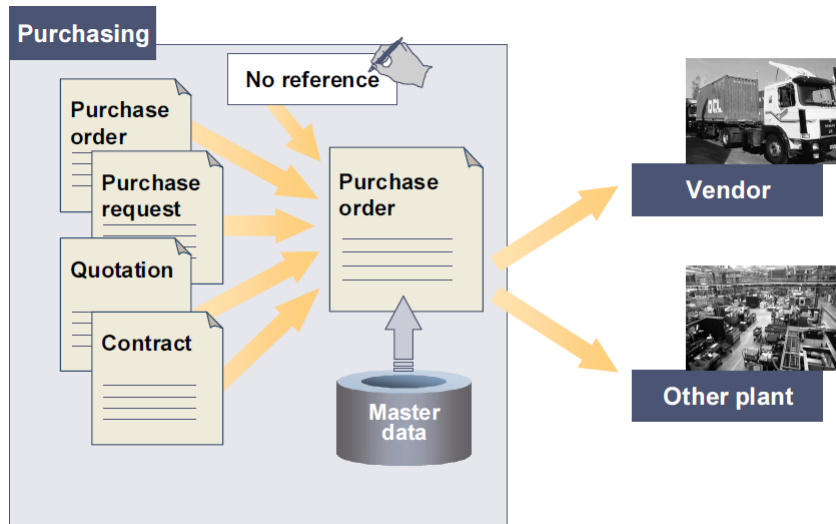
What different segments are relevant for Materials?



Source: SAP

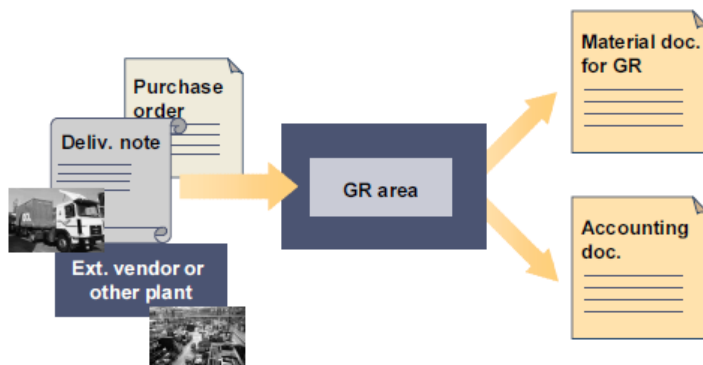
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## Procurement – The Purchase Order



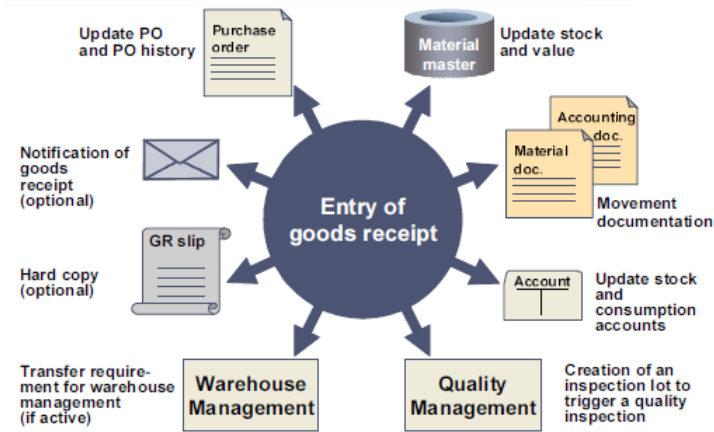
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## Procurement – The goods receipt



