CASE STUDY: purchase of parts in a manufacturing company

1. Production asks Warehouse for raw materials

2. Warehouse has not the RM and forwards a request to the Purchase office

3. Purchase office negotiates with the chosen supplier, price, quantity, and delivery; issues the order and sends a copy to the accounting department

4. The Supplier delivers the materials to the warehouse together with the relative delivery note

5. Warehouse checks the received materials and sends a report to Quality Assurance concerning the compliance with the order specifications.

6. Warehouse returns possibly defective goods (RM) to Supplier

7. Accounting receives copies of the delivery notes and the amount of returned materials

8. Supplier sends invoice to Accounting

9. Accounting checks the invoice (compare with ordered and delivery note) and ask Finance to proceed with payment.

10. Finance execute payment to supplier

11. The warehouse sends the materials to Production that can start operations

12. Manager checks..

Organizational units (1)

- **Production**: requires the raw materials needed for the production plans from the warehouse
- **Warehouse**: when the raw material is not available, first make a request to the purchase office; once the order has been received checks the quality, conformance to request, and stores it.
- **Purchase office**: in charge of negotiating price, quantity, and delivery time with different suppliers
- **Supplier**: the one chosen to fulfill the order, must deliver the raw materials to the warehouse, and possibly get back the portion not complying with the specifications

Organizational units (2)

- **Quality assurance**: monitors the efficiency and quality of suppliers by producing statistics for the management
- **Accounting**: check the orders, receive the delivery receipt from the warehouse, ask the finance department to execute the payment of the supplier invoice, records all transactions
- **Finance department**: fiscally performs the payment to the supplier and then informs the accounting
- **Manager**: is a role external to the individual business process that supervises the good working of the enterprise system and controls the economical efficiency. Needs information to take decisions. This is the structure - people dimension

Flow (items + information)
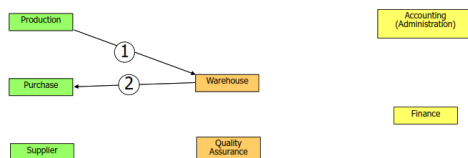
1. Production asks Warehouse for raw materials
2. Warehouse has not the RM and forwards a request to the Purchase office

This is the process dimension

Full Case description: see slides 01Definitions.pdf, 54 to 64

Organizational model

Manufacturing Company

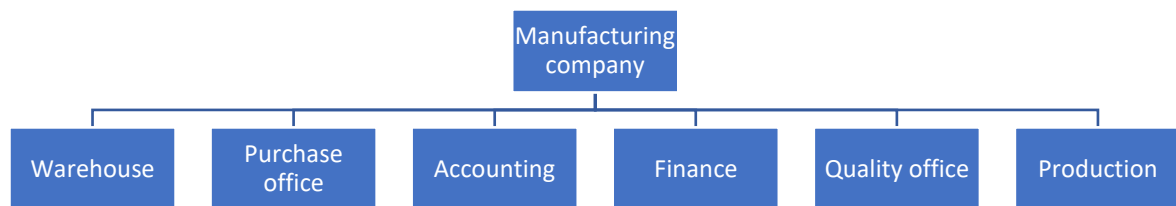   Warehouse

      Purchase office

      Accounting

      Finance

      Quality office

      Production

Supplier

```
                          Manufacturing
                            company
    ┌──────────┬──────────┬──────────┬──────────┬──────────┐
 Warehouse  Purchase   Accounting  Finance  Quality office  Production
              office
```

Process model

TEXT

Receive RM request

Receive RM from supplier

Purchase RM from supplier

Monitor RM status / decide repurchase

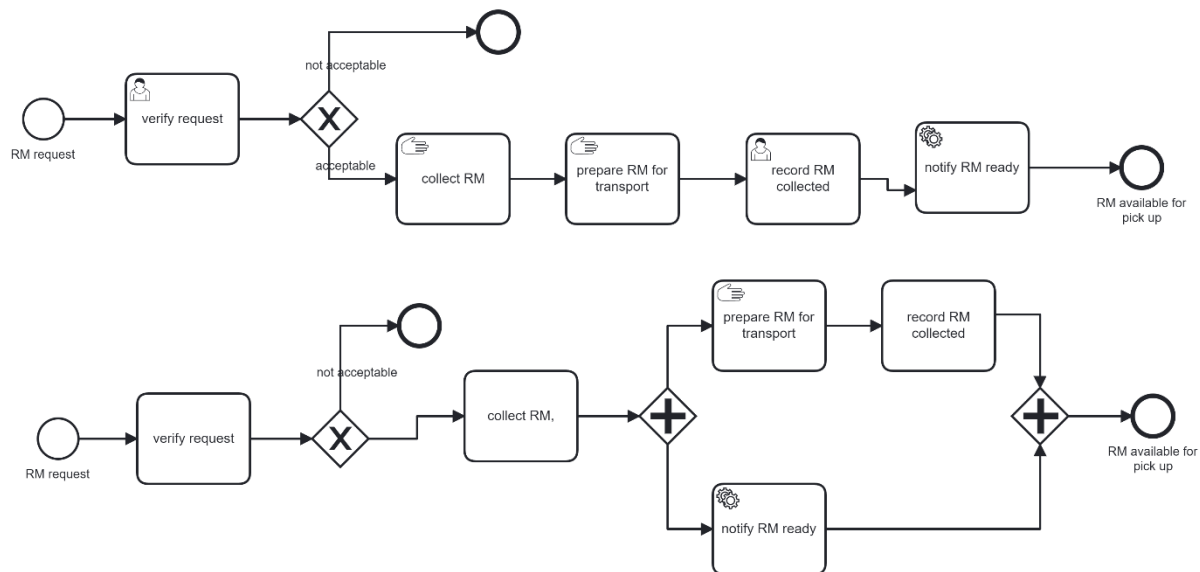Select supplier

Processes

TABLE Version

Process name	Input	Output	description	Organizational unit involved
Receive RM request	RM request	RM available for pick up	Analyze request, collect RM in warehouse, prepare for transport, record pick up, notify RM ready to entity who requested it	Warehouse
Purchase RM from supplier (certain RM is associated to certain supplier)	RM repurchase decision	RM delivered by supplier	Find supplier for RM, notify accounting, send order to supplier, record RM delivered	Supplier, accounting
Select supplier	Select supplier decision for RM	Supplier for RM is defined, contract with supplier is signed	For a given RM find all possible suppliers, contact them asking offers, select the supplier that provides best	Purchase office (legal office)