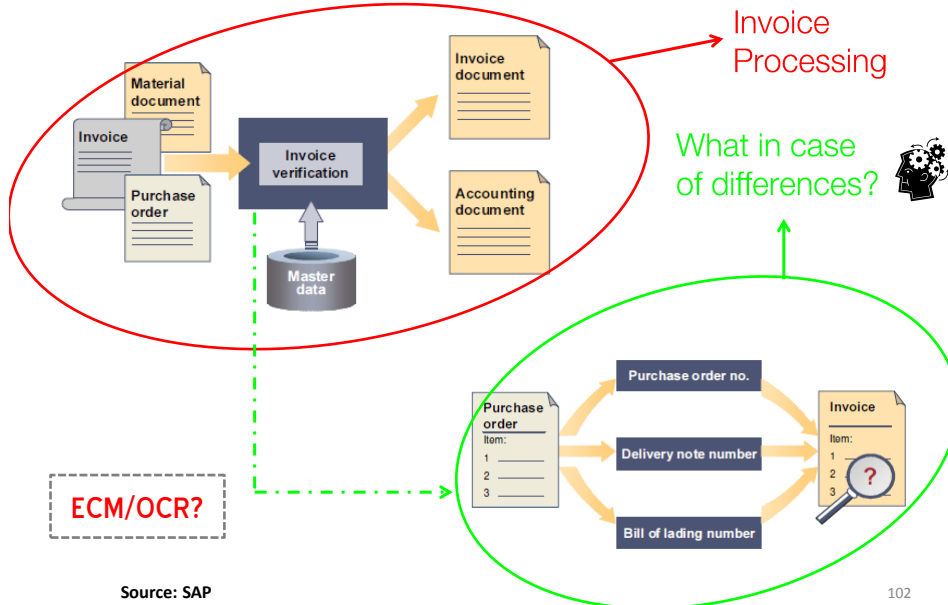
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## Procurement – The goods receipt - Impact



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## Procurement – Receiving the invoice



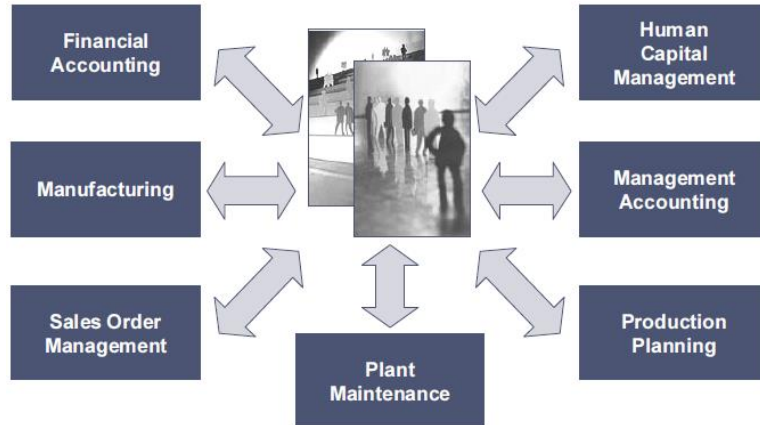
Source: SAP

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## Procurement –Integration overview



How is it integrated with other modules?

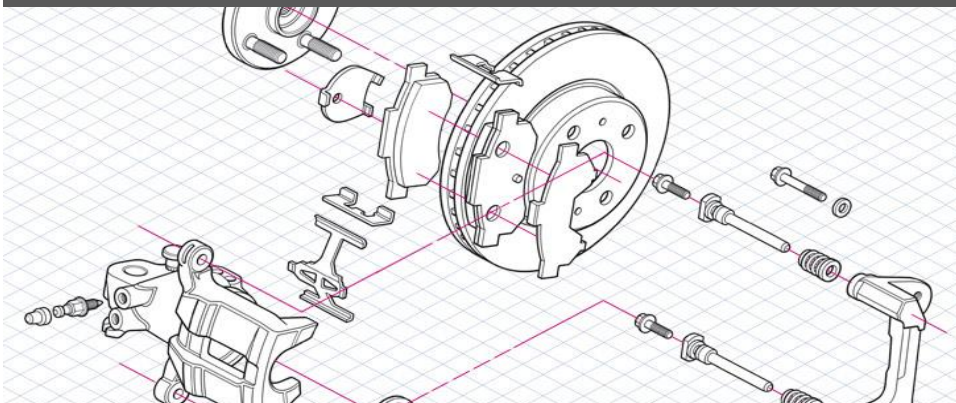


Source: SAP

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## Material Planning

"Let's schedule it"