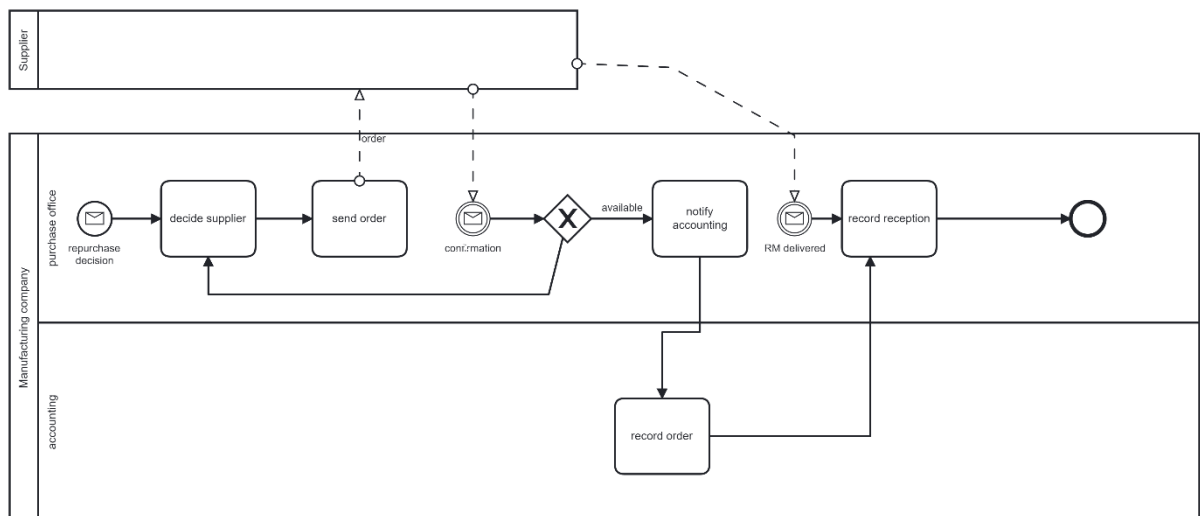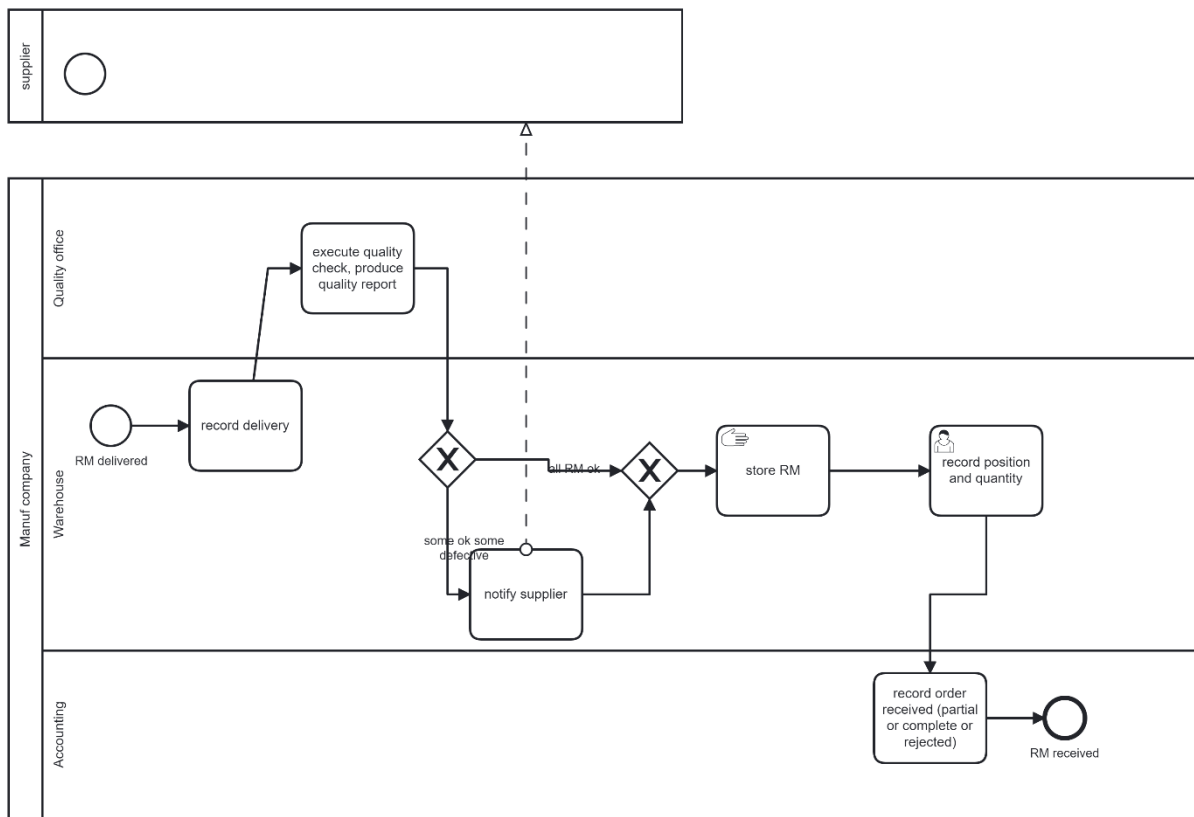|			conditions, sign deal with supplier	
RM Quality check and storage	RM delivered	RM accepted and stored in warehouse, or RM rejected	Start quality check, if positive store RM in warehouse, record position and quantity of RM, notify accounting , produce quality report , If negative reject material, notify supplier, notify accounting	Quality office, warehouse
Process invoice	Invoice received by supplier	Invoice paid	Find the order corresponding to the invoice, verify correct (order received, all RM accepted), pay invoice	Accounting finance
Delivery	RM available for pick up	RM delivered	Transport from warehouse to production, record transport	Warehouse, production