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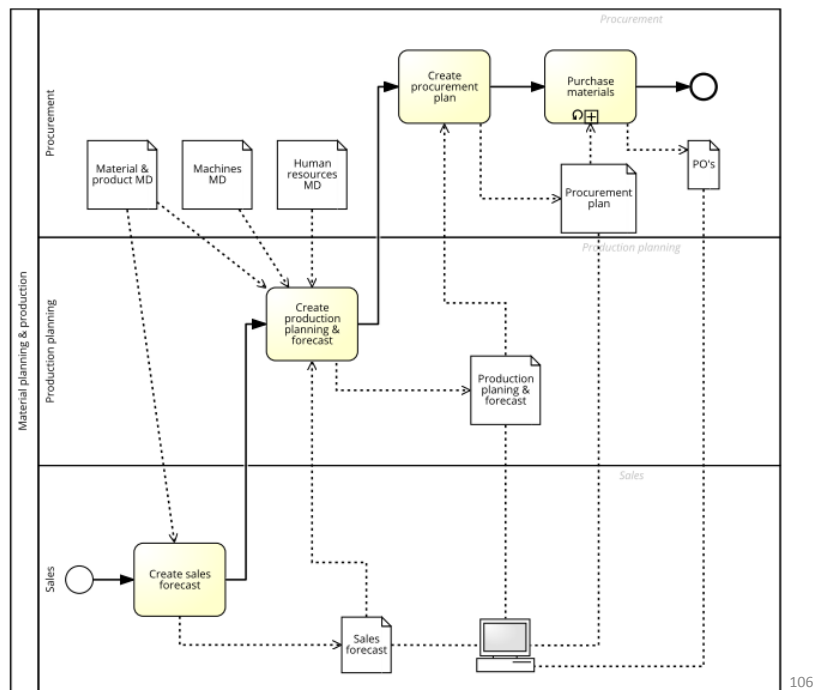


## Material Planning – Business Scenario



Now the engine has been redesigned, this will be launched by the marketing department with a big campaign (out of scope for this process). The sales division has created a sales forecast, which contains a number of cars to be produced, containing the new engine. Based on this, you can now start planning the production of the engines and the procurement plan for the new fuel pumps.

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## Material planning – DATA



Master Data?

- \*Materials
- \*Machines (How many, when available, throughput?)
- \*Human resources (Who is available, who can do what?)

Transactional Data?

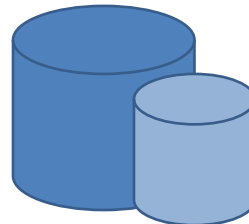
- \*Sales forecast (# of finished products)
- \*Production planning & forecast (What & when to produce, what is needed for that)
- \*Procurement plan (What should be bought when)
- \*PO's (To actually order everything)

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## Material Planning – Master Data

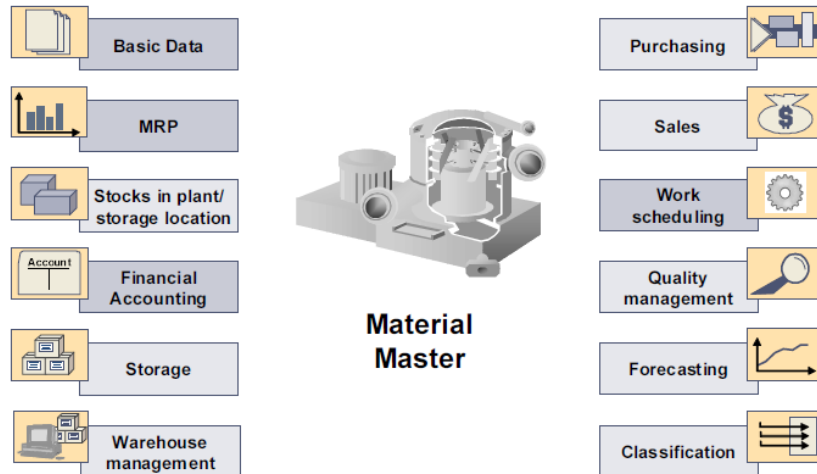
Master Data used by Material Planning includes:

- Material Master
- Bill of Material (BOM)
- Routings



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## Material Planning – Master Data - Segments



Source: SAP

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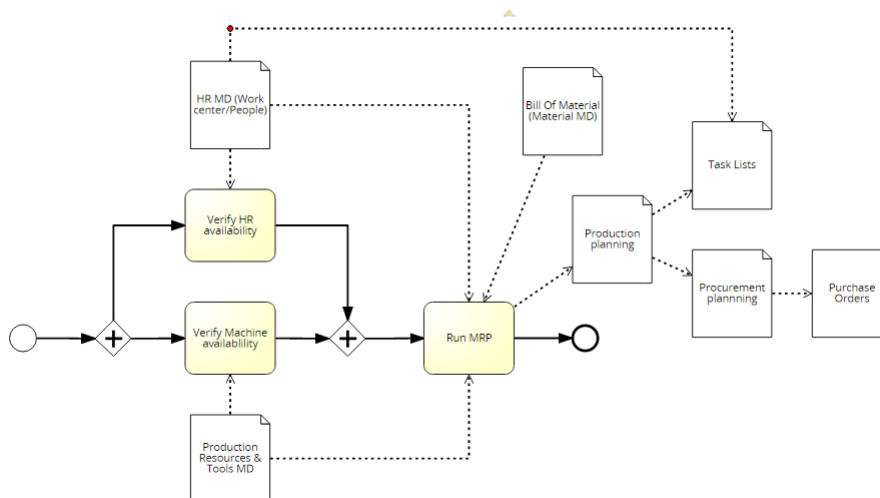
## Manufacturing Execution – Business Scenario



Since the Bill Of Material and the work schedules to include the new fuel pump were updated , you will have to rerun the MRP (= make sure your planning is updated with the new parameters). However, before you can do this, you'll have to check if your workers are trained to fit this kind of pump and if you have the necessary equipment (let's assume we do and we only need to verify). The result of the MRP run will be an actual schedule to produce the pumps in the form of work orders.

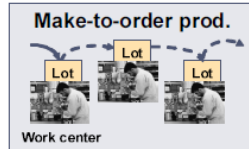
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## Manufacturing Execution – Business Scenario

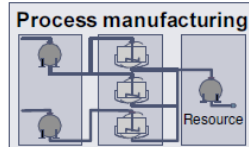


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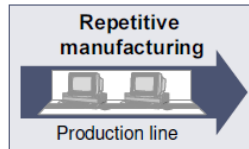
## Manufacturing Execution – Types (1)



- Order-controlled production with production order



- Order-controlled production with process order

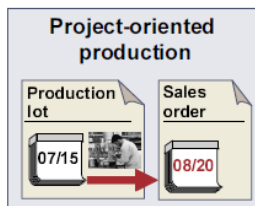


- Period and quantity-oriented production
- Not order-related

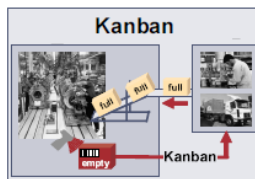
Source: SAP

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## Manufacturing Execution – Types (2)



- Project-oriented production with production lots


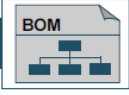

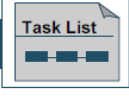



- Replenishment-controlled using stock transfer, external procurement, in-house production via self-controlled control cycle

Source: SAP

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## Manufacturing Execution – Master Data

Material		Master data for material (product and components)
BOM		Material or order BOM
Work Center/Resource		Master data for work center/resource (standard value key, available capacity, formulas, activity types)
Task Lists		Operations, standard values, control key, trigger points
PRTs		Master data for PRT (material, equipment, document, misc.)

Source: SAP

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