BPMN

Receive RM Request

(two possible options, without pools and lanes)

verify request — not acceptable — acceptable — **collect RM** — **prepare RM for transport** — **record RM collected** — **notify RM ready** — RM available for pick up

RM request

verify request — not acceptable — **collect RM,** — **prepare RM for transport** — **record RM collected** — **notify RM ready** — RM available for pick up

RM request

Purchase RM

Supplier

Manufacturing company

purchase office: **decide supplier** — **send order** — confirmation — available — **notify accounting** — RM delivered — **record reception**

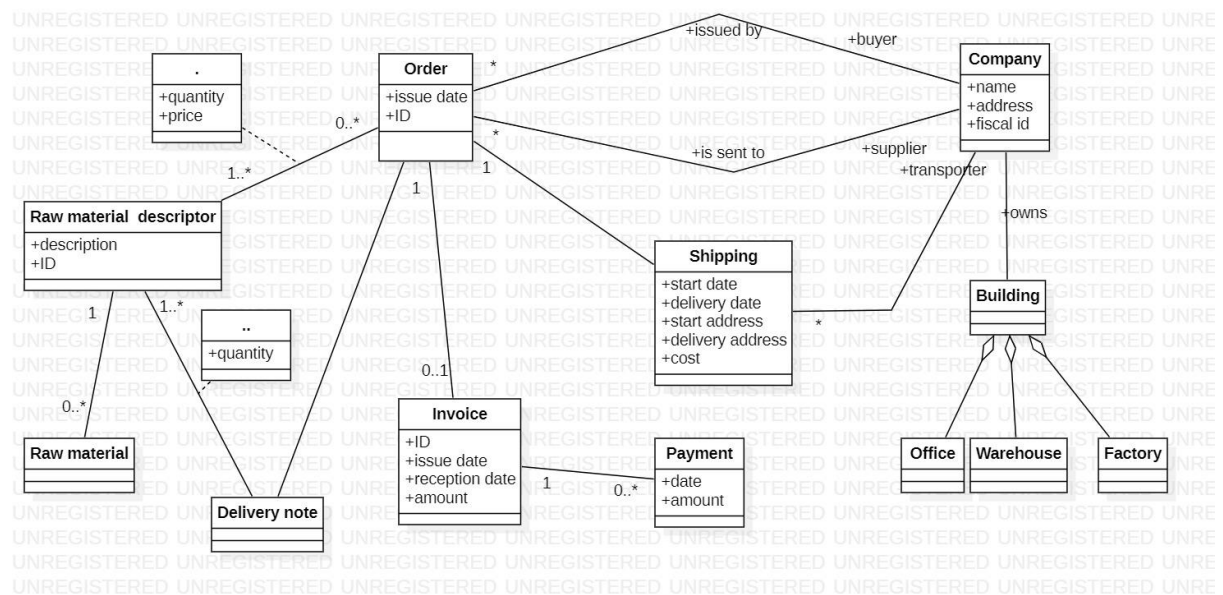repurchase decision — order

accounting: **record order**

RM Quality check

Conceptual model

Order is the core concept, all others come around it.

(Building is not really relevant, was made as an example of aggregation)

Additional problem: The same raw material typically has two IDS: one for the buyer, one for the supplier. The model above has only one ID for Raw material descriptor